Caltech Facilities Management

CECIP PROCESS GUIDELINES

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A. Overview

Caltech Facilities strives to support the spirit of discovery at Caltech while minimizing energy consumption and maximizing returns on energy conservation investment.

In 2009, Caltech created the **Caltech Energy Conservation Investment Program (CECIP)**, which combines financial management, engineering, and marketing initiatives in pursuit of its overarching goals:

- **To drive resource enhancement with the best returns on investment and without negatively impacting research.**
- **To increase and support the adoption of and engagement of energy efficiency practices.**

Beneath the CECIP umbrella, energy projects are financed from a capital revolving fund. All CECIP projects must have a return on investment (ROI) of at least 12 percent, or 8 years simple payback, and exhibit verifiable savings. The capital revolving fund is reimbursed from avoided utility costs, which are a direct result of savings created by the implementation of CECIP projects. These savings accrue to the fund until the entire loan has been repaid. The utility budget is not reduced due to energy savings from CECIP projects until after projects have been paid back from avoided utility costs.

B. Criteria

1. All CECIP projects must:
    a. Reduce Caltech's energy consumption and/or energy costs and/or reduce Greenhouse Gas Emissions (GHG).
    b. Provide a minimum ROI of 12 percent or 8 years simple payback.
    c. Demonstrate verifiable savings, including methodology for quarterly project monitoring to ensure outlined performance during payback period. Project reporting must occur at least every quarter, but can occur more frequently under Caltech's Active Energy Management (AEM) program. AEM is a comprehensive program that considers all avenues for achieving energy savings, from replacing obsolete equipment to the implementation of energy-saving operations and maintenance procedures.
    d. Report quarterly paybacks to the fund.
        1. Payback calculations are based on current utility prices, not those recorded at the time of project approval.

2. Joint partnership projects can occur between CECIP and capital or infrastructure projects. If CECIP funds are awarded for a joint project, the payback is determined from the incremental investment of the CECIP funds only.

e. Align with Caltech's current sustainability efforts.

f. Enhance Caltech's core mission of education & research.

g. Not be required by regulation or government policy.

2. Special consideration will be given to the following:

a. Projects with simple payback longer than 8 years may still apply but are contingent on approval by the Vice President of Administration and Chief Financial Officer.

b. Specialty equipment including, but not limited to:

1. Ultra-low temperature freezers (-80°F)

a. The purchase of high-efficiency freezers will be funded as a rebate.

b. The freezer rebates will be calculated on two different scales, depending on whether or not the freezers will be replacing existing equipment or installed in a new lab.

i. Replacement freezer rebates will be calculated on a sliding scale, with payback estimated from the difference in efficiency between the existing freezer and its replacement.

ii. New freezer rebates will be calculated on a sliding scale, with payback estimated from the difference in efficiency between the baseline laboratory model at time of purchase and the selected high-efficiency freezer.

c. Eligible freezers are required to meet certain criteria:

i. Replacement of existing freezer

1. Replace an existing, operational freezer that is currently in use. The existing freezer must be retired and properly disposed of in coordination with the Caltech EHS Department.

2. The replacement must demonstrate increased efficiency through measurement and verification of existing freezer's energy usage compared to the selected freezer's projected usage. Spot measurements may be taken to verify efficiency calculations.

3. Rebate is based on the average energy saved in kWh/day and the current accepted utility cost of electricity as established by Energy Services. The rebate cannot exceed the cost of the new freezer. The rebate for the increase in efficiency must provide a simple payback in less than 8 years.

4. Estimated average rebates for the replacement of existing freezers can be found in the Caltech High Efficiency Freezer Program Summary (Appendix A).

ii. Incentive on new freezer

1. Purchase of a new freezer that is not replacing an existing freezer may qualify for a rebate to offset the incremental difference between the new freezer and a baseline model. Existing campus freezer data and external published energy usage may be used for energy and cost savings calculations, including estimates for baseline freezer consumption and cost. Spot measurements may be taken to verify efficiency calculations.
2. Rebate is based on the average energy saved in kWh/day and the current accepted utility cost of electricity as established by Energy Services. The rebate cannot exceed the difference in cost between the baseline freezer and the high efficiency model. The rebate for the increase in efficiency must provide a simple payback in less than 8 years.
3. Estimated average rebates for the purchase of freezers in new laboratories and spaces can be found in the Caltech High Efficiency Freezer Program Summary (Appendix A).

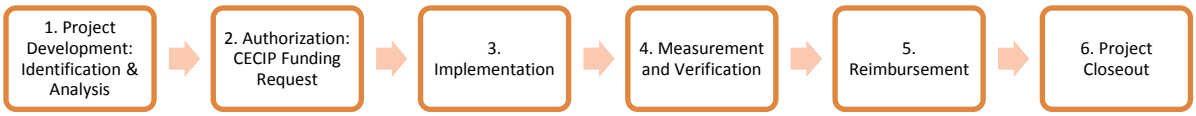
iii. Total freezer rebates through CECIP will be capped at $500,000 per year.

1. Parties interested in taking advantage of a freezer rebate must apply to the CECIP program and contact Caltech Energy Services prior to making the purchase.
2. Purchase and installation are the responsibility of the Department purchasing the freezer.
3. Rebates are subject to availability of funds.

2. Equipment must remain on campus until the payback is complete.
3. All specialty equipment purchased using a rebate will be included in the Facilities asset inventory.

C. Process Stages

CECIP Projects proceed through a six stage process:



1. Project Development: Identification & Analysis

a. This is detailed in the Caltech Standard Operating Procedures (SOP) for Energy Retrofits (Appendix B).
b. CECIP funding approval is considered separately from infrastructure funds. Any costs that are strictly maintenance or repair will be paid from the infrastructure budget, provided there is sufficient funding. This stage requires close coordination between the CECIP Program and the Infrastructure Program.
c. Infrastructure funding needs to be approved by the Senior Director for Facilities Management.
d. Consideration should also be given to project bundling, in which one loan is used to fund multiple projects. Under this structure, the combined ROI for all projects must fall within the previously defined guidelines of the fund.

2. CECIP Funding Requests are authorized under the following guidelines:
   a. A CECIP project application for funding (Appendix C) is completed and approved.
      1. For freezer rebate projects, a CECIP application for rebate (Appendix D) is completed and approved.
   b. CECIP projects are reviewed by the Director, Sustainability; Director, Maintenance Management & Energy Services; and Senior Director, Facilities Management.
   c. Associate Vice President (AVP) for Facilities approves projects with estimated costs up to $100,000 for CECIP funds, excluding infrastructure costs.
   d. Vice President of Administration and Chief Financial Officer approves CECIP projects with estimated costs greater than $100,000.
   e. Projects with a simple payback longer than 8 years will be presented with full net present value (NPV) analysis for evaluation by the Vice President of Administration and Chief Financial Officer.
   f. Supplemental Funding Requests
      1. The AVP for Facilities can approve supplemental funding requests for projects that do not exceed $100,000 in CECIP funding and do not exceed 8 years simple payback. The Vice President of Administration and Chief Financial Officer must approve supplemental funding requests for projects that exceed $100,000 in CECIP funding or exceed 8 years simple payback.
3. Implementation
   a. The campus utility budget contains the projected avoided utility costs from the CECIP program; this is updated annually.
   b. Actual avoided utility costs are documented and reported to the Institute's Finance office quarterly.
   c. Any individual CECIP project that fails to meet the minimum program criterion of 8 years simple payback may be offset by projects in the program portfolio that are exceeding the criterion.
   d. All costs associated with project development (e.g., investigation, metering, project management time) must be included in the project budget.
   e. Please refer to the Caltech Standard Operating Procedures (SOP) for Energy Retrofits (Appendix B) for a more detailed summary of project implementation.

4. Measurement & Verification
    a. Every CECIP project must:
        1. Include training and education for building operators and maintenance technicians.
        2. Identify the method of verification for loan repayment.
5. Reimbursement
    a. Once reported to Finance, actual avoided utility costs are transferred from the utility budget to the revolving loan fund quarterly at the discretion of the Finance office.
    b. During the implementation and M&V phases, Caltech Energy Services will audit the freezer and speciality equipment inventory included in the project applications and finalize the rebates for staff purchases.
6. Project Closeout
    a. Project closeout is further documented in the SOP for Energy Retrofits (Appendix B).
    b. Confirm costs associated with the project have been transferred to the project budget.
    c. Update capital renewal documents and associated site assessment documents via ISES.
    d. Outline the specific maintenance and operation guidelines.
    e. Add assets to the asset management system via standard processes.

California Institute of Technology

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Vice President of Administration and Chief Financial Officer | Date