National Wildlife Federation®
CAMPUS ecology®

Butte College

Oroville, California

Energy

SCHOOL

Butte-Glenn Community College District, 2-year community college offering AA, AS degrees and transfer opportunities, 22,000 students annually, Oroville, California

ABSTRACT

Butte College is the first college in the world to have the capability of producing more electricity from solar power than it uses. The journey to become grid positive, began in 2004 when the leadership at the college investigated how generating clean renewable solar power could not only save the college money but be a perfect fit for their sustainability goals.

The college's solar arrays were developed in three phases beginning in 2005, another phase in 2008, and our third phase in 2011. In all, the college has a total of 25,000 solar panels and the capacity to generate up to 4.55 MW DC of clean renewable solar energy or 6.381 million kW hours annually. The college's arrays will keep more than 6.9 million pounds of carbon dioxide and between 20 to 27 thousand pounds of nitrogen and sulfur dioxide from being pumped into the air every year. There is little doubt Butte college's solar arrays will continue to be a source of not only clean renewable energy but also of revenue and pride for the college for decades to come.

The Butte College mission statement, core values, and strategic plan all reflect the college's commitment to sustainability. The college has taken a very inclusive, broad-based, and integrated approach in sustainability. To date, the college has developed sustainability related career and technical education programs, infused sustainability into existing curriculum, developed a sustainability studies certificate program, conducted numerous student-driven green events and activities, gained LEED gold certification on two campus buildings, developed a number of sustainability-related workforce development activities, operates the largest bus transportation system in California, and led the nation as a leader in becoming the first grid positive campus. The board of trustees has adopted a board policy on energy and sustainability, and together with students, faculty, and staff—everyone is fully supportive of this effort.

GOALS AND OUTCOMES

Goals

With 25,000 solar arrays on our main campus and Chico Center, the college has the capability to be grid positive—generating more solar energy than we consume. The college is working with Pacific Gas and Electric to test the last part of our solar system to connect to the grid. Our goal is to produce 102 % solar

energy with 2 percent going back to the grid. The college will produce 4.55 MW DC of clean renewable solar energy or 6.381 million kW hours annually.

Accomplishments and Outcomes
Butte College is the first community college in the country to become "grid positive"—producing more clean electricity from sustainable on-site solar than it uses. The college owns its own solar arrays and is in the process of paying off the solar array bonds and loans.

Challenges and Responses
But there were many challenges. How to pay for a project of this size during a weak economy was as great a challenge as the design and construction. The college had to develop a novel financial solution that was comprised of existing funds, bonds, rebates and commercial loans; find key partners who could bring together the necessary design, technology and construction, and; weave sustainability goals and student participation throughout the project.

Campus Climate Action: Your School's Carbon Footprint
Butte College is continuing our work to achieve carbon neutrality by 2015.

ENGAGEMENT AND SUPPORT
Leaders and Supporters
There were five catalysts in this effort and that included: 1) A college tradition of self-reliance; 2) Visionary leadership by the college's Board of Trustees; 3) The American Democracy Project which fosters partnerships between universities and community colleges; 4) Hard work by sustainability champions including faculty, managers, classified staff, and students which established a sustainability steering committee; and 5) Leadership, advocacy, and support by the President.

Funding and Resources
Our solar project was broken into three phases. Phase I was funded by rebates (50%) and by leased revenue bonds issued through the Community College League. Our second solar phase was funded by a combination of rebates and bank financing. The third solar phase was funded through rebates, bank financing, and reserves from the college. The college owns the system. We will pay back the bonds and loans from the money we were using to buy electricity. The concept for funding the solar project was to use rebates and savings from the electricity accounts to pay for the cost of the solar projects. In order to get the best interest rate the college issued lease revenue bonds for Solar Phase 1, used bank financing for Solar Phase 2, and used a combination of federal Clean Renewable Energy Bonds (CREBS) and district reserves funding for Solar Phase 3. *CREBS were created under the Stimulus and are a subsidy program that helps buy-down the interest rate and makes these projects more cost effective.*
Largely because the college is able to avoid the cost of future increases in electricity rates, the overall district savings are anticipated to be $130 million over 30 years. Total cost of the college's systems: $33.8 million less the $6.5 million in rebates for a total net cost of $27.3 million.

Education and Community Outreach
Butte College has earned statewide and national publicity for its efforts to generate clean electricity and become the first college in the nation to produce more solar energy than it uses. The college offers a

certificate program in sustainability studies and developed sustainability related career and technical education programs. The college also has infused sustainability into existing curriculum and works closely with the Associated Students to run its "Sustainability Resource Center" on the main campus which is staffed by students. Additionally, there are a number of student-led green events and activities that take place year round. We've partnered with Bank of America, a lender of the CREBS loans, to promote our efforts nationally through free advertising. Our public relations office has distributed news releases about our solar efforts and thousands of news and video clips have been received.

CONTACT INFORMATION

Contacts

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MORE ABOUT YOUR SCHOOL

Campus Sustainability History

Butte College has been a leader in sustainability earning the NWF's Chill Out Contest in 2008, the American Association for the Advancement of Sustainability in Higher Education (AASHE) Campus Leadership Award in 2009, and the EPA Green Power Partnership Award in 2009. Butte College is located on 928 acres in Northern California, just 75 miles north of Sacramento, CA. From 2002-2006, our electricity and natural gas consumption was reduced by 33 percent. The college operates the largest bus transportation system in California, keeping over 1,600 cars off the roadways. The college has a robust campus-wide recycling program—diverting over 75% of our waste stream from landfills. We compost food waste and grow organic vegetables which are often sold on campus. Goats are used for riparian restoration rather than using pesticides. The college is designated as a wildlife refuge and operates as a self-contained city. Butte College has its own water system, maintains its own sewage treatment facilities, and its own bus transportation system. www.butte.edu

Image credit: Butte College