2008 Energy Efficiency Program Evaluation Plan

Submitted To:

Redding Electric Utility

June 10th, 2008

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1 UTILITY OVERVIEW

Two legislative bills (SB1037 and AB2021) were signed into law a year apart. SB1037 requires that the Publicly Owned Utilities (POUs), similar to the Investor Owned Utilities (IOUs), place cost effective, reliable, and feasible energy efficiency and demand reduction resources at the top of the loading order. They must now procure 'negawatts' first. Additionally, SB1037 (signed September 29, 2005) requires an annual report that describes the programs, expenditures, expected energy savings, and actual energy savings.

Assembly Bill 2021, signed by the Governor a year later (September 29, 2006), reiterated the loading order and annual report stated in SB1037 as well as expanding on the annual report requirements. The expanded report must include investment funding, cost-effectiveness methodologies, and an independent evaluation that measures and verifies the energy efficiency savings and reductions in energy demand achieved by the energy efficiency and demand reduction programs. AB2021 additionally requires a report every three years that highlights cost-effective electrical and natural gas potential savings from energy efficiency and established annual targets for energy efficiency and demand reduction over 10 years.

The legislative reports require both an on-going assessment of what is occurring within the programs along with a comparison of how much possible savings are left within the POU service territory. The goal of this 2008 energy efficiency program plan is to assist Redding Electric Utility (REU) to meet these requirements. This plan provides guidance and recommends evaluation, measurement, and verification (E,M&V) activities that will help REU standardize and streamline the reporting process in order to meet the legislative requirements.

This plan identifies recommended E, M&V actions based on information gathered from staff interviews, a review of existing utility records, databases, and marketing materials. Based on this review, it is recommended that REU conduct the following E,M&V activities:

- A limited process evaluation of REU's Earth Advantage® Program to ensure consistency in database tracking given the overlap in several program elements;
- Verification of the savings for residential building shell and HVAC measures; installed in REU's territory by performing a multi-variate regression analysis;
- Verification of installations through a review of the application and receipt documentation of sampled installations;

1.1 General Utility Background Information

REU provides electric service to approximately 42,000 residential and business customers within the City of Redding. Its annual energy use is 842 gigawatt-hours (GWh) and its peak demand is 245 megawatts (MW). This is a summer peaking utility. REU is also developing its renewable supply portfolio and 50 percent of its supply resources are from renewable sources including both large and small hydro.

REU is located in California Title 24 Climate Zone 11 located in the northern California valley, south of the mountainous Shasta Region, east of the Coastal Range, and west of the Sierra Cascades. Here the seasons are sharply defined. Summer daytime temperatures are high, sunshine is almost constant, and the air dry. Winters are very cold with the, possibility of snow and thick tule fog. Cold air rolls off the hillsides on winter nights and pools in the colder flatlands. Between October and March, significant

rainfall occurs with as much as 4.75" per month. Because there is extreme weather, cooling and heating is necessary. These climate zone characteristics require significant levels of energy consumption to meet comfort standards. Table 1 illustrates the heating and cooling degree days for Redding airport.

Table 1: Temperature Reference Points for Redding Electric Utility[1]

Base Temp: 65F	Redding Airport
Heating Degree Days (HDD)	2,961
Cooling Degree Days (CDD)	*1,741*

1.2 Key Customer Markets

Although REU serves both residential and commercial customers, the key focus of its efficiency programs are on residential customers. The utility focuses primarily on home-owners who purchase and install energy efficient technologies and low-income households who require weatherization assistance.

1.3 Efficiency Programs Offered

Since 1998, REU has spent more than $15 million in numerous rebate and incentive programs to increase the energy efficiency in the Redding community. These programs have raised customer awareness of energy efficiency with the installation of high efficiency measures and through increased education. REU's programs have reduced peak demand by more than 11 megawatts with an associated cumulative energy savings of 28,000 megawatt-hours.

Current REU Energy Efficiency programs:

REU's energy efficiency programs target all of the major residential end uses as part of its Earth Advantage rebate program;

- High Efficiency Heating Ventilation and Air-Conditioning (HVAC) Rebate Program: REU provides financial incentives for HVAC systems with a SEER of 14 or greater and a minimum EER of 12. These incentives also include requirements for duct pressure testing results above Title 24 standards. REU's HVAC program also provides incentives for duct repair/replacement and HVAC servicing, as well as installation of evaporative coolers and whole house fans.
- Energy Star® Appliances: To date, REU has provided more than 17,000 rebates to its

1 http://www.pge.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california_climate_zone_11.pdf

customers for their purchase of Energy Star®-approved dishwashers, clothes washers, refrigerators, and windows, as well as high efficiency electric water heaters.

- Weatherization Programs: REU supports the installation of insulation, caulking, weatherstripping, water heater wraps, radiant barrier roof sheathing and window treatments to improve the thermal integrity of building envelopes through rebate programs for its customers.
- Earth Advantage® Green Building Program: REU's Green Building program includes many environmental benefits. All homes that are built to Earth Advantage standards must be at least 20 percent more efficient than Title 24 requirements. In addition to this feature and the many sustainable building products and measures that can be included in these homes, REU performs blower door and duct pressurization testing and verification of all Earth Advantage homes to insure they meet our program criteria and will provide long-term energy savings and comfort to the occupants. Twenty percent of the homes completed in Redding during 2007 were built to Earth Advantage standards.
- Lighting Retrofit Program: Small Commercial and Residential: This program offers rebates for residential and small commercial customers who change-out T-12 to T-8 lamps with electronic ballasts and lamp removal. This program also offers rebates eligible customers who purchase a minimum of three compact fluorescent lamps (CFLs).

1.3.1 Program Summaries

2007 Program Summary

REU spent a total of $1.6 million in program costs that led to total net peak demand reductions of 1,297 kW and total annual energy reductions of 1,677,130 kWh. Table 2 summarizes the kW, kWh and program costs for REU's largest programs.

Table 2: 2007 Summary of REU's Largest Energy Efficiency Programs

1.4 Evaluation Priorities

REU's Earth Advantage Program® encompasses all of the residential and small commercial rebate offerings. In terms of net annual kWh savings, the residential shell measures provide the most energy savings at about 45% of the total utility savings followed by lighting rebates for residential and small commercial at 33% and residential HVAC at 15%. The greatest share of net peak kW demand savings is also provided by the residential shell measures at nearly 75% with residential HVAC a distant second at 19%.

Evaluation priorities should be based on a combination of relative size of the savings achieved as well as the degree of uncertainty with *ex ante* estimates of the savings. HVAC and shell measures have the greatest level of *ex ante* energy savings estimate uncertainty because they are based on savings estimates derived from building simulation modeling with the building characteristics being an average across all vintages and home sizes. The *ex ante* energy savings for lighting are stronger since wattages are fixed by lamp type. The greatest uncertainty with lighting is hours of operation. As seen in Table 2, the most savings come from shell measures followed by lighting and HVAC measures. Based on this combination of the amount of achieved savings and *ex ante* energy savings uncertainty, it is recommended that REU conduct the following E,M&V activities in Program Years 2008-2010. This list of priorities also includes a limited process evaluation to insure that program tracking is performing well:

1. A limited process evaluation of REU's Earth Advantage® Program to ensure consistency in database tracking given the overlap in several program elements. The evaluation should consist of the following elements:
    a. A review of the database tracking system to streamline program reporting and enhance comparisons between and among programs.
    b. A free ridership analysis to determine net to gross impacts and improve overall program cost-effectiveness.
    c. A review of the measures targeted in REU's Earth Advantage program portfolio including residential lighting, shell measures, and ENERGY STAR® appliances to determine their cost-effectiveness and identify alternatives.
2. An impact evaluation of the estimates used to determine savings for its Residential Shell and HVAC measures.
3. At a later time, an impact evaluation of the lighting program.

2 OVERVIEW OF EARTH ADVANTAGE® PROGRAM

REU offers its customers a variety of rebates for installation of energy efficient measures. Table 3 summarizes the 2008 program results for each program. As this table shows, the HVAC measures had the highest rebate amounts with the high efficiency units and duct repair measures having the largest. The insulation and radiant and thermal barriers measures had the largest rebate amounts for the weatherization set of measures. The Energy Star Appliance measures allocated the largest portion of its budget to rebates for windows. Fluorescent lighting fixtures accounted for the largest rebate component of the small commercial and residential lighting program.

2.1 Program Goals and Objectives

The goal of the Earth Advantage® Program is to provide cost effective and sustainable energy and peak demand savings to the utility. The goal is to also provide REU customers a means to understand and to implement energy conservation strategies that will save them money and help the environment.

Table 3: Summary of REU's Earth Advantage Program 2008 Program Offerings

HVAC Program	Number of Rebates	Rebate Amount	Peak Demand Reduction (kW)	Energy Savings (kWh/year)
High Efficiency Units	409	$391,900	873.6	1,913,124
Duct Repair	306	$218,733		
Pressure Testing	318	$31,800		
HVAC Cleaning	675	$16,875		
Swamp Coolers	3	$1,192	7.7	16,754
Whole House Fans	9	$900	6.5	5,676
Charge Test	7	$175		
TOTAL	1,727	$661,575	888	1,935,554
Weatherization Program	**Number of Rebates**	**Rebate Amount**	**Peak Demand Reduction (kW)**	**Energy Savings (kWh/year)**
Insulation	124	$62,330	7.36	128,898
Radiant & Thermal Barrier	68	$43,241	68.00	235,446
Window Treatments	142	$11,171	4.86	85,200
Caulking	3	$368	0.15	2,673
Weatherstripping	4	$234	0.20	3,564
Water Heater Wraps	2	$31	0.12	2,079
TOTAL	343	$117,375	80.69	457,860
Energy Star Appliances	**Number of Rebates**	**Rebate Amount**	**Peak Demand Reduction (kW)**	**Energy Savings (kWh/year)**
Windows	182	$47,574	43.2	378,378
Refrigerators	374	$20,000	10.9	112,200
Clothes Washers	320	$16,640	6.0	210,560
Dishwashers	334	$8,700	1.4	48,430
Water Heaters	22	$1,650	0.5	19,061
TOTAL	1,232	$94,564	62.0	768,629
Lighting Program	**Number of Rebates**	**Rebate Amount**	**Peak Demand Reduction (kW)**	**Energy Savings (kWh/year)**
Fixtures	8	$32,241	6.9	38,247
Ballasts	2	$435		
Exit Signs	1	$190	0.9	8,269
Lamps	2	$183	0.9	5,183
TOTAL	13	$33,049	9	51,699

2.1.1 Financing

The Earth Advantage® Program offers rebates for a large number of energy efficiency applications. The Energy Star® portion of the program offers the following incentives:

- Refrigerators – 19.1 cu.ft or larger ($50)
- Refrigerators – 7.75 to 19.0 cu.ft ($25)
- Clothes Washers ($35)
- Dishwashers ($25)
- Electric Water Heaters ($75)
- Windows to replace single pane (10% of pre-tax material cost up to $300 for residential and $2,500 for commercial)

The weatherization portion of the program offers these incentives:

- Attic, floor, wall, or duct insulation (75% of materials cost up to $1,000 for residential and $2,500 for commercial)
- Window tinting and sunscreens ($0.75 per square foot up to $150 for residential and $500 for commercial)
- Weatherstripping and caulking (75% of project cost up to $100 for residential and $500 for commercial)
- Electric water heater blanket (75% of project cost up to $20/blanket)
- Radiant barrier material ($0.10 per square foot up to $500 residential with commercial requiring pre-approval)
- Thermal barrier material ($0.10 per square foot up to $1,00 residential with commercial requiring pre-approval)

The HVAC portion of the program offers the following incentives:

- Central A/C with minimum of SEER 14 ($750/unit for 12.0-12.5 EER and $1,200/unit for 12.6 and higher EER)
- Duct repair/replacement (75% of project cost up to $500 with 10% loss or $1,000 with 5% loss)
- Duct pressure testing ($100/unit)
- HVAC tune up and charge & air flow ($25/unit/year)
- Whole house fan and evaporative coolers ($150/unit)

- Geothermal heat pumps – vertical loop (up to $1,000/ton with the residential maximum of $8,000 and commercial requiring pre-approval)

The lighting portion of the program is for retrofit applications only. The T12 to T-8 portion of the program has a maximum rebate of $5,000. The CFL portion of the program requires a minimum of three CFL lamps. The incentive levels are:

- T-12 to T-8 lamps w/electronic ballasts ($3 to $10 per lamp depending on the lamp length)
- Lamp/fixture removal ($15 to $32 per fixture depending on the lamp length)
- CFLs ($3 to $ 5 per unit depending on the CFL wattage)
- Customized rebates are available for T-5 lamps, metal halide, LED exit signs, and sensors (motion, occupancy, or photocell)

2.1.2 Customer Eligibility

This program is open to all REU customers who install qualifying equipment and provide the proper documentation.

2.1.3 Marketing Methods

The Earth Advantage® Program is marketed on the REU website, at community events, and through school programs.

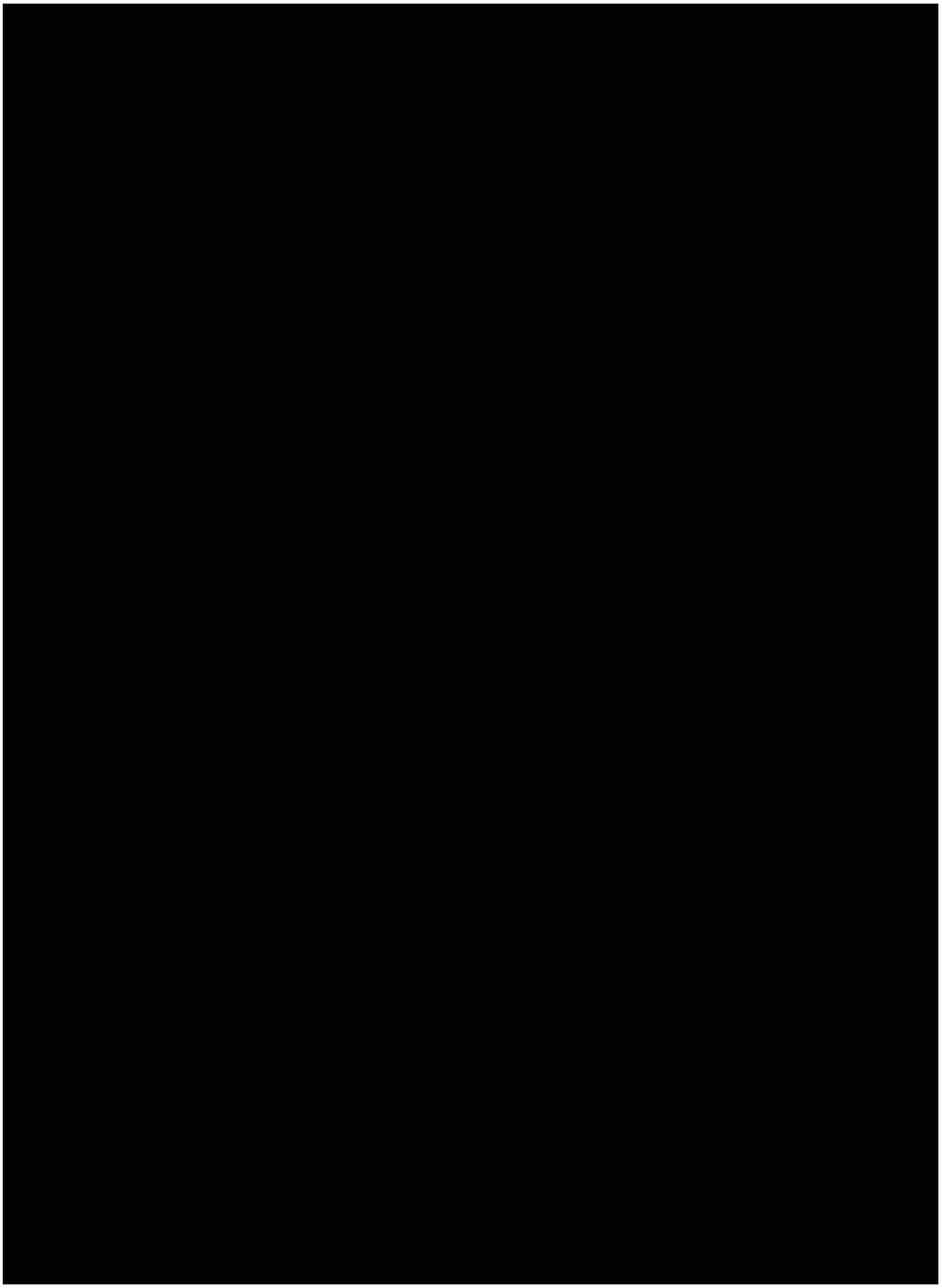
2.1.4 Program Implementer

The program is administered in-house.

2.1.5 Program Process Flow

Figure 1 illustrates a simplified process flow of REU's program. This process flow diagram will be expanded to include the overlapping program areas after completing the process evaluation (see Section 3.0).

Figure 1: Simplified Process Flow



3 PROCESS EVALUATION PLAN FOR EARTH ADVANTAGE® PROGRAMS

Based on a review of the program records and materials provided by REU staff, it is recommended that a process evaluation of the entire REU Earth Advantage® Program be performed. This would not be an in-depth process evaluation, but rather a limited one that:

- A review of the database tracking system to streamline program reporting and enhance comparisons between and among programs.
- A customer survey of participants and non participants to assess program impacts and determine to free ridership, spillover, free drivership, and measure persistence.
- A review of the measures targeted in REU's Earth Advantage program portfolio including residential lighting, shell measures, and ENERGY STAR® appliances to determine their cost-effectiveness and identify alternatives.

3.1 Task 1: Review Tracking Systems

Given that these programs are often cross-promoted, the consulting team should review the ways the program data are tracked as well as insure that certain variables, such as lighting measure hours of operation, are gathered at the time of implementation.

Based on our preliminary review of the current tracking, provided by REU, the process evaluation could identify ways to simplify and streamline the data tracking process currently used. Moreover, this review would also identify more expedient ways to measure program impacts, which will streamline the reporting process to the CEC.

3.2 Task 2: Review Program Procedures and Inter-Relationships

This process evaluation would include a review of the materials and events currently used for recruiting customers to the Earth Advantage® Program. This review will also identify additional messages that REU may want to include in future program marketing efforts. This information would be supplemented by interviews with program staff, focusing specifically on the ways on the following topics:

- Program process flow and inter-relationships.
- Program metrics including current enrollment, customer satisfaction, and savings estimates.
- Marketing and outreach activities.
- Areas for improvement.

3.3 Task 3: Assess Free Ridership Levels

REU should consider having the consulting team perform a literature review of recent evaluation efforts from other utilities that measured program net to gross assumptions for a subset of Energy Star measures and lighting measures. Of particular interest are dishwashers, single pane window upgrades, water heaters, and CFL screw-in lamps where growing evidence has been suggesting high levels of free ridership. High levels of free ridership would adversely affect measure cost effectiveness, may also indicate that the measure is now the market norm, and need not be promoted any longer.

In the event that the literature review identifies specific free ridership issues, but does not definitively provide enough evidence to support any changes to REU's current net-to-gross estimates, REU should consider conducting a customer survey of 100 participants and 100 non-participating residential customers for next fiscal year. The goal of these customer surveys would be to measure current program free ridership levels and determine effective strategies. These surveys would also address the following issues:

1. Customer satisfaction with the programs and REU;
2. Likely free ridership rates for each targeted measure;
3. Measure persistence;
4. Spillover- that is the effect of the program had on encouraging other energy efficiency actions;
5. Additional measures to consider in upcoming program years, and
6. Areas for program improvement.

This customer survey could be integral in guiding REU's decisions to refine the current program offerings and to offer new types of programs in 2009 and 2010.

The participating customer sample would be drawn randomly from REU's program tracking database. It would also include an analysis of customers who have participated in more than one REU program. The non-participating sample would be based either on REU's current residential customer database less the customers identified as program participants in the program tracking database or on random digit dialing of REU's customers in its service territory.

4 IMPACT EVALUATION PLAN

The primary objectives of an impact analysis are to assess gross and net demand and energy savings and the cost-effectiveness of the installed systems. An impact evaluation verifies measure installations, identifies key energy assumptions and provides the research necessary to calculate defensible and accurate savings attributable to the program.

4.1 Impact Evaluation Research Issues and Objectives

The primary objectives of the impact analysis are:

1. Conduct a preliminary uncertainty analysis and identify and rank those factors that contribute to overall uncertainty regarding program gross and net kW and kWh savings.

2. Review engineering assumptions.

3. Develop an analysis approach designed to minimize uncertainty of reported savings.

4. Verify measure installations.

5. Calculate verified gross demand and energy savings.

6. Calculate net-to-gross factors and verified net demand and energy savings.

7. Assess program costs, including incremental costs associated with measures installed through the program.

8. Determine the cost-effectiveness of the program based on Total Resource Cost (TRC) test.[2]

[2] As defined in the California Standard Practice Manual, Economic Analysis of Demand Side Programs and Projects, October 2001

4.2 Methods and Data Sources

A useful construct for thinking about the range of efficiency measures covered by the Program is the International Performance Measurement and Verification Protocol (IPMVP). Table 4 presents a listing of the IPMVP protocols, the nature of the performance characteristics of the measures to which M&V options typically apply, and an overview of the data requirements to support each option. Our approach to selecting M&V strategies follows these guidelines.

Table 4: Overview of M&V Options

IPMVP M&V Option	Measure Performance Characteristics	Data Requirements
Option A: Engineering calculations using spot or short-term measurements, and/or historical data	Constant performance	• Verified installation • Nameplate or stipulated performance parameters • Spot measurements • Run-time hour measurements
Option B: Engineering calculations using metered data.	Constant or variable performance	• Verified installation • Nameplate or stipulated performance parameters • End-use metered data
Option C: Analysis of utility meter (or sub-meter) data using techniques from simple comparison to multi-variate regression analysis.	Variable performance	• Verified installation • Utility metered or end-use metered data • Engineering estimate of savings input to SAE model
Option D: Calibrated energy simulation/modeling; calibrated with hourly or monthly utility billing data and/or end-use metering	Variable performance	• Verified installation • Spot measurements, run-time hour monitoring, and/or end-use metering to prepare inputs to models • Utility billing records, end-use metering, or other indices to calibrate models

As stated earlier, evaluation priorities should be based on a combination of relative size of the savings achieved as well as the degree of uncertainty with *ex ante* estimates of the savings. HVAC and shell measures have the greatest level of *ex ante* energy savings estimate uncertainty because they are based on savings estimates derived from building simulation modeling with the building characteristics being an average across all vintages and home sizes. The *ex ante* energy savings for lighting are stronger since wattages are fixed by lamp type. The greatest uncertainty with lighting is hours of operation. As seen in Table 2, the most savings come from shell measures followed by lighting and HVAC measures.

Based on the *ex ante* estimates of the savings and the level of achieved savings, the highest evaluation priority is to evaluate the savings from the weather sensitive measures, especially the building shell related then the HVAC equipment related weather sensitive measures. Program documentation has not been reviewed thoroughly, but it is expected that participants often implemented more than one measure during their participation. Given these facts, it is our recommendation that M&V Option "C" is the most appropriate for the building shell and HVAC measures. The methodology recommended is a multi-variate regression statistically adjusted engineering (SAE) model that uses of pre and post program participation billing data along with a number of other potential explanatory variables. Among these other variables would be the *ex ante* estimates for the specific measures installed as well as weather data and other relevant participant data that may be available from the program tracking database.

Upon completion of the SAE model assessment, REU will have defensible impact estimates of energy savings for each measure included in the analysis. Based on the analysis, the *ex ante* energy savings estimates will be adjusted by regression coefficients and then normalized to normal Redding weather. These *ex post* energy impact estimates can replace the *ex ante* values in all future planning.

Lighting is a lower priority and impact analysis for lighting can be delayed until 2010. The recommended M&V option for lighting is Option "A". Under Option "A", the critical variable for lighting is hours of operation. The first step in the impact evaluation for lighting would be a review of the engineering assumptions as compared to the data gathered during actual implementation. Part of our process review will be to insure that certain important variables, such as base wattage, measure wattage and estimated hours of operation, are gathered during the program tracking process. This will make the impact evaluation much easier when it is finally performed.

4.3 Task 4: Identify Impact Evaluation Sample and Obtain Billing Data

To perform the multi-variate regression statistically adjusted engineering (SAE) model for building shell and HVAC measures, pre and post program participation billing data will need to be obtained from REU. It is uncertain how many of the different rebates for these measures were actually installed into the same building. It is assumed that the tracking of each rebate includes a customer ID. It is our recommendation that the entire tracking database for the Earth Advantage Program® be merged by customer ID so that the specific measures installed in each building 9and when) are known. The individual customer IDs would be the universe from which the evaluation sample is drawn. It is uncertain how many unique customer IDs will be in the merged database, but based on current participation by measure type, it is possibly around 1,500 to 3,000 customers.

To keep costs reasonable, it is recommended that a sample population be drawn from the universe of installations sufficient to achieve a level of precision and confidence of 90% +/-10%. Using a universe of approximately 2,000 installations, a sample of about 70 sites would be included in the regression analysis. It is recommended that the analysis be done with monthly data normalized to a per day usage for that month (to accommodate billing cycles that may not have the same number of days). This approach is also preferable because it can accommodate less than one full year of post installation billing data, which would be the case for any sites with missing data or for recent installations (with at least six months of post-installation data).

4.4 Task 5: Installation Verification

Verification that measures have actually been installed is an important part of an impact evaluation. However, site visits to visually verify installation are a costly means of doing so. If specific measures were large impact, the cost of such verification visits could be justified. However, the portfolio of measures included in the REU Earth Advantage Program® does not include large impact individual measures.

In lieu of on-site verification, it is recommended that verification consist of a review of the verification records kept in the program tracking database. As part of the process evaluation, the current process of verifying installation and recording that verification did occur will be reviewed and any needed changes identified and made.

Further verification will occur as a result of reviewing the pre and post billing data of the sample of 60 drawn for the regression analysis. If expected savings are not being achieved, a phone call should be made to the program participant to determine the reason for the lack of expected savings. In all cases, any missing or non-functioning measures will be accounted for in the regression analysis. Missing or non-functioning measures will have the effect of lowering the *ex-post* savings estimates.

4.5 Task 6: Calculate Gross Energy and Demand Impacts

The regression analysis normalized to typical weather conditions will be used to estimate the impact of each measure. A weighting factor will be used to normalize the results to the full participant population. Demand impacts will be based on the kW/kWh ratio currently used in the *ex ante* estimates.

4.6 Task 7: Process and Impact Evaluation Report

The evaluation consultant will issue a final report to the utility summarizing the results from the process and impact evaluations and describing any recommendations that come from the evaluations. These recommendations will assist REU in meeting the requirements with the AB2021 requirements and will be submitted to the California Energy Commission (CEC).

The final report will include:

E: Executive Summary

1. Introduction and Selected Evaluation Issues
    1.1. Program Overview
    1.2. Program Objectives
2. Process Evaluation Plan
    2.1. Research Issues and Objectives
    2.2. Description of Evaluation Efforts
3. Impact Evaluation Plan
    3.1. Research Issues and Objectives
    3.2. Methods & Data Sources
    3.3. Sample Design
4. Data Collection Plan
5. Process Evaluation Results (Free Ridership Analysis)

5 EVALUATION PLAN TIMING

The 2008 Energy Efficiency Program Evaluation should be broken into two phases. The first phase should be the process evaluation and this evaluation should begin as soon as possible. Performing this part quickly will insure that the program tracking system is gathering and recording the necessary information both for program planning but also for the impact evaluation.

The second phase should be the impact evaluation of the building shell and HVAC measures. The start of the second phase depends on whether 2007 participants are included in the analysis or if only 2008 participants are included. At least six months of post installation billing data needs to be available for the regression analysis. If 2007 participants are included, it is recommended that the evaluation begin in conjunction with the process evaluation.

The lighting program should be evaluated in 2009 or 2010 based on the findings and recommendations from the customer survey.

6 ESTIMATED BUDGET

It is estimated that the evaluation, as outline in Section 3 and Section 4, should be between $25,000 and $40,000. By task, the costs should be:

- Task 1: Review Tracking System - $2,500 - $3,500
- Task 2: Review Program Procedures and Inter-Relationships (costs depend on he evaluation team is) - $2,000 - $4,500
- Task 3: Assess free-ridership levels - $2,500 - $5,000
- Task 4: Identify Impact Evaluation Sample - $2,500 - $4,000
- Task 5: Installation Verification - $500 - $600
- Task 6: Calculate Gross Energy and Demand Impacts - $9,000 - $11,000
- Task 7: Process and Impact Evaluation Report - $6,000 - $9,500