Energy Retrofit Program Guidelines

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Introduction

The purpose of the Energy Retrofit Program (ERP) is to reduce overall energy consumption and costs on the Stanford University campus by improving building-level energy efficiency. Funds are set aside each year to implement energy retrofit projects. A typical energy retrofit project will improve energy efficiency and reduce building energy costs as well as reduce utility demand, improve occupant comfort, and decrease maintenance costs.

To be successful, the ERP must blend the abilities of many different groups within LBRE. In general, the projects are identified and implemented by the groups who work most closely with the building occupants -- the Zone Engineers and Manager or their auxiliary equivalents.   The Facilities Energy Management (FEM) group within SEM is responsible for managing the ERP budget, providing consistency in the approval and implementation of projects, providing technical guidance, and evaluating new technologies and strategies for future implementation. In addition, FEM continually monitors both the effectiveness of the individual projects as well as the effectiveness of the entire program. How a retrofit project is initiated, approved, funded, and implemented is described in later sections of these guidelines.

Funding for ERP programs comes from the electricity, steam, and chilled water utility recharge rates. The percentage allocation from each utility is a function of the energy savings from the previous year. This allocation can usually not be done in the same fiscal year as the projects since the budget for each utility must be completed well in advance of the start of the fiscal year.

ERP Program Types

There are two types of ERP programs, ERP Customized and ERP Express. ERP Customized is similar to PG&E's customized incentive program in that savings are calculated for the specific project. ERP Express is similar to PG&E's catalog programs where the rebate is pre-calculated per type of measure. Current measures in the ERP Express program are IT server and desktop virtualization, UPS replacement, office smart strips and timers, and high efficiency low temperature freezer replacements.

ERP Funding Sources

ERP programs use two funding sources, utility expense funds and Capital Utilities Program (CUP) funds. The appropriate funding source for a project depends on a number of factors.   The Controller's Office "Capital/Noncapital Decision Tree" (https://web.stanford.edu/group/fms/fingate/docs/capitalization_decision_tree.pdf) is a good reference for how to account for any Stanford project.

ERP Rebate Overview

Most projects regardless of funding source will be funded upon project completion in the form of a "rebate". In some cases, projects identified through an FEM energy study or initiated by an Office of Sustainability program (such as the office plug load timer program) may be funded directly with ERP funds. ERP rebates are offered on a first-come, first-served basis. If the requests for ERP funding exceed the available funding, then the projects already included in the ERP fiscal year budget take priority (see "ERP Budgeting Process" below). Projects not approved because of insufficient funding in one year may resubmit the following year.

ERP Rebate Calculation

The one-time rebate amount is calculated as 5-times the annual energy savings or the total project cost, whichever is less. An exception is server virtualization, which is assumed to have no more than a three-year life, so the rebate is 3 times the annual savings. Rebates can only be provided for savings of utilities that are provided by Stanford. For example, if a building receives electricity from PG&E but chilled water from Stanford, and the project in question will result in savings of both utilities, ERP will only provide a rebate that covers chilled water savings and not electricity savings. If the customer obtains a rebate from PG&E or CPAU, the ERP rebate will be capped by the total project cost less the amount of the non-Stanford rebate.

If FEM provides technical support for the project in the form of consultant time or BGM shop support, the cost of that support will be subtracted from the final rebate amount. FEM will estimate the cost of the technical support when providing the customer with an estimated rebate amount.

ERP Application Process

The ERP application process is a joint effort between the customer and the ERP staff. Typically, the process starts when the customer identifies a project that has energy savings potential. The customer works with the ERP staff to determine eligibility, estimate the energy savings and rebate amount, and identify any technical support needs. The customer will fund the project, and upon project completion the customer will provide the ERP team with proof of such. The customer will then receive the rebate, as calculated above, through an inter-departmental journal transfer. Funding is not guaranteed if the project is not completed by the estimated completion date. The customer will be responsible for providing information on the project that is needed to calculate the rebate and confirm that the measure was completed.

Roles and responsibilities of the application process are described in Tables 1 and 2. Table 1 focuses on the steps for the customers who are applying for rebates. Table 2 shows the ERP staff's tracking and

reporting responsibilities. As mentioned previously, in some cases, FEM staff will identify an energy saving opportunity and fund the project directly using ERP funds, in which case FEM staff is the "customer".

Table 1: Customer-Focused Tasks and Responsibilities

Steps	Responsible Party
Identify opportunity	Customer
Notify ERP staff about potential projects	Customer
Evaluate eligibility, determine appropriate funding source (expense or capital funds), and identify technical support needs	ERP Staff
If eligible for ERP Express, complete application form. Provide pre-retrofit information as needed.	Customer
If eligible for ERP Custom, estimate savings and rebate amount and generate application form	ERP Staff with input from customer/consultants
Implement project and complete by "estimated completion date" on application form or notify ERP staff if project is delayed	Customer with ERP Staff support as needed
Provide documentation of completion to ERP Staff	Customer
Verify project completion and re-calculate final rebate amount	ERP Staff
Process journal transfer to customer PTA	SEM Finance Staff

Table 2: ERP Staff Tasks and Responsibilities

Task	Responsible Party
Identify opportunity	Customer
Notify ERP Staff about potential projects	Customer
Evaluate eligibility, determine appropriate funding source (expense or capital funds), and identify technical support needs	ERP Staff
If eligible for ERP Express, complete application form. Provide pre-retrofit information as needed.	Customer
Arrange for technical support if needed	ERP Staff
If eligible, enter into DSM tracker as status "identified"	ERP Staff

Task	Responsible Party
Estimate savings and rebate amount	ERP Staff with customer/consultants
Obtain PTA number from customer	ERP Staff + customer
Print DSM tracker form with estimated savings and rebate amount & send to customer & mark project status as "in progress" on DSM tracker	ERP Staff
If funded by capital, prepare draft Form 1 Request	ERP Staff
Implement project, and complete by "estimated completion date" on DSM tracker, or notify ERP staff if project is delayed	Customer with ERP Staff support as needed
Provide documentation of completion to ERP Staff	Customer
Verify project completion and re-calculate final rebate amount	ERP Staff
If funded by capital, submit Form 1 Request and obtain PTA from CUP	ERP Staff
Request journal transfer from ERP PTA or CUP PTA to customer PTA	ERP Staff
Process journal transfer to customer PTA	SEM Finance Staff
Mark as "Journal Pending" on DSM Tracker	ERP Staff
Once notified of journal transfer completion, mark project as "complete" on DSM tracker	ERP Staff

Program Eligibility

General Requirements

Buildings must be served by Stanford Utilities (Electricity/Hot Water/Steam/CHW). Only projects with energy saving components qualify for rebates.

Buildings with Multiple Utility Providers

Figure 1 shows rebate eligibility for buildings served by non-Stanford utility providers (i.e. PG&E and CPAU).

Maintenance Measures

Measures that are strictly for maintenance purposes and part of Stanford's preventive maintenance or reactive maintenance program are not eligible unless they provide added energy savings beyond what the existing system would have used if it were in good operating condition.

Repairs that are made based on discovery through an energy study or retrocommissing (RCx) investigation are potentially eligible for an ERP rebate, but would have to be evaluated on a case-by-case basis.

Research or Renewal-Driven Measures
If ERP staff determines that a measure has sufficient funding and justification to proceed in the absence of ERP rebates, ERP staff may reject the ERP rebate application. This is to ensure that ERP spending generates the greatest net impact on energy consumption.
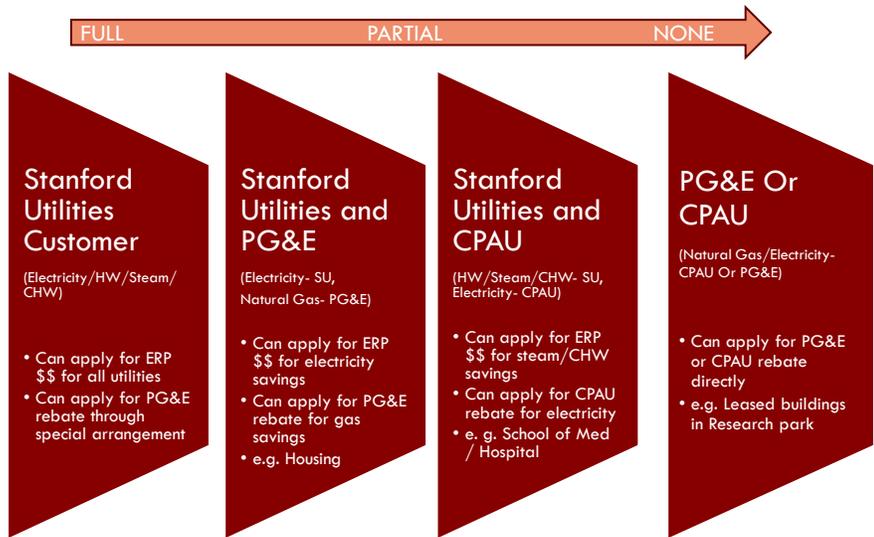
Figure 1: Eligibility for ERP rebates

Documentation Requirements

As part of the ERP approval process, the customer will assist ERP staff in documenting the energy savings and costs associated with a project. The customer will typically be required to provide pre-retrofit and post-retrofit information.

Pre-Retrofit
- Description of equipment being modified. For lighting projects, this is a usually an inventory of lighting fixtures indicating the quantity and type of fixture in each area. An estimate of lighting

operating hours is needed as well. For HVAC or process equipment, the size and type of equipment is needed.

- Pre-retrofit electrical load measurements: in some cases, such as air compressor or vacuum pump replacements, baseline electrical load measurements will be helpful.
- Photographs are generally required for the pre-retrofit equipment.
- Walk-through by ERP staff if deemed necessary.

Post-retrofit

- Final itemized invoices showing labor and materials costs.
- Photographs of newly installed equipment.
- Post-retrofit load measurements when pre-retrofit measurements were taken.
- Walk-through by ERP staff if deemed necessary.

ERP Budgeting Process

FEM staff works with its zone and auxiliary customers to estimate ERP expense and capital budgets for future fiscal years. Projects with approved ERP applications take precedence. FEM staff will meet with customer representatives each year to review the possible projects that may be eligible for ERP rebates and make rough estimates of ERP rebates. If projects identified for implementation in a program year exceed the ERP budget, priority will be given to projects with low payback periods, a low likelihood of occurring without the incentive, a high likelihood of being completed on time, and to projects that help optimize the operation of the Central Energy Facility.

Funding for the Energy Retrofit Program comes from the electricity, steam, and chilled water utility recharge rates. The percentage allocation from each utility is a function of the energy savings from the previous year. This allocation cannot be done in the same fiscal year as the projects since the budget for each utility must be completed well in advance of the start of the fiscal year, so it is based on the last completed fiscal year. Energy cost savings can only be based on the Stanford-supplied utilities since other utilities have their own programs.