

ENERGY EFFICIENCY PARTNERSHIP PROGRAM BEST PRACTICE AWARDS APPLICATION FORM

Submission Deadline: March 20, 2015, 6:00 p.m., no exceptions

2015 CA Higher Education Sustainability Conference - hosted by San Francisco State University

This form is only for nominations in the **Sustainability Innovations** category

This award category was created to recognize sustainability projects that do not fit into any of the other award categories. Projects applying in this category should be replicable best practices that do not meet the criteria of the other awards categories. Examples include renewable energy generation and environmentally preferable purchasing.

I. Contact Information

1. Campus **Cal Poly State University, San Luis Obispo**
2. Contact name/title **Dennis Elliot, Associate Director of Energy, Utilities, and Sustainability**
3. Telephone **(805) 756-2090**
4. Email **delliot@calpoly.edu**

II. Project Information (a student group may submit a single nomination for up to three discrete projects)

1. Project **Creative Energy Project Finance**
2. Location: **Cal Poly State University, San Luis Obispo**
3. Implementation period: **2015**
4. Brief narrative description of project goals and strategies (200-300 words) **Between 2008 and 2010, Cal Poly worked with Chevron Energy Solution to perform a campus wide Investment Grade Audit of energy and water conservation opportunities. Upon completion of that audit, Cal Poly contracted with Chevron to construct approximately \$7,000,000 in conservation measures. These projects were funded out of state utility reserves, and the reserves of University Housing, ASI, and the Cal Poly Corporation. Due to the subsequent lack of funding from the CSU capital program caused by the state's economic downturn, the campus' next major energy conservation project would need to find an alternative source of funding. This is being achieved through use of PG&E's On Bill Finance program, and a low interest loan from the California Energy Commission.**

Cal Poly entered into an agreement with PG&E to use their SST (Sustainable Solutions Turnkey) program for project development, finance, and delivery. PG&E is acting as the general contractor under a standard CSU design-build agreement, and is using AECOM as the primary designer and project/construction management firm. Local and campus preferred subcontractors are being used for delivery of the electrical, mechanical, and controls work.

The project scope of work (see attachments "Scope of Work" and "ECM Summary") includes interior and exterior lighting retrofit and lighting controls in various buildings including numerous LED conversions, retrofit of all remaining constant-volume building chilled water systems to variable flow to optimize

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chiller plant and TES operation, improved sequences of operation for the central plant cooling towers, upgraded boiler controls for variable speed draft fans and O₂/CO trim, installation of high efficiency transformers, and installation of Cypress BACNet integrated wireless pneumatic thermostats.

The project scope, delivery method, and finance were designed to achieve savings that advanced the campus toward the new CSU Sustainability Policy energy goals, and met the terms of the loan programs with minimal use of campus capital.

5. Project budget \$4,000,000

Describe your project's funding model This project is being financed by a \$1,000,000 On Bill Finance (OBF) loan from PG&E, and a \$3,000,000 low interest loan from the California Energy Commission under the ECAA (Energy Conservation Assistance Act) program. The two loan programs are very different, and the project cash flow (see attachment "Cash Flow") was designed to ensure maximum use of loan funds, while minimizing the cost of funds to campus.

The PG&E OBF loan is interest free with a maximum term of 10 years, repaid by a line item on the campus' monthly utility bill. With On Bill Finance, a customer will essentially pay the same utility bills as before the project was implemented until the loan is fully repaid, then the utility bills will drop by the amount of the payment. OBF loans are funded in arrears after project completion, inspection, and acceptance of M&V results by the utility – similar to the payment of partnership program incentives – so that the customer must lay out the capital for project implementation and await reimbursement after closeout.

The CEC loan is 1% interest, has a maximum term of 13 years, with biannual repayment installments that do not start until 12 to 18 months after project completion. The CEC loan can be drawn on in the form of monthly progress payments as soon as contractor invoices are received and paid by the university. Interest begins accruing on CEC funds as soon as they are drawn.

To make the most strategic use of these funds, the project cash flow makes use of the CEC funds first, and seeks to immediately invoice the CEC for monthly loan draws as soon as each contractor invoice is received and paid. This continues until the full \$3,000,000 has been drawn – the maximum amount available from the CEC program – at this point the project will be 75% complete. The campus then carries the monthly invoices for the last 25% of the project – reaching a balance of \$1,000,000 when the final invoice is paid – until closeout and receipt of OBF funds from PG&E.

With a maximum of 45 days for the CEC to issue each loan disbursement after receipt of an invoice from the campus, the campus will only have to carry the expense of two consecutive months of project

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invoices at a time, until receipt of the next CEC loan draw. At the peak of project delivery, this amounts to about \$1,600,000 in expense that the University must carry out of reserves until the loan draws are received, but this expense is only carried for a month at a time. This has significantly less impact on campus financial reserves than paying for the project completely out of pocket, and not recovering the expense until the end of the payback period.

The actual term of each loan is determined by the lender (PG&E or CEC) based on the approved savings the project delivers. If the proposed measures have a simple payback of 7 years, the loan terms are set at 7 years. Again, OBF allows a maximum term of 10 years and the CEC 13 years. For this project, the scope and incentive applications were split so that the funds from each loan program and their associated terms could be aligned to a specific project scope of work and approved savings. Finally, Partnership Program incentives were reserved based on the same approved savings. Fortunately, the campus was able to get this project submitted and incentive reservations approved under the 2008 Title 24 baseline.

A campus could elect to start another energy project utilizing these loan programs while still in the process of paying back existing loans from a previous project, but will be limited to a maximum of \$1,000,000 of OBF funds and \$3,000,000 of CEC funds being outstanding at any given time.

6. What are the estimated or measured sustainability impacts (e.g., metric tons of greenhouse gas reduced, acres of open space preserved, quantities of renewable energy generated, etc.)? *Please describe your calculation methods and assumptions.* This project will save 2.5 million kWh per year, 47,000 therms of natural gas, and reduce the campus' GHG emissions by 1160 metric tons per year – approximately 2.6% of the campus' total Scope I and II emissions. These figures are based on the engineering study performed by AECOM during scope development, and reviewed and approved by PG&E and the CEC.
7. What are the estimated annual cost savings? *Please state assumptions used for these calculations.* This project will result in \$282,000 per year in utility savings for electricity, natural gas, and water, and \$21,000 per year in maintenance savings, primarily due to the use of long life LED lighting. The project also qualifies for \$437,000 in utility incentives. These figures are based on utility costs of \$0.10/kWh and \$0.593/therm.
8. Relevancy to the Best Practice Program – Please provide a detailed narrative of the project, highlighting those project features that qualify it as a best practice readily replicable on other campuses. Please include information on project planning, implementation and evaluation (500 word limit). Every campus faces the same challenges – growing deferred maintenance backlogs, limited access to capital for energy conservation, and a million priorities competing for the same funds. These low/zero interest loan programs are a perfect solution to this problem, and have been unused by the CSU or UC for over 20

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years. While Cal Poly has chosen to use PG&E as the prime contractor for this project, a campus could use any available delivery method for implementation – Design/Bid/Build, Design/Build, CM at Risk, or even JOC. The information necessary for loan application and approval is similar to what campuses already do for Partnership incentive applications – scope of work, engineering estimates of cost and savings, and 3rd party peer review.

9. Collaborative design and implementation – Describe the way in which this project incorporated stakeholders from multiple departments across campus and the local and regional off-campus community. Describe how collaboration produced sustainable solutions and improved the project's performance (300 word limit). This project was developed in collaboration between Facility Services, Facilities Planning, the CSU Chancellor's Office, PG&E, and AECOM. The scope and proposed ECM's were developed with input from the maintenance trades in the Engineering, Electrical, and Plumbing shops, the Environmental Health and Safety office, and stakeholders in the affected buildings. This is a process that Cal Poly uses on all major capital projects to ensure cost effectiveness, quality, maintainability, and adherence to campus standards. The project will result in significant improvements to the quality of campus learning and working environments, substantial utility and maintenance savings, and a reduction in greenhouse gas emissions.
10. If applicable, describe how this project has been communicated to and received by campus stakeholders. Describe what has been met with satisfaction or dissatisfaction, and why (300 word limit). Initially, this project was met with a little concern and confusion by the campus administration and finance staff. There was concern that if the project did not deliver the anticipated energy savings or utility incentives, the campus would be committed to a loan without adequate savings to justify the payment. After explaining that this is essentially the same risk the campus has accepted on all energy conservation projects implemented over the years that did not have a performance guarantee, those concerns were addressed and the project was approved. Since this was the first CSU or UC project to pursue OBF and a CEC ECAA loan on a project, there were numerous bumps in the application, review, and approval process – one of the largest being confusion and delay over whether the project could be characterized as maintenance vs. upgrade, and whether or not it would require Board of Trustees approval (it did). Hopefully, our campus' experience in this process has educated those in PG&E and the CEC about the CSU's project approval and contracting processes so that future projects can flow more smoothly.
11. Describe why you believe this is an innovative sustainability project (200 word limit). This project is unique in many aspects – the scope and breadth of the project are significant, and the creative finance and delivery methods are being utilized for the first time by a CSU campus. This will be Cal Poly's first large scale implementation of LED lighting technology in indoor applications, and the results are eagerly anticipated. This will also be Cal Poly's first large scale implementation of wireless pneumatic

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thermostats (a very cost effective alternative to full DDC conversion), as well as transformer replacement – many of which are 30 to 40 years old.

III. Additional information *See attachments – five in total.*

Please provide any additional information necessary to assist the selection committee in understanding and evaluating the project.

IV. Speaker bio

Speakers will present at the Sustainability Conference if their project is selected for a best Practice Award. Speaker bios will appear in the conference program. Please submit the following for each speaker (limit of two speakers per project).

1. Name and Title (should include name, acronyms (PhD, LEED AP, etc), job title, department, and institution) *Dennis K. Elliot, PE, CEM – Associate Director of Energy, Utilities, and Sustainability – Facility Services – Cal Poly State University, San Luis Obispo*
2. Email *delliot@calpoly.edu*
3. Phone Number *(805) 756-2090*
4. Bio (100 word limit) *Dennis Elliot is the Assistant Director of Energy, Utilities, and Sustainability for Facility Services at Cal Poly SLO, and a part-time lecturer in the Mechanical Engineering Department. He is a registered Professional Engineer and a Certified Energy Manager. Dennis manages the University's utility procurement, energy and water conservation programs, and acts as the University Engineer for operations and new construction. Dennis also mentors the PowerSave Campus intern program, and serves on all three campus sustainability committees. Dennis has served in a variety of energy related positions at the University over the course of his 30 plus year career.*

At least one of the speakers listed here must be a student, staff, or faculty member. Co-presenters from non-campus entities (e.g. architecture firms, consultants, etc.) are permitted. Please note that if the campus speaker cancels, a co-presenter not affiliated with a campus may no longer be allowed to present.

V. Nomination submittal

Send completed Nominations to Janika McFeely, Sustainability Specialist at the University of California Office of the President (janika.mcfeely@ucop.edu). **All submittals must be received by 6:00 p.m. on March 20th, 2015, no exceptions.**

Answers to frequently asked questions can be found at: <http://chesc.org/awards/faq.php>. Please direct any other questions to Janika McFeely, (510)987-9896.