PENDING PETITION MEMO

Date: 9/22/2008

TO : OGC
OEGW
OEEE

FROM: CENTRAL OPERATIONS

UTILITY: CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

SUBJECT: 08-E-1127

Petition of Consolidated Edison Company of New York, Inc. for approval of an Energy Efficiency Portfolio Standard (EEPS) utility-administered Electric energy efficiency program.

conEdison
a conEdison, inc company

Richard B. Miller
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September 22, 2008

Via Hand Delivery

Hon. Jaclyn A. Brilling,
Secretary
State of New York Public
Service Commission
Three Empire Plaza
Albany, New York 12223

2008 SEP 22 AM 8:57

Re: Case 08-E -1007 – Con Edison's Filing of Electric Efficiency Programs in Accordance with the Commission's Order Establishing Energy Efficiency Portfolio Standard and Approving Programs in Case 07-M-548

Dear Secretary Brilling:

Please find enclosed for filing an original and twenty-five copies of the filing of Consolidated Edison Company of New York, Inc. ("Con Edison" or "Company"), which contains the second set of energy efficiency programs that the Company was authorized to file pursuant to the Commission's order in the Energy Efficiency Portfolio Standard ("EEPS") Proceeding. The programs submitted in the attached plan are:

(1) Residential direct installation program;

(2) Residential room air conditioner program;

(3) Appliance bounty program;

(4) Commercial and industrial equipment rebate program;

(5) Commercial and industrial custom efficiency program;

(6) Targeted demand side management (DSM) program;

(7) Steam cooling program; and

(8) Refrigerator replacement pilot program.

The first five programs, combined with Con Edison's Expedited Programs described in the Company's 60-day filing in August, are designed to exceed the 574,479 megawatt-hour ("MWh") savings target that the June 23rd Order (Appendix 1, Table 11) made applicable to Con Edison. After the MWh from the Targeted Program are added, the Company projects that 809,936 MWh is the total that can potentially be achieved from those programs that are applicable to the Commission's incentive (the Company's ability to earn an incentive is currently capped at 765,948 MWh for the three-year period and the

Company has petitioned for rehearing on that cap). Finally, the Steam cooling program serves the Commission's goals of reducing electric peak demand and maintaining the viability of the steam system, and the Refrigerator replacement pilot program will seek to achieve savings in a difficult to penetrate segment of the residential rental market.

The Commission should approve all eight of these programs together as an integrated portfolio designed to put the State on a path to meet its 2015 energy efficiency goals in Con Edison's service territory. The plan set forth herein provides in detail all of the information required by the Commission's June 23rd Order including benefit/cost estimates using the Total Resource Cost Test methodology, measurement, verification and evaluation plans customized to each program, forecasts of 2015 impacts and evaluation of independent program administrator proposals.

In addition, the plan describes the Company's continued collaborative discussions with NYSERDA, utilities and other interested parties. Con Edison and NYSERDA in particular have discussed how their respective programs can complement each other to facilitate achievement of the State's 15x15 goal and have begun to develop a preliminary understanding on how to coordinate energy efficiency efforts in the Company's service territory. Among other things, Con Edison will participate in NYSERDA's Power Management Pilot Program distributing smart strips, use its residential surveys to refer customers to NYSERDA's Home Performance with ENERGY STAR® program, and work with NYSERDA to facilitate customer movement into NYSERDA's other programs (e.g., Empower) as appropriate.

The Company envisions the proposed consolidated programs, including the Expedited Programs submitted pursuant to the Commission Order on August 22, as the key components of its comprehensive 500 MW electric energy efficiency initiative. In developing the proposed program approach, Con Edison considered successful energy efficiency program models around the country and its own objectives to position the Company as a key provider of energy efficiency services to its customers in support of the State's 15X15 program, PlaNYC 2030 goals, Westchester initiatives; and to defer transmission and distribution infrastructure investment.

To achieve these objectives, Con Edison has designed programs that create a strategic approach that is targeted, yet flexible enough to adjust and expand as warranted by changing market conditions by offering customers a logical continuum of actions coupled with increasingly valuable incentives for cost-effective efficiency strategies. The Company will also utilize its client relationships, market knowledge and community presence to aggressively target underserved market sub-sectors such as data centers and healthcare. Con Edison proposes that for its two major program areas – residential housing (up to four units) and commercial and industrial ("C&I") facilities – the same structure will be provided to support customer decision-making and implementation for the programs itemized at 1 – 5 above: (1) Direct Installation and Energy Surveys: The Direct Installation program proposed here provides low-cost on-site energy surveys, direct installation of free efficiency measures and recommendations for more extensive energy efficiency upgrades; (2) Equipment Rebates: Prescriptive rebates for common, high-efficiency technologies are a

simple, cost-effective means to help offset their higher installation cost; and (3) Custom Efficiency: In some cases, customers may desire a more comprehensive, whole-facility approach to efficiency, or they may require efficiency upgrades to more complex systems or uncommon technologies. For these instances, a more customized approach is required. For the residential sector, NYSERDA's Home Performance with ENERGY STAR® provides a comprehensive approach with flexible incentives that allows customers to install a range of efficiency measures to meet their individual needs. Con Edison will refer customers interested in this approach to NYSERDA. For the C&I sector, Con Edison will provide rebates for efficient technologies not included in the equipment rebate program, system upgrades or process improvements.

Con Edison believes that these three program options will give its residential and C&I customers access to a logical but flexible progression of steps that will support their energy efficiency objectives with the most appropriate solutions to meet their needs and goals. The program structure is designed to provide Con Edison's customers with flexibility and control over the entire program delivery continuum. The proposed program structure will also enable the Company to target high-potential market segments and technologies through its marketing strategies, adapt to changing market conditions, enhance existing energy efficiency activities and refer customers to NYSERDA as appropriate. Moreover, as discussed in the plan, the Company will explore using an enhanced version of this structure (*e.g.*, higher rebates), to continue its Targeted DSM Program to defer significant investments in delivery infrastructure that are planned for specific load areas. As demonstrated in the plan, due to these deferrals, the Targeted DSM program can provide considerable ratepayer value.

Con Edison respectfully requests that the Commission expeditiously approve the Company's program filing so that the Company can start implementing cost-effective energy efficiency benefits for its customers.

Yours very truly,

Richard B. Miller /sos

Richard B. Miller

cc: Active parties via listserver

conEdison
a conEdison, inc. company

Residential and Commercial Energy Efficiency Portfolio Programs

Prepared for:

PUBLIC SERVICE COMMISSION
OF THE STATE OF NEW YORK

CASE 08-E-1007

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

September 22, 2008

Glossary of Acronyms

Acronym	Definition
AC	Air Conditioning
ADC	Average Daily Consumption
ANCOVA	Analysis of Covariance
ASHE	American Society for Healthcare Engineers
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
BID	Business Improvement District
C&I	Commercial and Industrial
CAC	Central Air Conditioning
CDD	Cooling Degree Days
CFL	Compact Fluorescent Lamp
Commission	State of New York Public Service Commission
COP	Coefficient of Performance
CUNY	City University of New York
DHCR	New York State Division of Housing and Community Renewal
DOE	Department of Energy
DPS	Department of Public Service
DR	Demand Response
DSM	Demand Side Management
ECM	Electronically commutated motors
EEPS	Energy Efficiency Portfolio Standard
EER	Energy Efficiency Ratio
EIA	Energy Information Administration
EPAct	Energy Policy Act of 2005
ESCO	Energy Services Company
GPM	Gallons per minute
HDD	Heating Degree Days
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation & Air Conditioning
IPMVP	International Performance Measurement and Verification Protocols
IT	Information Technology
kWh	Kilowatt-hour
MBS	Model-Based Sampling
MV&E	Measurement, Verification and Evaluation
MWh	Megawatt-hour
NTG	Net to Gross Ratio
NRDC	Natural Resources Defense Council
NYC EDC	New York City Economic Development Corporation
NYISO	New York Independent System Operator
NYPA	New York Power Authority
NYSEG	New York State Electric and Gas
NYSERDA	New York State Energy Research and Development Authority

OBF	On-bill financing
OEM	Original Equipment Manufacturer
PTAC	Package Terminal Air Conditioning
RFP	Request for Proposals
RMS	Root Mean Square
RSA	Rent Stabilization Association
SAE	Statistically-adjusted engineering model
SBD	Steam Business Development
SEER	Seasonal Energy Efficiency Ratio
T&D	Transmission and Distribution
TIP	Tariffed Installation Programs
TRC	Total Resource Cost
UPS	Uninterruptible Power Supply
VAV	Variable Air Volume

CASE-08-E-1007
CONSOLIDATED EDISON COMPANY OF NEW YORK
ENERGY EFFICIENCY PORTFOLIO STANDARD
PROGRAM PROPOSAL

Introduction

Consolidated Edison Company of New York (Con Edison or Company) is pleased to submit this Energy Efficiency Portfolio Standard (EEPS) Program Proposal pursuant to the June 23, 2008 Order of the State of New York Public Service Commission (Commission) in Case 07-M-0548. This filing contains the Company's combined program plan for development of the following electric efficiency programs (the Programs):

(1) Residential direct installation program;

(2) Residential room air conditioner program;

(3) Appliance bounty program;

(4) Commercial and industrial equipment rebate program;

(5) Commercial and industrial custom efficiency program;

(6) Targeted demand side management (DSM) program;

(7) Steam cooling program; and

(8) Refrigerator replacement pilot program.

The first five programs, combined with Con Edison's Expedited Programs described in the Company's 60-day filing, , are designed to exceed the 574,479 megawatt-hour (MWh) savings target that the June 23rd Order (Appendix 1, Table 11) made applicable to Con Edison. The Commission should approve all eight of these programs together as an integrated portfolio designed to put the State on a path to meet its 2015 energy efficiency goals in Con Edison's service territory.

The plan set forth herein provides in detail all of the information required by the Commission's June 23rd Order including benefit/cost estimates using the Total Resource Cost (TRC) Test methodology,[1] measurement, verification and evaluation (MV&E) plans customized to each program, forecasts of 2015 impacts, evaluation of independent

[1] As required by the Commission's August 22nd Order on utility incentives, the shareholder incentives (both MWH and MW) are included in the TRC as if Con Edison met 100% of its goal, even though such incentives are not ordinarily included as part of the TRC.

program administrator proposals, and descriptions of the Company's efforts to coordinate with other program administrators. The Company has continued to hold collaborative discussions with NYSERDA, utilities and other interested parties, and has begun to develop a preliminary understanding with NYSERDA on how to coordinate energy efficiency efforts in the Company's service territory.

As recognized by the Commission in its June 23rd Order (p. 49), there are many reasons for establishing investor-owned utilities as program administrators, among them that "Utilities have direct access to customers and customer usage information. They offer a diversity of approaches that may lead to a wider offering of programs than would occur under a centralized administrator." Con Edison agrees that it is well positioned to deliver customized energy efficiency programs to meet the needs of its customers. The Company has ongoing relationships and regularly communicates with its customers. Access to, and relationships with, its customers give Con Edison an important advantage in marketing and delivering energy efficiency programs. The Company understands the unique characteristics and needs of various customer segments and demand profiles and can match these with its own system planning requirements. The Company enjoys regular touch points with its customers and utilizes staff whose sole responsibility involves providing support to specific customers and customer segments. Its relationships and institutional knowledge, combined with the engineering and technical understanding of its electric systems will enable Con Edison to design effective and comprehensive solutions that will maximize participation and energy savings. In addition, Con Edison's knowledge of its electric system will allow the Company to implement efficiency programs that achieve both energy and capacity benefits and verify their attendant infrastructure investment deferrals.

The Company envisions the proposed consolidated programs, including the Expedited Programs submitted pursuant to the Commission Order on August 22, as the key components of its comprehensive 500 MW electric energy efficiency initiative. In developing the proposed program approach, Con Edison considered successful energy efficiency program models around the country and its own objectives to position the Company as a key provider of energy efficiency services to its customers in support of the State's 15X15 program, PlaNYC 2030 goals, Westchester initiatives, and to defer transmission and distribution (T&D) infrastructure investment.

To achieve these objectives, Con Edison has designed programs that:

- Create a strategic approach that is targeted, yet flexible enough to adjust and expand as warranted by changing market conditions by offering customers a logical continuum of actions coupled with increasingly valuable incentives for cost-effective efficiency strategies.
- Allow customers to make use of existing technical analyses, focus on organizational priorities and employ a phased implementation approach.
- Focus on depth of savings and customer, trade ally and stakeholder relationships through training, education, hardware, Con Edison website and customer support.

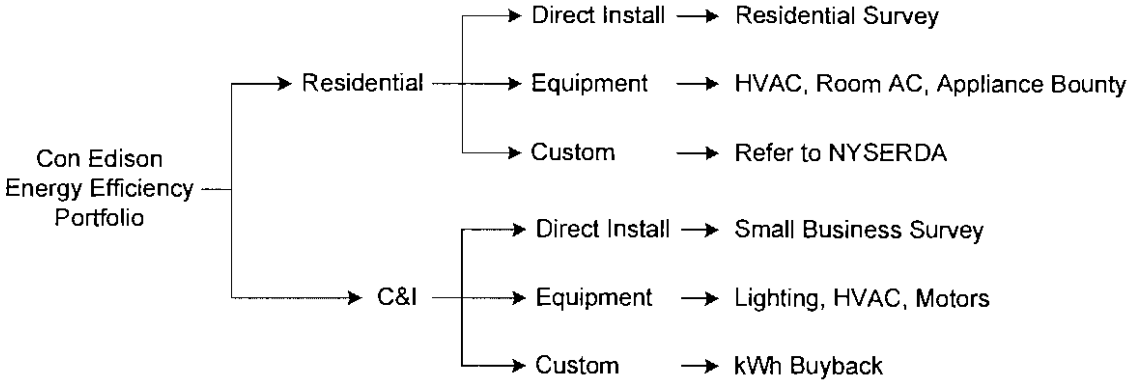
- Utilize the Company's client relationships, market knowledge and community presence to aggressively target underserved market sub-sectors such as data centers and healthcare.
- Support the local economy by helping to reduce customer utility costs, utilizing local labor whenever possible and promoting the adoption of high quality equipment.
- Complement Con Edison's EEPS Expedited Programs, demand response and steam programs and ongoing work with NYSERDA, NYPA, and the New York Independent System Operator (NYISO) as well as other programs in the state.

Energy Efficiency Portfolio Structure

Con Edison's energy efficiency programs provide a cohesive structure intended to support residential and commercial and industrial (C&I) customers through a logical continuum of energy efficiency actions, starting with facility review and analysis and ending with implementation, verification and evaluation. The entire continuum is supported by financial incentives and a delivery approach focused on providing customers with the support they need to achieve their efficiency objectives. Implementation activities are segregated into simple, common measures that can be installed with minimal oversight or administrative burden and more complex measures that are vetted through a comprehensive technical analysis and may (but are not required to) be part of a facility-wide energy management strategy.

Con Edison envisions that for its two major program areas – residential housing (up to four units) and C&I facilities – the same structure will be provided to support customer decision-making and implementation. The overall portfolio structure is depicted in Figure 1 and explained below.

Figure 1. Composition of Con Edison Energy Efficiency Portfolio



Direct Installation and Energy Surveys: The Direct Installation program proposed here provides low-cost on-site energy surveys, direct installation of free efficiency measures and recommendations for more extensive energy efficiency upgrades. Con Edison's Small Business Direct Installation program for commercial customers with up to 100 kW of monthly demand was submitted to the Commission as one of the Expedited Programs. A Residential Direct Installation Program is proposed here. Both programs are intended to be a simple entry path into Con Edison's portfolio of programs for residential and C&I customer segments. It allows Con Edison to make crucial first contact, offer free measures that will deliver immediate energy savings, and recommend more significant energy efficiency upgrades that are customized to the customer's residence or facility and supported by the other programs in Con Edison's Energy Efficiency Portfolio, or by NYSERDA's programs, if applicable.

Equipment Rebate Programs: Prescriptive rebates for common, high-efficiency technologies are a simple, cost-effective means to help offset their higher installation cost. By offering financial incentives for these measures, Con Edison will maintain the continuum of support for customers to help them achieve energy efficiency. Such technologies may be recommended for installation following an energy survey, but an energy survey is not a pre-requisite to receiving an equipment rebate through Con Edison. Customers that experience equipment failures or simply wish to replace older or inefficient equipment are eligible for and will be encouraged to participate in the program. Con Edison's Residential HVAC program, submitted to the Commission as one of its Expedited Programs, includes several standard rebates for residential heating, cooling and water heating technologies. The Company proposes the addition of room air conditioners to that program as part of this filing and making this air conditioner program more widely available. Con Edison will take a similar approach with its C&I customers, offering prescriptive rebates for several HVAC technologies as well as lighting measures and motors.

Custom Efficiency Program: In some cases, customers may desire a more comprehensive, whole-facility approach to efficiency, or they may require efficiency upgrades to more complex systems or uncommon technologies. For these instances, a more customized approach is required. For the residential sector, NYSERDA's Home Performance with ENERGY STAR® provides a comprehensive approach with flexible incentives that allows customers to install a range of efficiency measures to meet their individual needs. Con Edison will refer customers interested in this approach to NYSERDA. For the C&I sector, Con Edison will provide rebates on efficient technologies not included in the equipment rebate program, system upgrades or process improvements. Custom projects must be shown to be cost effective based on an appropriate technical study, provided by Con Edison's recommended contractors or the customer's selected professional engineer or other qualified contractor. Con Edison will work with customers to develop an energy management road map that may include both prescriptive and custom strategies that may be implemented in part or in total at the customers' desired pace. The energy management road map will provide a long term planning tool to help customers implement energy efficiency measures over time and give Con Edison's customer support personnel a tool for tracking activities and following

up with customers. This will also provide information that will allow for and facilitate referrals to a NYSERDA program where appropriate. Con Edison will support customers throughout this process and will offer tiered rebates that reward those customers who achieve higher energy savings with larger financial incentives.

Con Edison believes that these three program options will give its residential and C&I customers access to a logical but flexible progression of steps that will support customers' energy efficiency objectives with the most appropriate solutions to meet customers' needs and goals. The program structure is designed to provide Con Edison's customers with flexibility and control over the entire program delivery continuum. The proposed program structure will also enable the Company to target high-potential market segments and technologies through its marketing strategies, adapt to changing market conditions and enhance existing energy efficiency activities and refer customers to NYSERDA as appropriate.

This program structure was designed after analyzing available information on market characteristics of the Company's service territory, programs and incentives currently available to various market segments, the delivery gaps associated with current programs (*e.g.,* the need for more customer support and follow up), and barriers associated with deploying energy efficiency solutions to Con Edison's customers. Because NYSERDA programs target low-income, multifamily and new construction segments, Con Edison has not addressed these customer segments in its proposed programs, except when specific eligible equipment rebates are an appropriate alternative to NYSERDA's whole-facility approach (in other words, these segments are not excluded from participating in Con Edison's programs). Con Edison will continue to promote NYSERDA programs to appropriate customers and provide referrals to NYSERDA.

In addition to the meetings described in Con Edison's August 21st filing, representatives from Con Edison have continued to meet in person and by phone with NYSERDA and others through the first three weeks of September. Con Edison and NYSERDA discussed how their respective programs can complement each other to facilitate achievement of the State's 15x15 goal. Among other things, Con Edison will participate in NYSERDA's Power Management Pilot Program distributing smart strips, use its residential surveys to refer customers to NYSERDA's Home Performance with ENERGY STAR® program, and work with NYSERDA to facilitate customer movement into NYSERDA's other programs as appropriate.

Con Edison will also integrate the new programs described herein with its existing programs, *e.g.*, its existing targeted demand side management (DSM), demand response (DR) programs, and any other efficiency programs ultimately approved by the Commission.

The following sections provide the Company's overall goals, summary-level TRC data on the programs, and MV&E structure. In addition, there is information on discussions and collaboration Con Edison has had with various stakeholders. More specific information is contained in the detail description for each program.

Goals

The Company notes that while it is initially projecting that 809,936 MWh is the total that can potentially be achieved from those programs that are applicable to the Commission's incentive, the Company understands that it is currently capped at 765,948 MWh for the three-year period, as provided in the Commission's August 22nd Order on incentives. The Company has filed a petition for rehearing on this cap.

Table 1 sets forth the estimated annual goals that Con Edison has initially established, including its initial estimate of the ramp rates for each year. The estimated ramp-up rates are based on the projected time for the Company to scale up its programs as customer awareness increases and as Con Edison adds the resources needed to deliver the full programs. The Company notes that while it is initially projecting that 809,936 MWh is the total that can potentially be achieved from those programs that are applicable to the Commission's incentive, the Company understands that it is currently capped at 765,948 MWh for the three-year period, as provided in the Commission's August 22nd Order on incentives. The Company has filed a petition for rehearing on this cap.

Table 1. Con Edison Annual MWh Savings Goals[2]

Program component	2009 (MWh)	2010 (MWh)	2011 (MWh)	Total (MWh)	Order Target
Expedited Programs	30,244	90,733	181,466	302,444	301,363
Electric Efficiency Programs	35,419	106,258	212,515	354,192	273,116
Targeted DSM Program	15,330	45,990	91,980	153,300	NA
Steam Cooling Program	772	2,315	4,629	7,715	NA
Refrigerator Replacement Pilot	478	1,434	2,868	4,781	NA
Total Expedited + Electric Programs	**65,664**	**196,991**	**393,981**	**656,636**	**574,479**
Total All Programs	**82,243**	**246,729**	**493,459**	**822,432**	
Total for Incentive	**80,993**	**242,981**	**485,961**	**809,936**	

Con Edison notes that in this filing it has consolidated all of the energy efficiency programs into two program areas, a general residential program and a general C&I program. Con Edison is not proposing any major programs that have any special public interest associated with them (other than the refrigerator pilot program), such as low-income (which NYSERDA provides in the Con Edison service territory and Con Edison will promote) that would require that its ability to earn the incentive be weighted toward any particular program. Accordingly, the Company requests that its annual incentive be based on its total annual goal only, and that it be allowed to reallocate up to 40% of the initially allocated funds between the C&I and residential programs as appropriate to optimize the use of energy efficiency funds and achieve these annual goals. The Company will provide notice to DPS Staff and interested parties when it engages in such reallocation.

[2] The "Total for Incentive" excludes the Steam Cooling and Refrigerator Replacement Pilot programs. In addition, the amount shown for the Targeted DSM Program is the full amount that is expected to be needed to defer infrastructure, but not all of the MWh may be achieved as incremental to the Expedited and Electric Efficiency Programs.

The Company also notes that the MWh shown in Table 1 for the Expedited and Electric Efficiency programs exceed the Company's target established in Appendix 1, Table 11 of the June 23rd Order and include the MWh that the Commission initially expected would come through Tariffed Installation Programs (TIP) or on-bill financing (OBF) (82,000 MWh). The Company is participating in the OBF Working Group, which is considering issues associated with an OBF mechanism. The Company anticipates that if a practical OBF mechanism can be developed, then it will implement OBF in connection with one or more of the programs proposed herein.

Summary TRC and Impacts

A summary of the energy savings, demand impacts and costs for Con Edison's entire Energy Efficiency Portfolio, including the previously filed Expedited Programs and those included in this filing, are reported in Table 2. The table also shows TRC benefit/cost ratios under two alternative avoided cost scenarios, one with a carbon dioxide adder of $15/ton and one without. The TRC tables reflect levelized annual participation levels, when there will be ramp up for each program.

Table 2. Projected Electric Energy Efficiency Portfolio (exclusive of steam and refrigerator pilot programs)[3]

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	269,979	269,979	269,979	809,936
Coincident Peak Savings (MW)	88	88	88	265
Demand Savings (MW)	102	102	102	305
Total Resource Cost	$162,960,000	$166,057,000	$169,223,000	$498,240,000
Utility Financial Incentives	$14,919,000	$14,919,000	$14,919,000	$44,757,000
Participant Cost Net of Incentives	$34,316,000	$35,037,000	$35,772,000	$105,125,000
Direct Utility Costs	$113,725,000	$116,101,000	$118,532,000	$348,358,000
Customer Incentives or Services	$71,185,000	$72,680,000	$74,207,000	$218,072,000
Program Planning and Administration	$7,362,000	$7,513,000	$7,672,000	$22,547,000
Program Implemention Costs	$14,356,000	$14,658,000	$14,966,000	$43,980,000
Program Marketing and Trade Ally	$14,378,000	$14,670,000	$14,969,000	$44,017,000
Evaluation and Market Research	$6,444,000	$6,580,000	$6,718,000	$19,742,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits (TRC)	$1,033,117,702	$1,071,427,230
NPV Costs (TRC)	$399,000,828	$399,000,828
Benefit-Cost Ratio (TRC)	**2.59**	**2.69**

The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the six percent that will be allocated between evaluation and market

[3] The TRC costs are in nominal dollars for each of the three program years. In calculating the benefit-to-cost-ratios, costs accruing after 2009 are discounted, at 7.7% to 2009 dollars in order to obtain the net-present value (NPV) of the TRC costs. NPV of benefits represent discounted avoided cost benefit of the stream of energy and capacity savings over the life of measures installed in each program year. The analysis also assumes a net-to-gross ratio of 0.90 (e.g., free-ridership net of spillover) for all programs except the Residential Direct Installation Program.

research is still to be determined as well as any portion that may be allocated to Department of Public Service (DPS) Staff to perform its functions).[4] The actual budget for each individual program may vary from that amount.

Table 3 shows the energy savings, demand impacts and costs for the Electric Efficiency programs that are part of this filing. These programs are expected to achieve approximately 354,000 MWh in annual savings by the end of 2011.

Table 3. Projected Electric Efficiency Programs

	Plan Year			
Benefit/Cost Component	**2009**	**2010**	**2011**	**Total**
Savings (MWh)	118,064	118,064	118,064	354,192
Coincident Peak Savings (MW)	48	48	48	143
Demand Savings (MW)	49	49	49	147
Total Resource Cost	$80,324,000	$81,869,000	$83,450,000	$245,643,000
Utility Financial Incentives	$6,524,000	$6,524,000	$6,524,000	$19,572,000
Participant Cost Net of Incentives	$9,754,000	$9,960,000	$10,168,000	$29,882,000
Direct Utility Costs	$64,046,000	$65,385,000	$66,758,000	$196,189,000
Customer Incentives or Services	$36,407,000	$37,171,000	$37,952,000	$111,530,000
Program Planning and Administration	$5,457,000	$5,571,000	$5,692,000	$16,720,000
Program Implementation Costs	$8,680,000	$8,863,000	$9,049,000	$26,592,000
Program Marketing and Trade Ally	$9,659,000	$9,856,000	$10,058,000	$29,573,000
Evaluation and Market Research	$3,843,000	$3,924,000	$4,007,000	$11,774,000

TRC Test	**Without Carbon Dioxide**	**With Carbon Dioxide**
NPV Benefits (TRC)	$585,641,745	$608,804,448
NPV Costs (TRC)	$228,282,989	$228,282,989
Benefit-Cost Ratio (TRC)	**2.57**	**2.67**

General Program Delivery Approach

Con Edison's delivery approach is based on its assessment of features needed to help overcome specific barriers to energy efficiency adoption in its service territory, generate a high level of energy savings and coordinate with NYSERDA on program delivery. The approach includes:

- Continuous customer support through the program continuum.
- Flexibility to allow customers to maximize their own resources, enter and exit the program delivery continuum at any point, and combine incentives from multiple programs to form the best solution for any facility or system.

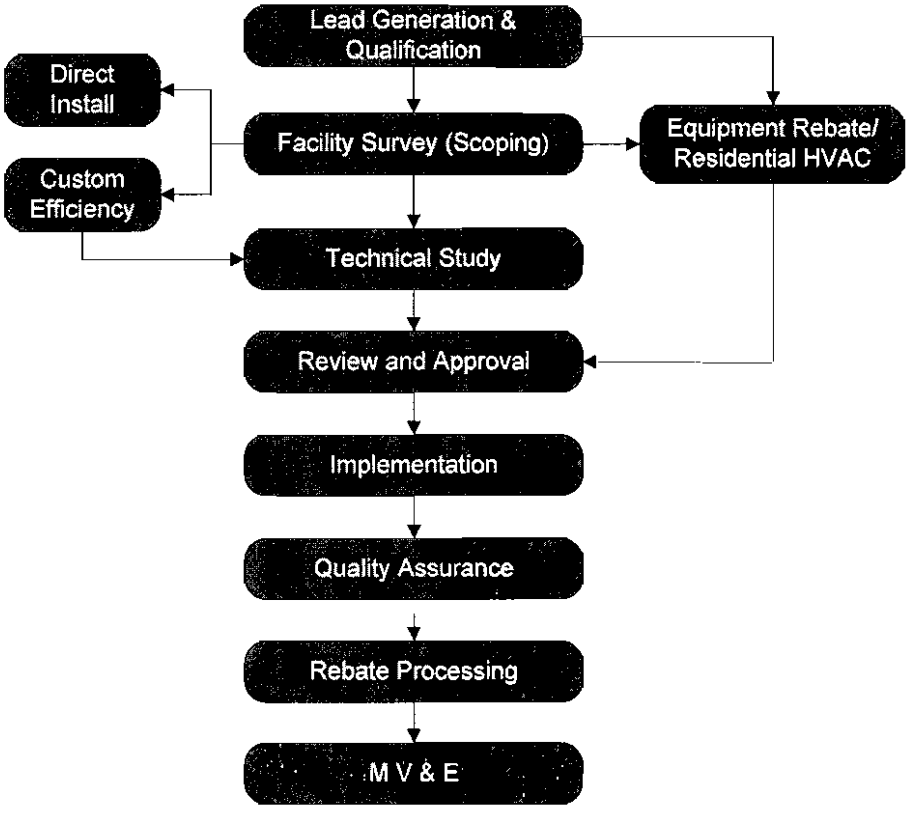
[4] This may also include limited funding for research and development related to energy efficiency programs to the extent that such funding is not allowed in Con Edison's rate case, Case 08-E-0539.

- Focused, aggressive marketing to address underserved market sectors and sub-sectors.

Con Edison will use its own staff and third parties to provide administrative, implementation and delivery functions. Following a ramp-up period, Con Edison expects to have fully-trained customer support staff with expertise in various market sectors, who will be assigned to conduct targeted marketing and provide on-going support to specific customer and market segments. The Company's objective is to find the optimal balance of costs, ratepayer value, quality of service, and energy and capacity savings while leveraging contact with customers through the Company's own staff. Con Edison will continue to review all of its programs on a regular basis and will revise qualifying equipment measures, eligibility and incentive levels or structure in the future, as appropriate, to manage program participation or as market conditions and equipment standards change. If Con Edison makes any changes it will notify DPS Staff and other interested parties of the changes and TRC impacts.

Con Edison's efficiency programs will follow the general delivery path, or continuum, depicted in Figure 2. Con Edison has designed this delivery approach to provide flexibility, customer support and an opportunity for on-going customer relationship building and depth of savings at individual customer facilities. A customer may complete any number of steps in the continuum, and the complete continuum may not apply to all customers (e.g., a technical study does not apply to residential customers). At any point during this process shown below, Con Edison may refer the customer to NYSERDA if its programs would be more appropriate for the customer.

Figure 2. Energy Efficiency Delivery Process



Specific fcatures of this delivery process are outlined below.

- ***Lead Generation and Qualification:*** Over time and with the results of process evaluations, Con Edison will add new strategies to its marketing approach for both residential and commercial customers. Initially, Con Edison has identified data centers and healthcare facilities as targets for its C&I custom program. These target markets are based on Con Edison's current knowledge of its customer segments, service territory characteristics and market gaps. While program eligibility is not limited to specific market segments, Con Edison will initially target certain strategic markets for participation.

- ***Facility Survey:*** A facility survey, or scoping study, will be one entry point for customers to enter the project continuum. The survey will be offered as part of Con Edison's Small Business and Residential Direct Installation programs, or may be included in the overall project development effort for larger C&I customers. The purpose of the survey is to identify opportunities for energy efficiency upgrades eligible for Con Edison's Residential HVAC, Equipment Rebate or Custom Efficiency program and, where appropriate, to refer customers to NYSERDA for a whole building approach.

- ***Technical Study:*** Customers interested in installing equipment measures under Con Edison's Custom Efficiency program may undertake, and may be reimbursed for up to 50% or more of, a technical study of the proposed equipment upgrade or comprehensive facility upgrades. The technical study may vary in detail and complexity depending upon the type of upgrade proposed. It may be completed by one of Con Edison's recommended contractors or a licensed professional engineer or other qualified contractor selected by the customer.

- ***Review and Approval:*** Con Edison will review projects for program compliance with a level of rigor appropriate for the proposed efficiency upgrade. Basic program compliance requires that the participant is a Con Edison customer and that the specified equipment meets the efficiency qualifications of the program. Con Edison will conduct a more comprehensive evaluation of technical study results associated with custom rebate proposals to ensure the proposed equipment upgrade(s) meet Con Edison's cost effectiveness threshold.

- ***Implementation:*** Customers may use their own implementation contractors or choose one of Con Edison's pre-qualified contractors. Con Edison will provide on-going personnel and technical implementation support to C&I customers in the Custom Efficiency program as needed and desired by the customer.

- ***Quality Assurance:*** Quality assurance will be managed by Con Edison dedicated customer support staff or program contractors. Efforts will include appropriate screening and pre-qualification of installation contractors, pre-installation inspections, and post-installation inspections of a sample[5] of sites receiving energy efficiency measures to ensure proper installation and functioning of measures. Complex, technical or costly upgrades will receive more rigorous inspections.

- ***Customer Support:*** Con Edison understands that consistent support and follow up is critical to overcoming market barriers to achieving energy efficiency penetration in its service territory. Con Edison's programs will provide a high level of personal interaction with customers. For its C&I programs in particular, the Company intends to add customer support personnel and provide detailed training to create a staff of knowledgeable market-specialists whose responsibility is to help customers enter and proceed through the program delivery continuum. These specialists will have detailed knowledge of the processes and energy end uses common to their specific market sector as well as a solid network of contacts within the sector and among trade allies and contractors who are available to support the sector. C&I customers will have a single point of contact within Con Edison. Large customers and participants in the Custom Efficiency program will have an assigned Con Edison staff person who will act as liaison with contractors and other Company departments on the customer's behalf, support the customer

[5] This sampling will be more comprehensive for the custom and targeted program.

in completing any necessary paperwork and be available to ensure that they have everything they need to follow through from analysis to implementation.

Education and Training

Con Edison requires superior quality from its staff and contractors and will work to provide appropriate training to support all functions of its programs from responding to program inquiries to the installation of complex heating and cooling equipment. Con Edison will provide on-going training throughout the Programs' period of delivery.

Con Edison has identified the following specific areas where education and training will be critical to supporting a robust, successful program.

- ***Customer Education:*** In coordination with other program administrators and the Commission's Outreach and Education Advisory Group, Con Edison will develop appropriate consumer educational materials to be distributed during energy surveys, other customer interactions and electronically. These materials may include customer or sector-specific energy use information, personal carbon footprint or energy benchmarking, fact sheets on energy efficient equipment and behaviors, do-it-yourself installation and maintenance guides and general energy efficiency educational materials. The Company will continue to expand these outreach and education measures. Over time, Con Edison plans to provide customers with understandable information concerning the impact of efficiency measures on their energy bills.

- ***Internal Staff Education*:** Con Edison will train appropriate staff to be familiar with its programs, as well as the programs of NYSERDA, National Grid and NYSEG; to articulate program benefits; and be prepared to recommend participation to appropriate customers. The Company will implement company-wide outreach to provide essential program information. More detailed training will be provided to Con Edison staff that has regular customer contact. C&I customer representatives will receive focused training on target market sectors and their energy use characteristics, marketing tactics and customer support requirements.

- ***Contractor Education:*** Contractors will play a key role in promoting and implementing the program. Con Edison will provide training to its selected administrative and implementation contractors, providing both classroom-style training and written and electronic materials. Educational topics may include, but will not be limited to, advanced energy efficiency equipment installation and best practices, program protocols and guidelines, quality assurance requirements, delivery approach, monitoring protocols and reporting requirements. Con Edison will also provide its contractors with marketing brochures and other collateral materials that they can distribute to promote the program.

- ***Other Education*:** The Company will reach out to trade allies, equipment dealers, retail outlets, builder and realtor associations and other professional groups with

direct mail, one-on-one outreach, "lunch and learn" meetings, seminars, webinars and community presentations targeting these and other stakeholders to inform them about the Company's programs, the benefits that will be available and information on how to participate.

Portfolio Coordination and Integration

Con Edison will work to integrate its existing and proposed programs into its broader portfolio with NYSERDA and other customer efficiency programs. Con Edison intends to educate its internal staff, trade allies and other participating contractors on the programs and ways to cross-promote programs, where applicable.

Current programs offered by Con Edison and others that will require some level of integration or planning, or both, to utilize complementary resources and avoid conflict, include the following:

- ***Business Incentive Rate:*** Con Edison offers a special rate to businesses to encourage them either to relocate to or remain in New York City or Westchester County. Con Edison's C&I efficiency programs provide additional incentives that it can offer to support New York businesses.

- ***Demand Response Programs:*** Customer interaction through Con Edison's energy efficiency programs will provide an excellent opportunity to cross promote and integrate Con Edison's demand response programs for C&I customers. Con Edison's representatives will explain these opportunities to customers and make referrals, as appropriate.

- ***Targeted DSM Program:*** Under Con Edison's existing targeted DSM program, the Company contracts with vendors to install permanent energy efficiency measures for customers in networks where timely reductions in that network's demand can result in the deferral of network infrastructure upgrades that are forecasted to be required as a result of load growth. Con Edison will work with contractors to supplement the energy efficiency gains achieved in the Targeted DSM program, *e.g.*, Con Edison can refer customers that it recruits to the contractors and also seek to develop marketing strategies for those customers that have already worked with the contractors.

- ***Direct Load Control Central Air Conditioning (CAC) Program:*** Con Edison's residential and small business programs will provide an excellent opportunity to cross promote Con Edison's Direct Load Control CAC Program to these customers. Audit, survey and air conditioning installation contractors will be trained to fully explain the program and make a referral to the appropriate Con Edison staff for scheduling installation on behalf of the customer. Over time, Con Edison will consider training its contractors to complete the installation of the programmable thermostats needed for participation in the Direct Load Control CAC Program.

- ***Oil to Gas Conversion Program:*** Customers who switch from heating oil to natural gas through Con Edison's program may also be interested in evaluating their home's energy performance and participate in electric energy efficiency through the Residential Direct Installation program. Con Edison's service representatives will inform customers about the opportunities available through all of Con Edison's and NYSERDA's Residential programs and will provide referrals and follow up.

- ***NYSERDA programs:*** NYSERDA's programs (e.g., Home Performance with Energy Star®, Multi-Family Performance Program) can provide an excellent option for a customer seeking a whole building approach to energy efficiency. In addition, NYSERDA programs will serve the low-income market and the New Construction market.

- ***Utility program integration:*** In areas where Con Edison delivers electricity and National Grid delivers natural gas, Con Edison intends to work to integrate all energy efficiency programs to offer customers the same features and benefits provided elsewhere. Con Edison has begun to coordinate with National Grid regarding integration of programs and will continue these discussions to develop an integrated marketing and delivery approach that also allows for discrete budget and savings allocations and tracking. Con Edison also will engage in discussions with NYSEG regarding similar integration strategy for a small portion of their service territories that overlap in Westchester County.

Marketing

Marketing Approach

Each customer interaction, whether with existing customers, new customers or future customers, is an opportunity to promote energy efficiency programs. Con Edison's regular and frequent communications via routine attachments, service requirements, bill inserts, site visits, emergencies, meter readings, information requests, and speaking engagements at community events, together with the Company's brand recognition, provide Con Edison with the ability to build and deliver energy efficiency programs through its customer relationships. Con Edison will demonstrate to its customers that its programs will contribute to sustainability goals and help reduce energy costs.

Con Edison's extensive customer and service territory knowledge will allow for more targeted, cost effective and successful programs. Customer operations, economic development, engineering and energy service departments that include service representatives, customer project managers, technical specialists, engineers and many other parallel disciplines provide a deep knowledge base about customer usage and customer and system needs. Con Edison's ability to tailor outreach efforts to geographic areas, customer classes, market sectors or even individual customers, offers a natural advantage in quickly achieving participation in programs and thus energy efficiency goals. Similarly, Con Edison personnel are in a position to influence and transition

customers in the decision-making process when evaluating and selecting the range of technology and equipment options.

Con Edison plans to use these natural marketing assets - customer relationships and service territory knowledge - as the foundation of its expanded marketing efforts to ramp up its new energy efficiency programs, overcome barriers in its service territory, and reach underserved populations. The Company recognizes that personal interaction, support and follow up are critical ingredients in helping customers move from knowledge to action and Con Edison plans to focus considerable attention on providing customers with the support they need. The Company expects to use its customer service and field personnel to help market programs, and plans to add staff or contractors or both as needed to provide the customer support required to get results. Con Edison will also leverage vendor relationships and use third parties such as ESCOs for both marketing and program delivery.

Con Edison will emphasize cross promotion and sales training among its personnel, contractors and trade allies to achieve greater savings. This philosophy is not exclusive to Con Edison programs. As noted above, where customers can benefit from participation in other eligible programs, such as NYSERDA's, Con Edison will recommend them and help the customer participate.

Marketing Strategies

Con Edison utilizes a wide range of marketing channels to promote its programs and services. These include broad media outlets such as print media, direct mail, Internet, and radio advertisements. Additionally, Con Edison will capitalize on customer touch points including service calls, customer newsletters, on-bill messaging and speaking engagements at seminars, conferences and community events. The Company will continue to utilize these traditional marketing channels, as well as conducting targeted, social marketing-based activities. In addition to the marketing strategies described above, several specific marketing and promotional strategies are outlined below:

- Building a brand identity for its portfolio of programs to help generate customer recognition and establish Con Edison as a significant player in the New York energy efficiency market.

- Harnessing the Internet as a major platform for marketing and supporting of its energy efficiency programs. The Company website is already a resource that is widely known and promoted among its customers.[6] Con Edison will enhance the site to create a web-based energy efficiency portal that will provide a source of information for both residential and C&I customers. Among the enhancements being considered are:

    - centrally located information, application forms, approved contractor lists and suppliers of eligible products and services;

[6] In July 2008, for example, Con Edison's corporate website received approximately 1.3 million visits and 6.7 million hits.

- an on-line home energy analysis tool with the goal of integrating this tool with billing analysis and the Company's My Account sites so customers have ongoing information about their usage and the impact of their efficiency investments;
- decision support information such as baseline analysis, benchmarking, financial analysis and carbon footprint analysis tools;
- a technology database with cost and efficiency data;
- specialized information for specific market sub-sectors; and
- energy efficiency project tracking.

– Targeting new owners and tenants in existing facilities, as well as those embarking on renovation projects, as potential participants in its programs. The Company will work with real estate firms and associations, builders and remodeling contractors, home improvement retail outlets and contractors who install and service heating, cooling and water heating equipment to inform them about the program, provide marketing brochures and promote the program through the organizations' websites, newsletters, event sponsorship and customer interactions. Con Edison will send a "welcome packet" to homeowners that sign up for new service, which will include information on its programs.

– In order to ramp up its programs and in addition to its initial focus on data centers and healthcare facilities in the custom program, and existing office buildings and multifamily common areas in the Equipment Rebate program, Con Edison will conduct targeted marketing to multi-location businesses, such as chain stores and franchises, the food industry, large property management companies and multi-building owners as well as organizations that serve multiple residential customers, such as property management companies, real estate associations and home owner's associations. Con Edison will arrange speaking engagements at association meetings and leverage organization newsletters and websites.

– Partnerships with New York City, Westchester County and regional agencies, such as the NYC Economic Development Corporation, the Housing Preservation and Development agency, Business Improvement Districts (BIDs), the New York City Department of Small Business Services, the Building Owners and Manager's Association (BOMA), and various governmental (including municipal) offices, will be important for increasing awareness of the program. Con Edison has relationships with many of these agencies and will continue to work with them to develop co-marketing strategies to promote its programs through the agencies' newsletters, websites and other outreach material.

– Con Edison will collaborate with NYSERDA, other New York metropolitan area utilities and the Commission's Outreach and Education Advisory Group to develop consistent regional marketing messages and materials, where appropriate.

Coordination with Other Program Administrators and Stakeholders

In addition to the meetings and other activities detailed in the Company's August 21st filing, Con Edison has continued to meet with NYSERDA, other utilities, the New York Power Authority (NYPA), the City of New York (NYC), and various stakeholders in NYC, Westchester County and the State. Con Edison met with NYSERDA in person and by phone to discuss ways to collaborate going forward. Con Edison expects that these meetings will continue to develop details on how NYSERDA's and the Company's program can offer a seamless continuum for the customer. Con Edison also held and continued conversations with other utilities, potential independent program administrators, potential contractors and other vendors, the National Association of Energy Service Companies and product manufacturers. Representatives from the Company have and continue to participate in all of the EEPS working groups. Additional specific meetings held include the following.

- On August 27, 2008, Con Edison attended a meeting hosted by NYC Economic Development Corporation. This was a meeting of the Working Group on Energy Efficiency in Multifamily Buildings. The meeting was attended by representatives from DPS Staff, NYC Economic Development Corporation, Association for Energy Affordability, NYSERDA and others. Several topics were discussed during the meeting including the MV&E process, the issue of contractor coordination with several programs or organizations and coordination between Con Edison and NYSERDA on Expedited and Fast Track Programs.

- On September 5, 2008, Con Edison attended a meeting coordinated by NYC Economic Development Corporation. This was a meeting of the Existing Commercial Buildings Working Group. In attendance were representatives from NYC Economic Development Corporation, Staff, the Mayor's Office, NYSERDA and The City University of New York. Topics discussed included the City's role in marketing energy efficiency programs, consolidation of programs by different organizations, potential bills before the City Council, free ridership and how more advanced energy codes at the local level could influence State code.

- On September 16, NYC Economic Development Corporation, NYSERDA and Con Edison held a conference call to discuss the details of the NYSERDA and Con Edison 90-day filings and how the entities would continue to work together to offer a continuum of programs to customers in the Con Edison service territory.

Con Edison has worked with NYSERDA to deliver energy efficiency programs to customers in Con Edison's service territory for several years and has a good, collaborative working relationship with NYSERDA's staff and program contractors. Con Edison understands the importance of continued collaboration and will continue to work with NYSERDA and other participating utilities to establish consistency, where appropriate, with respect to eligible equipment and rebate levels. Discussions to date have included, among other things, a simplified application process and moving customers

from whole building to equipment-oriented programs and vice versa. Con Edison will participate in NYSERDA's Power Management Pilot Program[7] and will continue to support NYSERDA mailings and marketing efforts. As it has in the past, Con Edison will promote appropriate NYSERDA and other programs to its customers to maximize their available energy efficiency opportunities and is exploring ways to improve referrals to NYSERDA's Low- Income programs.

The Company will continue to work with NYSERDA, New York City and other interested parties in the State to identify areas where collaboration can increase program and budgetary efficiency (*e.g.,* delivery protocols, marketing and training). Con Edison intends to continue these beneficial discussions to foster productive efficiency strategies and develop new program opportunities.

Program Screening Methodology

Assessment of cost effectiveness begins with a valuation of the program's gross "total resource" benefits, as measured by the electric avoided costs[8] and an accounting of the program's total delivered costs. The program's cost effectiveness is determined in terms of the expected net present value of its benefits. A program is generally considered cost effective if its net "total resource" benefits are positive, in other words:

$$\frac{\text{Total Resource Benefits}}{\text{Total Resource Costs}} \geq 1$$

where,

$$\textit{Total Resource Benefits} = \text{NPV}\left(\sum_{\text{year}=1}^{\text{measurelife}}\left(\sum_{i}^{i=8760}(\text{impact}_i \times \text{avoided cost}_i)\right)\right)$$

and,

Total Resource Cost = NPV (Incremental Measure Costs + Utility Costs).

Program Benefit Components

Benefits used in the TRC test calculation include the full value of time and seasonally differentiated generation, transmission and distribution, and capacity costs. Benefits also take into account avoided line losses. For each energy efficiency measure included in a program, hourly (8,760) system avoided costs were adjusted by the hourly load shape of the end use affected by the measure to capture the full value of time and seasonally

[7] Power Management is the practice of managing electricity use of devices such as lighting, HVAC, and multiple consumer electronics and computer equipment systems, through new products and proactive energy saving actions. Con Edison will participate initially in the Program through its distribution of smart power strips.

[8] Annual avoided costs were provided in the March 25, 2008, DPS Staff Report on Recommendation for the EEPS Proceeding. Using an hourly price curve, these annual energy costs were shaped to represent Con Edison's territory over 8760 hours in the year.

differentiated impacts of the measure.[9] Non-energy benefits such as water savings were not factored into the calculation of benefits because these benefits are typically hard to quantify and too small to alter the outcomes of the analyses.

Program Cost Components

The cost component of the analysis considered incremental measure costs and direct utility costs. Incremental costs are the incremental expenses associated with installation of energy efficiency measures (net of customer incentives) and on-going operation and maintenance costs, where applicable. Utility costs are customer incentives and the expenses associated with development, marketing, delivery, operation and MV&E of the program and fall into the five following categories:

Program Development and Administration

- Costs to administer energy efficiency programs include, but are not limited to, fully-loaded personnel costs, including overhead expenses. (*e.g.*, office space, supplies, computer and communication equipment, certain staff training, certain industry related sponsorships and memberships) and system costs (*e.g.*, tracking system).

Program Marketing and Trade Ally Activities

- Promotion of energy efficiency programs includes, but is not limited to production of energy efficiency program literature, advertising, promotion (including trade ally and dealer incentive awards), displays, events, promotional items, bill inserts, internal and external communications. Advertising encompasses all forms of media such as direct mail, print, radio and Internet.

- Trade ally activities include activities associated with energy efficiency training and education of the trade ally community. This community includes, but is not limited to heating contractors, weatherization contractors, efficiency equipment and product installers and C&I auditors. Trade Allies may also include community groups and trade associations. This cost category also includes vendor recruitment, training and coordination costs (*e.g.*, quality installation training).

Customer Incentives or Services

- Cost of surveys and technical studies.

- Rebates paid to customers for implementing energy efficiency.

- Cost of free installation measures.

Program Implementation

[9] Since hourly end-use load shapes are unavailable for the Con Edison service area, they were developed by using available load shapes from other regions, adjusted for weather conditions in Con Edison service territory.

- Costs associated with performing program tasks on the Company's behalf. Tasks associated with this budget category include, but are not limited to lead intake, customer service, rebate application processing, rebate application problem resolution, quality assurance, and individual program reporting.

Evaluation and Market Research

- Activities associated with the evaluation of current and potential energy efficiency programs. These activities include, but are not limited to benefit-cost ratio analysis, program logic models, cost per kWh analysis, efficiency product saturation analysis, customer research and all ad hoc analyses that are necessary for program evaluation. In addition, any activities that pertain to regulatory compliance or reporting for energy efficiency conducted by energy efficiency group personnel or contractors would fall under this category. Expenses associated with evaluation include all internal and external costs (*e.g.*, consultant contracts).

- Activities associated with market research outside of measurement, verification and evaluation activities also fall into this category. These activities and their associated expenses include potential studies, customer surveys, and research into saturation and network and customer characteristics.

- This category may also include limited funding for research and development related to energy efficiency programs to the extent that such funding is not allowed in Con Edison's rate case.

Cost-Effectiveness Analysis

Economic performance of each program was evaluated using the TRC test with and without a carbon dioxide externality adder. Carbon dioxide was included in the total-resource test (TRC + C) valued at $15 per ton[10], assuming 0.5 tons of carbon dioxide emissions per MWh.[11] Benefit-cost ratios were calculated using the methods described in the California standard protocols for analyzing cost-effectiveness of energy efficiency programs.[12]

Table 4 identifies assumptions used in the cost effectiveness analyses of measures and programs (except for the Steam Cooling and Targeted Programs, which are analyzed differently due to their particular program characteristics).

[10] June 23, 2008 Order, Appendix 3, p. 2.
[11] Provided by DPS Staff.
[12] See California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects, California Energy Commission, October 2001.

Table 4. Key Assumptions Used in Cost Effectiveness Calculations[13]

	Electric Assumptions
Avoided Energy Costs (2009)	$86.89 per MWh
Avoided Capacity Costs (2009)	Generation: $105.40 per kW
	Transmission and Distribution: $103.20 per kW
Externality	0.5 tons of CO_2 per avoided MWh valued at $15 per ton
Line Loss	7.2%
Discount Rate	7.7%
Inflation	2.1%

Quality Assurance

Quality assurance will be integral to the design and delivery of all programs in the proposed portfolio. Quality control measures will be implemented at various stages of program implementation to ensure the highest standards of program delivery in the industry. These measures may include:

- Applying qualifying protocols in recruiting contractors such as those who conduct energy surveys;
- Developing a list of experienced equipment vendors and installation contractors through careful screening and qualification;
- Providing consistent, hands-on assistance to C&I customers through Con Edison customer support staff;
- Conducting follow-up calls to surveyed customers to ensure their satisfaction with the rendered services and to help them in their decision to install additional measures;
- Conducting post-survey inspections of an appropriately-sized random sample of all sites to verify installation of measures; and
- Conducting post-installation inspections of the census of sites receiving measures to ensure proper installation and functioning of measures.

Measurement, Verification and Evaluation (MV&E)

The evaluation plans presented in this filing follow the initial guidelines for EEPS Program Administrators distributed by DPS Staff on August 7, 2008 and represent best

[13] Except for the externality adder, the amounts set forth in the table come from the March 25, 2008, DPS Staff Report on Recommendations for the EEPS Proceeding.

practices in process and impact evaluation.[14] Con Edison anticipates that its evaluation efforts will be informed by the ongoing efforts of the Evaluation Advisory Group and by collaboration with the other utilities in the State that are planning to implement similar programs.

The underlying principles of the evaluation plans are:

- Maintaining the independence of the MV&E contractor;
- Working with Con Edison's MV&E staff and interested parties to integrate evaluation into the program planning and implementation process;
- Working with Con Edison's MV&E staff and interested parties from the program onset to ensure that evaluation data is available when needed, that it is gathered in a systematic manner and that it is valid and reliable;
- Providing enhanced MV&E for measures with the largest savings and performance uncertainties or that will provide T&D infrastructure deferrals;
- Using multiple methods to enhance results and provide information sufficient for resource and system planning purposes;
- Using industry standard approaches – such as the International Performance Measurement and Verification Protocols (IPMVP) for transparency and reproducibility;
- Providing ongoing, systematic feedback on program performance; and
- Integrating process and impact activities to improve the efficiency of the evaluation effort and to provide an integrated approach to the evaluation.

Each of the following program descriptions includes a preliminary framework for detailed evaluation work-plans to be developed following approval of the proposed programs. The Company intends to implement the detailed evaluation work plans through an independent, third-party evaluation contractor.

Timing of MV&E Activity

The process evaluation will begin in the early stages of program implementation so that the results are available to provide timely feedback to program administration staff. Process evaluation interviews with program staff, trade allies and key market actors may begin soon after the launch of the program in 2009. However, participant and non-

[14] The preliminary MV&E plans set forth herein are for the programs submitted in this filing. This may be different from the ultimate MV&E plans that the Company will implement subject to Commission approval for its entire energy efficiency portfolio. The Company anticipates that MV&E plan for which it will ultimately seek approval will be sufficient to support infrastructure deferrals where necessary and appropriate.

participant surveys will have to be conducted once there has been sufficient activity in the program. A second process evaluation will be conducted in 2010.

The impact evaluation will begin during the first quarter of the program's second year (2010), with a focus on data development and engineering analyses. The analysis of consumption histories will be conducted in the second quarter of 2010 and will continue in quarterly "batches" with reports available at the end of year 2010 and 2011.

Procurement Process

Con Edison plans to use a combination of in-house resources and third-party contractors to support its programs. The functions performed by contractors may change over time as the Company determines the most cost-effective approach to program administration, *e.g.,* through contractors or in-house staff, in order to effectively deliver programs at a reasonable cost. In cases where a third-party contractor is required, the Company's general policy is to procure materials, equipment, or services competitively,[15] however, there may be circumstances where the competitive method is not practical. In such cases, sole-source procurement may be used. To the extent that it uses third-party contractors, the Company will consult with potential contractors, such as energy service companies, on an on-going basis to solicit advice and ideas concerning the services that can be best provided.

Reporting

Con Edison proposes to provide the Commission with quarterly reports on the progress of program implementation. These reports will include information on actual expenses, customer participation, and savings realized from installed measures as compared to annual budgets and goals. These reports will also include information about ongoing program evaluation efforts. Each quarterly report will be submitted to the Commission approximately 45 days following the end of the calendar quarter.

In addition to quarterly reporting, the Company proposes to submit an annual report to the Commission for the purpose of updating its proposed budgets and goals for the coming year informed by evaluation findings, customer response to program services, and other relevant market intelligence.[16] The proposed budget to be included in this annual update will reflect any under or over-spending from the prior year. Each annual report will be submitted to the Commission approximately 180 days following the end of the calendar year.

Con Edison is proposing to use the format currently used by National Grid's KeySpan subsidiary in its reports to the Commission. The specific categories of information included in the report include:

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[15] The Company has an established RFP procedure that is overseen by the Purchasing Department, which is independent from the operational groups.

[16] If the Commission does not grant the Company's petition for reconsideration on the prohibition of banking and borrowing, then the Company proposes that it should also be allowed to update its goal for the current year in quarterly reports.

- Program Planning & Administrative Expenditures, year to date
- Program Marketing Expenditures, year to date
- Customer Incentive Expenditures, year to date
- Program Implementation Expenditures, year to date
- Evaluation & Market Research Experience, year to date
- Total Expenditures, year to date
- Program Year Budget, year to date
- Annual Budget
- Number of Rebates (or Participants), year to date
- Participation Goal, year to date
- Annual Participant Goal for Program Year
- Total Savings (kWh, kW, ccfs), year to date
- Savings Goal, year to date
- Annual Savings Goals for Program Year

1. Residential Direct Installation Program

Con Edison's Residential Direct Installation program will promote energy efficiency for existing residential electric customers. The program has been designed to provide a logical entry point for residential customers wishing to evaluate their home's energy performance and identify investment priorities before installing new energy efficiency upgrades. The program will provide low cost on-site energy surveys, direct installation of electric efficiency measures and recommendations for more extensive electric and gas efficiency upgrades. Participants in the program who choose to install the more extensive recommended measures will be directed to Con Edison's Residential HVAC program for prescriptive rebates of up to 60 percent of the incremental cost of applicable measures and the Company's other applicable efficiency programs or those of NYSERDA or other utilities, as appropriate. Con Edison's energy efficiency staff will provide overall strategic direction and management of the program and will be supported by program contractors to conduct certain delivery and administrative functions. Con Edison will market the program through traditional as well as grassroots activities.

Impacts Summary

A summary of the program's budget, savings, costs and cost effectiveness, as measured from the TRC perspective, is set forth in Table 5.

Table 5. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	7,889	7,889	7,889	23,666
Coincident Peak Savings (MW)	1	1	1	4
Demand Savings (MW)	2	2	2	6
Total Resource Cost	$4,185,000	$4,263,000	$4,344,000	$12,792,000
Utility Financial Incentives	$436,000	$436,000	$436,000	$1,308,000
Participant Cost Net of Incentives	$158,000	$161,000	$164,000	$483,000
Direct Utility Costs	$3,591,000	$3,666,000	$3,744,000	$11,001,000
Customer Incentives or Services	$1,909,000	$1,949,000	$1,990,000	$5,848,000
Program Planning and Administration	$546,000	$557,000	$569,000	$1,672,000
Program Implemention Costs	$382,000	$390,000	$398,000	$1,170,000
Program Marketing and Trade Ally	$539,000	$550,000	$562,000	$1,651,000
Evaluation and Market Research	$215,000	$220,000	$225,000	$660,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$21,291,331	$22,513,798
NPV Costs	$11,886,380	$11,886,380
Benefit-Cost Ratio	**1.79**	**1.89**

The evaluation and market research budget shown is six (6) percent of the total budget. An additional one percent of the direct utility cost is reserved for Staff's evaluation but is not included in the calculation shown herein. The portion of the six percent that will be

allocated between evaluation and market research is still to be determincd. The actual budget for this program may vary from that amount.

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 1.79 to 1 under the base-case and 1.89 to 1 under the TRC plus carbon dioxide test.

Program Eligibility

Con Edison residential customers (owners and tenants) in existing 1 – 4 family buildings who pay the System Benefits Charge will be eligible for the program. For whole building and custom solutions, customers will be referred NYSERDA's Home Performancc with ENERGY STAR® program. Low-income customers will be referred to NYSERDA's low income program.

Eligible Measures

Table 6 identifies the direct installation energy efficiency measures that will be installed by the energy surveyor. Con Edison will provide direct installation measures that are appropriate to each individual customer's homc.

Table 6. Eligible Measures

Measure	Eligibility Rating	Incentive
Compact fluorescent lamps	ENERGY STAR®	6 installed Free
Smart Strip[17]	N/A	Free
Hot water pipe insulation[18]	R-4 Insulation	Free
Low-flow showerheads[18]	1.5 GPM	Free
Water heater thermostat setback[18]	120 degrees	Free
Weather stripping and sweeps for doors	N/A	Free
Window-AC Timers	N/A	Free
Faucet Aerators[18]	1.5 GPM	Free

Customer Incentives

Energy surveys will be provided to residential customers at a low cost (approximately $35) to encourage participation. Energy surveys provide a valuable opportunity to interact with the customer, recommend energy efficiency upgrades and document existing equipment. The contractors who conduct the surveys will discuss appropriate behavioral and operational energy efficiency actions, inspect the customer's gas, and electric equipment and building envelope and provide recommendations on cost-effective

[17] Smart Strips are a power strip with a control device outlet and switched outlets that automatically shut down when the control device is shut down. Con Edison will provide each customer one Smart Strip that can be used for computers and peripherals or entertainment systems. Savings from the Smart Strip will be evaluated as part of NYSERDA's Power Management Pilot Program in which the Company will participate.

[18] These measures will be installed in homes with electric water heating equipment.

energy efficiency upgrades. Energy survey reports may include recommendations for additional, more costly equipment upgrades or participation in additional efficiency programs. Surveyors may advise the customer to seek out a more comprehensive facility evaluation through NYSERDA's Home Performance with ENERGY STAR® program or provide customers with information on other financial incentives that may be available for equipment upgrades through utility, State or Federal programs such as the Energy Policy Act of 2005 (EPAct) tax credits.

Program Implementation and Milestones

Con Edison's energy efficiency staff will finalize program design and conduct certain implementation activities, market the program and engage in intake. The Company will use a third party program implementation contractor to provide certain centralized program delivery services and qualified professionals to perform on-site energy surveys and the installations that occur at the time of the survey. Con Edison will provide training for its selected vendors with respect to necessary business processes, administrative procedures, roles and responsibilities, quality assurance protocols, budgets, reporting and timelines and will provide ongoing facilitation and oversight throughout the program delivery period.

Con Edison planned pre-launch tasks include:

1. Train appropriate internal staff on program details and benefits;
2. Develop customer education materials;
3. Conduct outreach to trade allies, vendors and local market actors;
4. Develop detailed work scopes, selection criteria and quality assurance protocols for program vendors;
5. Issue RFPs (when appropriate) to qualify and select service vendors: implementation contractor, energy auditors and measurement, verification and evaluation contractor(s);
6. Coordinate with other utilities and NYSERDA to identify direct installation product manufacturers and dealers and negotiate bulk equipment purchases;
7. Identify appropriate survey software for analysis and reporting and coordinate software access and training for contractors;
8. Finalize marketing approach using data mining and website intake information wherever possible and develop collateral materials;
9. Train service vendors; and
10. Determine appropriate date requirements for program evaluation.

Participation

Participation rates were estimated by examining the distribution of sales to residential customers. The total technical potential for this program was developed using Con Edison customer information data and engineering estimates of measure savings. After establishing the technical potential, participation levels were developed that would contribute to overall portfolio savings goals. Con Edison may further refine these participation levels following the completion of its market potential study described below. The resulting participation projections are shown in Table 7. Total participation through 2015, based on the first three years of program participation, represents 1.11% of all 2015 residential customers, although the number would be higher if calculated based on all eligible customers.

Table 7. Projected Survey Participation

Year	Total
2009	**1,300**
2010	**4,100**
2011	**8,100**
Total	**13,500**

Marketing Approach

Con Edison's marketing approach for the Residential Direct Installation program will rely on both traditional and innovative strategies. Con Edison intends to market its new energy efficiency programs by leveraging existing relationships and customer data to direct targeted promotional materials to areas with the greatest potential for efficiency gains (both energy and capacity). Con Edison will add focused marketing in specific geographic areas to its broader marketing efforts to promote community-wide participation, particularly in areas where network load relief is most needed and where customer sectors may be underserved.

Workflow

Key steps in program participation include:

- ***Scheduling an on-site energy survey.*** This task is generally triggered by the customer initiating participation in the program, through a phone call, the Company's website or as a result of the Company's marketing activities. The customer would then provide key data points to Con Edison such as contact information and account number and schedule an appointment. Customer data will be saved and tracked for reporting purposes and to coordinate participation in other programs offered by the Company and others.

- ***Completing an on-site energy survey***. The energy surveyor will conduct a walk-through energy survey of the customer's home and directly install simple energy efficiency measures, as set forth in Table 6. The surveyor will evaluate major

energy-using equipment (*e.g.*, lighting systems, space conditioning and hot water heating equipment) and building envelope characteristics to identify areas for cost effective efficiency upgrades and recommend appropriate follow-up evaluation activities. The representative also will review additional available financial incentives or programs that may benefit the customer, discuss best practices for operating home energy systems efficiently and disseminate educational materials.

- ***Providing the homeowner with a survey report.*** The survey report will include recommendations for appropriate energy efficiency projects and information on incentives available from Con Edison, NYSERDA and other sources, as described above. The surveyor also will provide a copy of the survey report to the implementation contractor and Con Edison for tracking and reporting purposes.

- ***Following up with customers.*** After the energy survey, Con Edison will follow up with customers to inquire about the survey, the direct installation measures installed and whether the customer intends to implement recommended measures so that appropriate referrals can be made for the prescriptive program. Con Edison also will provide contact information for further assistance (*e.g.*, identifying installation contractors or supporting additional program participation) and address any quality assurance issues on a case-by-case basis.

Market Barriers and Mitigation Strategies

Table 8 presents the key market barriers to an effective Residential Direct Installation program, as well as the strategies the program will use to address each barrier. The Company will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 8. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Mitigation Strategies
High cost of efficient equipment and declining economic conditions	Low cost energy surveys and direct installation measures for immediate savings; Provide information on additional rebates and financing opportunities (such as EnergySmart Loan Fund) to help offset the cost of efficient equipment
Lack of customer awareness of programs and energy efficiency actions	General education and information about simple behavioral and maintenance changes and initiatives that provide on-going savings; Grassroots, social marketing and outreach; Cross selling through oil to gas conversions
Limited time, resources and awareness of how to act on recommendations	Immediate direct installation of certain measures; Trade ally network and referral program to identify appropriate contractors; "Hotline" for assistance on installation, best practices and current offers.
Trade ally awareness	Ongoing trade ally communications, outreach and education
Lack of trust among trade allies	Qualify trade ally professionals in network; Promote trade ally network
Customers wary of biased advice	Grassroots, social marketing and outreach through local community groups; Develop information in multiple languages

Value Proposition

Con Edison's proposed program offers the following main benefits to the customer (in addition to the general society benefits discussed in the introduction):

- Customers receive a low cost energy survey and trustworthy energy-savings recommendations from trained professionals.
- Customers receive immediate savings through the direct installation of low-cost lighting and other energy-saving measures.

Projected Savings

Over the three-year planning horizon, a total of nearly 13,500 customers are expected to participate for a cumulative savings of approximately 23,700 MWh annually by 2011. The annual cumulative MWh and coincident peak[19] MW savings through 2015, based on the first three years of program participation, are shown in Table 9.

[19] Coincident peak is the fraction of total annual savings that coincide with the system's peak day.

Table 9. Projected Savings

Year	MWH Savings	MW Savings
2009	2,400	0.4
2010	9,500	2
2011	23,700	4
2012	31,600	6
2013	39,400	7
2014	47,300	8
2015	55,100	9

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.65 illustrating that the savings for this program are spread out during the year, rather than concentrated to the peak period (the peak system hour). This distribution of savings is expected because the savings are mostly from lighting.

MV&E Plan

Program Description

The Residential Direct Installation program is designed to promote the adoption of energy efficient measures and energy use practices among residential electric customers. The program will provide low cost on-site energy surveys, direct installation of low-cost efficiency measures and recommendations for more extensive energy efficiency upgrades. Participants who choose to install the more extensive recommended measures will be directed to Con Edison's Residential HVAC program for prescriptive rebates of up to 60 percent of the incremental cost of applicable measures or NYSERDA's Home Performance with ENERGY STAR® program.

Program Theory

The program is intended to serve as a point of entry for residential customers wishing to evaluate their home's energy performance and identify opportunities for improved efficiency through energy efficiency equipment upgrades. The program is thus envisioned as having the potential to serve as a conduit for customers to familiarize themselves with Con Edison's other program offerings in the residential sector.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The principal evaluation objective is to document the energy and demand savings attributable to the program and to determine the validity of the program's theory in terms of the program's effectiveness in encouraging customers to adopt additional energy

efficiency measures and practices. The evaluation will have a process evaluation and an impact assessment component.

The process evaluation will focus on determining the effectiveness of the programs with respect to the overall efficiency of its processes, market reach and customer satisfaction. The process evaluation will also investigate whether the program succeeded in its objectives in encouraging installation of additional measures by customers. The process evaluation will consist of surveys of participants and non-participants, interviews with staff and implementers and interviews with key market actors.

The impact assessment will involve verification of measures installed and the resulting immediate energy and demand impacts. Measurement of the program's impacts will be based primarily on a pre-post analysis of consumption histories for participants and a comparison group of nonparticipating facilities matched by type of dwelling (single-family versus multi-family), usage level (usage quartiles), and geographic location. Con Edison's residential customer information system will serve as a sampling frame for matching participants and non-participants. Detailed evaluation plans will be prepared during the early phases of program implementation, however, the analysis of impacts would take place after at least nine (9) consecutive months of post-implementation data is available for each year of the program.

Process Evaluation Methodology

The process evaluation will include a review (or development) of the program logic model, indicators and researchable issues. The process evaluation will also involve an "evaluability assessment" of data collection and tracking procedures. This assessment would ensure that the appropriate mechanisms are in place to collect all necessary data for evaluation in time.

The process evaluation will rely on reviews of program documentation, interviews with program staff, implementation contractors and key market actors and will focus on improving the efficiency of program recruitment, delivery and adoption of measures after the survey process. Key market actors may include trade allies and local community groups.

Surveys of program participants and non-participants will also be administered. Survey sample sizes will be set to meet a 90/10 criteria for statistical confidence and precision. The evaluation samples will be stratified by dwelling type, usage and geographical location. It is anticipated the survey will be implemented twice over the life of the program. The first time the focus will be on the differences between those that agreed to the survey and direct installation and the corresponding customers in the general population. The second batch will include direct installation-only participants, non-participants and an appropriate sample of those that adopted additional measures or participated in other Con Edison programs.

For participants adopting measures recommended during the survey, the evaluation will include a free-rider and participant spillover component and for non-participants, a

measure adoption (non-participant spillover) module. The evaluation will include a focus on opportunities and barriers to participation and adoption of efficiency measures, and will assess what program processes are working, what is not working and how the process can be improved.

Impact Evaluation Methodology

The impact evaluation will focus primarily on validation of measures installed, calculating actual energy and demand savings and determining persistence of measure impacts. The impact evaluation will include at least two main components, as outlined below. Final determination of the impact evaluation methodology will be made after selection of an MV&E contractor.

1. Sample-based verification of direct installations -- distinct from the program quality assurance/quality control (QA/QC) effort. The verification element of the evaluation will serve several objectives, including:

    - Quantifying and verifying the type, specification and frequency of measures installed and operating,
    - Determining the reasons for any discrepancies in measure counts, including possible removal of measures by participants, and
    - Identifying any operational or performance issues for further study by program staff.

2. Pre-post analysis of consumption histories of the census of participants and a matched comparison group of non-participants.

The on-site verification sample would be drawn from all participants using a stratified sampling scheme with a 90/10 criterion or better at the end of each of the three program years.

All participants will be included in the statistical analysis. Participants would be matched to a sample of non-participants with the same historical patterns and levels of energy use based on consumption quartiles. The statistical analysis will involve a comparison of weather-normalized annual consumption (NAC) of participants before and after participation in the program. Alternatively, the kWh impacts may be derived directly from a regression-based energy savings model with the following general specification:

$$kWh_{it} = \alpha + \beta_1 HDD_{it} + \beta_2 CDD_{it} + \beta_3 D_t + \varepsilon_{it}$$

where, for each customer i and billing cycle t,

- α is the base consumption
- kWh_{it} is the monthly (or average daily) consumption during the pre- and post-program periods
- HDD_{it}, is average daily heating degree days based on location (using data from the nearest weather station)

- CDD_{it} is the avcragc daily cooling degree days based on location, and
- D_t is a binary variable with the value of 0 for pre- and 1 for post-participation period – the estimated coefficient for this variable would be the measure of avcrage savings for participants
- ε_{it} is the regrcssion error term.

The billing analysis would begin no sooner than 9 (preferably 12) months after the survey to allow sufficient post-implementation consumption history. In order to provide on-going feedback on the program's performance, the billing analysis will be performed in quarterly "batches" with the first batch taking place during the first quarter of the second year of the program (2010). Before performing the analysis, consumption histories will be "cleaned" to identify outliers based on standard statistical techniques and to screen missing or otherwise anomalous readings. The mean values obtained from the statistical analysis will be applied to the population of participants to extrapolate the savings to the cntire program in each year.

Net-to-Gross Methodology

In its proposed program plan, Con Edison has made no preliminary nct adjustment for free-ridership, because participating customers are required to pay for a portion of the survey costs. This assumption will be validated as part of thc Company's impact evaluation and *ex post* adjustments will be made. Net-to gross will be determined directly through the regression model described above by incorporating consumption histories for the comparison group in the regression equation, i.e.:

$$kWh_{it} = \alpha + \beta_1 HDD_{it} + \beta_2 CDD_{it} + \beta_3 D_t + \beta_4 D_p + \varepsilon_{it}$$

Where all definitions are the same as before and thc additional variablc, D_p is a binary variable with thc valuc of (0) for non-participants and (1) for participants. Thc estimated coefficicnt for this variablc measures the net savings by controlling for changes in consumption that might have occurred in the absence of the program.

Data Collection

The evaluation contractor will work with program staff to dcvelop a comprehensive data tracking system to support program evaluation. Most of this effort will occur during the pre-implementation evaluability assessment phase, which will also include a review of the program participation forms, quality assurance procedures and database arrangement.

2. Residential Room Air Conditioning

Con Edison proposes to add high-efficiency room air conditioners to its Residential HVAC program, submitted to the Commission in the Company's August 21, 2008 filing and to make the air conditioner rebates more widely available. Con Edison's Residential HVAC program promotes the purchase and installation of new high-efficiency equipment by residential customers by providing customers with financial incentives to offset the higher purchase cost of energy efficient equipment and information on the features and benefits of energy efficient equipment. The program also includes a dealer incentive program for retailers who up-sell room air conditioners to a higher efficiency level. Con Edison is also proposing an appliance "bounty" program that includes opportunities for customers to properly dispose of older, inefficient room air conditioners (see section 3 for more information).

Approximately 500,000 room air conditioning units are replaced or added each year in Con Edison's service territory. Additionally, energy savings potential associated with high-efficiency and ENERGY STAR® labeled room air conditioning units is significant. Con Edison recognizes both the high potential for energy savings associated with room air conditioners and the need to promote this widespread technology with financial incentives for high efficiency units. Eligible customers who choose to install eligible high-efficiency room air conditioning units will qualify for financial incentives of up to 50 percent of the incremental cost of the measure.

Because room air conditioners are an addition to the Residential HVAC program that has been submitted for approval to the Commission, the following description includes only the proposed customer eligibility, financial incentives, projected participation, savings and cost-effectiveness analysis associated with this measure. Detailed information on Con Edison's Residential HVAC program with respect to delivery approach, implementation process, marketing, workflow, market barriers, quality assurance, screening metrics, and MV&E approach can be found in Con Edison's filing on Expedited Programs pursuant to the Commission's June 23rd Order in Case 07-M-0548, dated August 21, 2008.

Impacts Summary

A summary of the program's budget, savings, costs and cost effectiveness, as measured from the TRC perspective is set forth in Table 10.

Table 10. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	3,038	3,038	3,038	9,113
Coincident Peak Savings (MW)	6	6	6	19
Demand Savings (MW)	6	6	6	19
Total Resource Cost	$2,394,000	$2,435,000	$2,478,000	$7,307,000
Utility Financial Incentives	$168,000	$168,000	$168,000	$504,000
Participant Cost Net of Incentives	$192,000	$196,000	$200,000	$588,000
Direct Utility Costs	$2,034,000	$2,071,000	$2,110,000	$6,215,000
Customer Incentives or Services	$672,000	$686,000	$701,000	$2,059,000
Program Planning and Administration	$546,000	$557,000	$569,000	$1,672,000
Program Implemention Costs	$336,000	$343,000	$350,000	$1,029,000
Program Marketing and Trade Ally	$358,000	$360,000	$362,000	$1,080,000
Evaluation and Market Research	$122,000	$125,000	$128,000	$375,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$32,841,705	$33,305,995
NPV Costs	$6,790,708	$6,790,708
Benefit-Cost Ratio	**4.84**	**4.90**

The evaluation and market research budget shown is six (6) percent of the total budget. An additional one percent of the direct utility cost is reserved for Staff's evaluation but it not included in the calculation shown herein. The portion of the six percent that will be allocated between evaluation and market research is still to be determined. The actual budget for this program may vary from that amount.

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 4.84 to 1 under the base-case and 4.90 to 1 under the TRC plus carbon dioxide test.

Program Eligibility

This program targets all residential electric customers (owner or tenant) for participation. In addition, only customers who pay the System Benefits Charge will be eligible (this will include occupants in master metered buildings where the building owner is responsible for the System Benefits Charge.)

Table 11. Customer Eligibility Parameters

Customers	Residential
Fuel	Electric customer
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant

Eligible Measures

All ENERGY STAR® or higher rated room air conditioners are eligible for an incentive (70% of the incremental measure cost) under this program.

For this program, ENERGY STAR® room air conditioning units with and without louvered sides were compared with the code baseline for energy savings and cost. Room AC units with louvered sides are typically installed through windows. The louvered sides improve the energy performance of these units by enhancing airflow over the outdoor coil. Units intended for through-the-wall installation require a smooth-sided cabinet without louvers. The four different sizes for each classification considered were 0.5 ton, 1 ton, 1.5 ton, and 2 ton units. On average, the ENERGY STAR® units saved 9 to 10% more energy than the baseline units. The ENERGY STAR® version of the three smallest units with louvered sides achieved an Energy Efficiency Ratio (EER) of 10.7 while the 2-ton unit achieved 9.4 EER. For those energy efficient units without louvered sides, the two smallest achieved 9.9 EER while the 1.5 and 2-ton units achieved 9.4 EER.

Financial Incentives

Con Edison will provide a financial incentive in the form of a prescriptive rebate (70% of the incremental measure cost) to customers who purchase an ENERGY STAR® rated or above window or wall-mounted room air conditioning unit.

Con Edison also will provide an incentive for equipment dealers that sell high efficiency AC units with an efficiency rating higher than ENERGY STAR®. Sales representatives are a primary influencer of customer appliance purchases and they provide an expanded channel for consumer education on the benefits and maintenance of energy efficient appliances. Con Edison's dealer incentive program may include cash or other rewards for equipment dealers with a high success rate.

Energy savings and cost estimates were developed for room air conditioners through detailed research, engineering calculations and modeling[20] for geographic areas with cooling degree days equivalent to those in Con Edison's service territory. Incremental measure costs were determined based on data available from Con Edison and other secondary sources.

Participation

The participation levels for this program were developed using housing counts for the residential market segment and applying room air-conditioning saturation rates from Con Edison market research data to obtain the technical potential available. Con Edison may further refine these participation levels following the completion of its Market Potential Study. The overall budget is driven by the goal of attaining the cumulative 2011 targeted savings goals and satisfying the TRC test. The resulting number of installations and savings are shown below in Table 12. Total participation through 2015, based on the first

[20] Modeling utilized Energy-10 modeling software

three years of program participation, represents 6.14% of total 2015 residential customers.

Table 12. Projected Measure Installations

Year	Installations
2009	7,500
2010	22,500
2011	45,000
Total	75,000

Projected Savings

Over the three-year planning horizon, a total of nearly 75,000 customers are expected to participate for annual cumulative savings of over 9,100 MWh. The annual cumulative MWh and coincident peak MW savings through 2015, based on the first three years of program participation, are shown in Table 13.

Table 13. Projected Savings

Year	MWh Savings	MW Savings
2009	900	2
2010	3,600	8
2011	9,100	19
2012	12,200	26
2013	15,200	32
2014	18,200	39
2015	21,300	45

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.05, illustrating that the savings for this program are highly concentrated in the coincident peak, rather than spread out during the year. This distribution of savings is expected because the savings are entirely from cooling, which will be concentrated during the system peak.

MV&E Plan

This program adds ENERGY STAR® rated room air conditioners to the portfolio of measures offered under Con Edison's Residential HVAC program, submitted to the Commission on August 21, 2008. The MV&E procedures and methods proposed for the Residential HVAC program will be applicable to this program. Given the importance of this measure in terms both of energy and demand impacts, it may be necessary to monitor the actual hours of operation for a statistically valid sample of installations to obtain more reliable estimates of operating hours.

The monitoring sample will be selected based on the 90/10 criteria for statistical confidence and precision. Data loggers will be installed either by the contractor during the installation of the unit or during QA/QC visits.

3. Appliance Bounty Program

This program encourages customers to dispose of older, inefficient second refrigerators and room air conditioners in an environmentally responsible manner. The program primarily targets residential customers, but is available to all Con Edison electric customers. The program provides rebates to participants and also provides free pick up and disposal of old appliances.

Con Edison's energy efficiency staff will provide overall strategic direction and program management and will be supported by a program contractor that specializes in appliance recycling to provide turnkey pick up and disposal of old appliances. Participants will qualify for financial incentives of up to $100. Program marketing will utilize traditional strategies and will also focus on point of purchase marketing materials at refrigerator and air conditioning dealers and retailers.

Con Edison recognizes that other utilities around the state and NYSERDA also offer appliance bounty programs. Con Edison intends to work with these entities to establish common protocols and complementary benefits and explore the use of a single statewide contractor in order to capitalize on potential economies of scale for program services.

Program Summary

A summary of the Appliance Bounty program projected budget, annual incremental and cumulative savings, costs, benefits and cost effectiveness are presented in Table 14.

Table 14. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	6,118	6,118	6,118	18,355
Coincident Peak Savings (MW)	12	12	12	36
Demand Savings (MW)	12	12	12	36
Total Resource Cost	$2,754,000	$2,805,000	$2,857,000	$8,416,000
Utility Financial Incentives	$338,000	$338,000	$338,000	$1,014,000
Participant Cost Net of Incentives	$0	$0	$0	$0
Direct Utility Costs	$2,416,000	$2,467,000	$2,519,000	$7,402,000
Customer Incentives or Services	$909,000	$928,000	$947,000	$2,784,000
Program Planning and Administration	$546,000	$557,000	$569,000	$1,672,000
Program Implemention Costs	$454,000	$464,000	$474,000	$1,392,000
Program Marketing and Trade Ally	$362,000	$370,000	$378,000	$1,110,000
Evaluation and Market Research	$145,000	$148,000	$151,000	$444,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$37,573,816	$38,198,879
NPV Costs	$7,821,709	$7,821,709
Benefit-Cost Ratio	**4.80**	**4.88**

The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the 6 percent that will be allocated to evaluation and market research is still to be determined as well as any portion that may be allocated to Staff to perform its functions). The actual budget for this program may vary from that amount.

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 4.80 to 1 under the base-case and 4.88 to 1 under the TRC plus carbon dioxide test. The analysis also assumes a net-to-gross ratio of 0.90 (*i.e.*, free-ridership net of spillover).

Program Eligibility

This program targets all residential customers with either a second refrigerator or those seeking to replace a room air conditioning unit. One of the objectives of this program is to encourage customers to dispose of their existing units when they purchase new ones or eliminate a second unit that may not be needed. Therefore, to be eligible for program services and rebates, appliances must be working and, for refrigerators, at least 10 cubic feet in size. Any Con Edison electric customer (owner or tenant) may participate. In addition, only customers who pay the System Benefits Charge will be eligible.

Table 15. Customer Eligibility Parameters

Customers	Residential
Fuel	Electric customer
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant

Eligible Measures

Table 16 shows Con Edison's proposed list of eligible equipment and efficiency qualifications.

Table 16. Eligible Equipment Measures

Measure	Eligibility Rating	Incentive
Refrigerator	Working unit; ≥ 10 CU FT.	Free pick up and disposal; cash rebate of $30
Room air conditioner (wall)	Working unit	Free pick up and disposal; cash rebate of $100
Room air conditioner (window)	Working unit	Free pick up and disposal; cash rebate of $35

Financial Incentives

There are two distinct financial incentives associated with the program. Customers receive free pick up and disposal services and also receive a rebate check. Con Edison expects rebates to range from $30 to $100 per appliance, as shown in Table 16, with a limit of two rebates of each type per customer address.

Similar appliance recycling programs are common among other utilities in New York and around the country. Energy savings and cost estimates were developed through research on the program, engineering calculations and modeling. Incremental measure and labor costs were determined through calls to appliance recycling contractors in New York.

Program Implementation and Milestones

Con Edison will use a combination of in-house resources and a third party program implementation contractor to provide certain centralized program administrative and delivery services. Con Edison will work with other utilities in the state and NYSERDA to determine whether a single delivery contractor for the state will yield program benefits and economies of scale. Con Edison will provide training for all relevant staff and contractors with respect to necessary business processes, administrative procedures, roles and responsibilities, quality assurance protocols, budgets and timelines.

Con Edison's planned pre-implementation tasks include:

1. Develop detailed work scopes, selection criteria and quality assurance protocols for program delivery contractor;
2. Refine workflow processes and determine contractor and staffing needs;
3. Recruit potential appliance pick up and recycling contractors;
4. Issue RFPs (where applicable) to qualify and select service providers: implementation, measurement and verification and evaluation contractors;
5. Conduct outreach to appliance dealers, retailers, trade allies and other local market actors;
6. Develop tracking and allocation procedures;
7. Coordinate with other utilities and program administrators regarding training, marketing, eligible equipment and rebate levels and key delivery strategies;
8. Develop marketing approach and collateral materials, secure marketing fulfillment contractor;
9. Generate training materials and coordinate program training for contractors, trade allies and internal staff;
10. Develop customer education materials; and

11. Determine appropriate date requirements for program evaluation.

Participation

The participation levels for this program were developed using customer counts and applying refrigerator and room air-conditioning saturation rates from Con Edison market research data to obtain the technical potential available. Con Edison may further refine these participation levels following the completion of its market potential study. The overall budget is driven by the goal of attaining the cumulative 2011 targeted savings goals and satisfying the TRC test. The resulting number of installations and savings are shown below. Total participation through 2015, based on the first three years of program participation, represents 2.05% of all 2015 residential customers, although this number would be higher if calculated based on all eligible customers.

Table 17. Projected Participation

Year	Refrigerator	Room AC	Total
2009	300	2,200	**2,500**
2010	900	6,600	**7,500**
2011	1,900	13,100	**15,000**
Total	**3,100**	**21,900**	**25,000**

Marketing Strategy

This program will rely primarily on direct customer outreach and point-of-sale dealer information for promotion. Con Edison, in collaboration with other utilities, NYSERDA and the program contractor will develop a program brochure and other promotional materials that outline the program's features, benefits, eligibility requirements and financial incentives and distribute the materials to customers, appliance dealers and other trade allies. The program contractor will be responsible for meeting with targeted trade allies one-on-one to explain and promote the program.

Workflow

Key steps in program participation include:

- ***Scheduling the appliance collection.*** This task is generally triggered by the customer initiating participation in the program, through a phone call, the Company's website or as a result of the Company's marketing activities.

- ***Program Compliance.*** A Company representative will verify that the customer receives Con Edison electric service and that the appliance meets program requirements.

- ***Transporting appliance to a recycling facility.*** The appliance is disassembled and the applicable components are recycled. The remaining components are disposed of in an environmentally responsible manner. Environmentally responsible

disposal involves removing chlorinated fluorocarbons (CFCs) from the refrigerant (and possibly foam insulation), preparing refrigerant for reclamation or recycling and recycling other materials such as metal (and possibly plastic) components.

- ***Processing rebate checks.*** The program contractor will track appliances through the process and report to Con Edison. Customers may provide a rebate application supported by contractor documentation of the appliance removal.

Market Barriers and Mitigation Strategies

Table 18 presents the key market barriers to an effective Appliance Bounty program, as well as the strategies the program will use to address each barrier. The Company will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 18. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Program Strategies
Time required to fill out rebate forms	Provide simple rebate forms ; Enable appliance dealer to assist customers with rebate forms at the time of equipment purchase
Lack of customer awareness	Consumer education and outreach; Program promotion/advertising; Promote through other residential programs; Dealer promotions
Low dealer awareness	Ongoing dealer communications, outreach and education
Trade allies not selling or promoting the program	Provide trade ally training and outreach to explain the benefits of participating in the program; Market program and general efficiency awareness to trade allies
Customers feel they need an extra refrigerator	Customized educational materials that highlight the cost to operate an old refrigerator or freezer; Explain environmental benefits of eliminating inefficient appliances

Value Proposition

The process to participate in the Con Edison program will be simple and straightforward. Customers participating in the program receive the following benefits:

- Customers eliminate the hassle and cost associated with disposing of large inefficient and unwieldy appliances.
- Customers save money through rebates and reduced energy bills.
- Customers can trust that their old appliances have been recycled to the greatest extent possible and disposed of properly.

Projected Savings

Over the three-year planning horizon, a total of nearly 25,000 customers are expected to participate for a cumulative savings of nearly 18,400 MWh. The cumulative MWh and

coincident peak MW savings through 2015, based on the first three years of program participation, are shown in Table 19.

Table 19. Projected Savings

Year	MWH Savings	MW Savings
2009	1,800	4
2010	7,300	14
2011	18,400	36
2012	24,500	48
2013	30,600	60
2014	31,100	60
2015	31,700	60

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.06, illustrating that the savings for this program are highly concentrated in the coincident peak, rather than spread out during the year. This distribution of savings is expected because the savings are primarily from cooling which will be concentrated during the system peak.

MV&E Plan

Program Description

This program will produce long-term coincident peak demand reduction and long-term annual energy savings in the residential market by removing operable, inefficient refrigerators and room air conditioners from the power grid in an environmentally safe manner.

Program Theory

The program's load impacts derive mainly from the accelerated retirement and removal from the potential secondary markets of the older and least efficient refrigerators and air conditioners.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The primary goal of the evaluation is to document the energy impacts and peak-load savings resulting from the program. The evaluation will also seek to determine the success of the program in attaining its objective of providing a vehicle for safe and environmentally benign disposal of these appliances. There will be a process and an impact component for this evaluation.

Process Evaluation Methodology

The process evaluation will rely on reviews of program documentation, interviews with program staff, implementation contractors and key market actors and will focus on improving participation and identifying areas where the program might be improved. The process evaluation will begin during the early phases of program implementation, in time to provide the necessary feedback to program management on the progress and performance of the program.

The process evaluation will also include a survey of ten percent of program participants for each appliance type annually. This survey will focus on customer's experience with and satisfaction with the program. The process evaluation will also include an "evaluability assessment" review of data collection and tracking and review (or development) of the program logic model, indicators and researchable issues.

Impact Evaluation Methodology

The impact analysis will provide estimates of energy and peak demand savings attributable to the program. The impact assessment methodology will be based on engineering methods using simple engineering model algorithms. A key component in this analysis will be the derivation of energy consumption of the recycled units, or the full-year unit energy consumption (UEC).

UEC estimates will be obtained based on information provided by the implementation contractor on model number, vintage, serial number and unit size. Usage data will be compiled as reported by the Association of Home Appliance Manufacturers (AHAM) for each unit. If necessary, the energy usage will be adjusted to account for units that were manufactured before 1972, when these data were first being tracked. As appropriate, degradation curves will be used to estimate the usage based on the age of the unit.

In cases where participants recycled an existing appliance and replaced it with a new unit, the savings will be calculated using the actual nameplate energy guide data on the new unit. The average savings from the MV&E sample will then be used to extrapolate savings to the population of participants. For those participants who recycled a unit through the program and did not replace it, gross savings will be the consumption of the recycled unit. As discussed below, the Company will use surveys to estimate the proportion of customers who replaced the appliance.

A survey of participating customers will be undertaken to provide data needed to assess the NTG ratio for the program and to provide the necessary data to address process evaluation issues. Data elements to be addressed by the survey include the following:

1. ***Customer Information***. These data will be acquired to characterize the participants and allow for extrapolation of the results to the entire Program population.
2. ***Participants' Perceptions and Satisfaction***. These questions will provide information about how the participant became aware of the program, his

satisfaction with its various components and the utility overall, and suggestions for improving program delivery.

3. ***Free Riders***. Participants will be asked questions about what they would have been most likely to do with their appliance(s) if they had not participated in the Program and when they would have taken action. The key data from this set of questions will be the proportion of customers who would have permanently removed their old appliance(s) from service, whether the customer has recently purchased a new refrigerator/freezer, how many refrigerators/freezers are in the home and the location of the removed refrigerator/freezer. A series of questions will be developed to clarify the specific actions that would have been taken and improve upon the validity of the responses.

4. ***Unit Replacement***. Participants will be asked whether they have replaced or plan to replace the recycled unit and, if so, the characteristics of the replacement unit.

The evaluation will also include "ride-alongs" with the recycling vendor (s) to verify eligibility compliance of the collected units and to ensure appropriate field procedures are followed. Recycling center site visits will also be conducted to verify the recycling vendor is complying with all program rules governing proper disposal of collected appliances.

4. C&I Equipment Rebate Program

Con Edison's C&I Equipment Rebate program promotes the purchase and installation of specific high-efficiency equipment by C&I customers in existing facilities. This program provides customers with financial incentives to offset the higher purchase cost of energy efficient equipment and information on the features and benefits of energy efficient equipment. Equipment includes electric cooling, ventilation, motors and lighting. Customers interested in installing high-efficiency equipment not included in the Equipment Rebate program may go through Con Edison's Custom Efficiency program.

Con Edison's energy efficiency staff will provide overall strategic direction and program management and will be supported by program contractors to conduct certain delivery and administrative functions. Eligible customers who choose to install the recommended measures qualify for financial incentives of up to 70 percent of the installed measure cost (which includes both equipment and installation). Program marketing will utilize traditional strategies and will also focus heavily on specific market sectors identified as having significant untapped energy efficiency potential.

Impacts Summary

A summary of the projected annual and cumulative savings, costs, benefits and cost effectiveness of the C&I Equipment Rebate Program are presented in Table 20.

Table 20. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	93,483	93,483	93,483	280,450
Coincident Peak Savings (MW)	25	25	25	75
Demand Savings (MW)	26	26	26	77
Total Resource Cost	$63,272,000	$64,494,000	$65,742,000	$193,508,000
Utility Financial Incentives	$5,166,000	$5,166,000	$5,166,000	$15,498,000
Participant Cost Net of Incentives	$8,543,000	$8,723,000	$8,906,000	$26,172,000
Direct Utility Costs	$49,563,000	$50,605,000	$51,670,000	$151,838,000
Customer Incentives or Services	$29,902,000	$30,530,000	$31,171,000	$91,603,000
Program Planning and Administration	$3,273,000	$3,343,000	$3,416,000	$10,032,000
Program Implemention Costs	$5,980,000	$6,106,000	$6,234,000	$18,320,000
Program Marketing and Trade Ally	$7,434,000	$7,590,000	$7,749,000	$22,773,000
Evaluation and Market Research	$2,974,000	$3,036,000	$3,100,000	$9,110,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$457,207,780	$476,784,779
NPV Costs	$179,832,609	$179,832,609
Benefit-Cost Ratio	**2.54**	**2.65**

The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the 6 percent that will be allocated to evaluation and market research is

still to be determined as well as any portion that may be allocated to Staff to perform its functions). The actual budget for each individual program may vary from that amount.

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 2.54 to 1 under the base-case and 2.65 to 1 under the TRC plus carbon dioxide test. The analysis also assumes a net-to-gross ratio of 0.90 (*i.e.*, free-ridership net of spillover).

Program Eligibility

This program is available for new or replacement equipment installed in existing commercial and industrial facilities. There are approximately 350,000 commercial and industrial buildings in Con Edison's service area. Any Con Edison electric C&I customer (owner or tenant) may participate. In addition, only customers who pay the System Benefits Charge will be eligible.

Table 21. Customer Eligibility Parameters

Customers	C&I
Fuel	Electric customer
Building Type	Commercial, industrial
Building Vintage	Existing buildings or new construction
Building ownership	Owner or tenant

Eligible Measures

Table 22 shows Con Edison's proposed list of eligible equipment and efficiency qualifications.[21]

Table 22. Eligible Equipment Measures

Measure	Eligibility Rating	Incentive
(DX) Packaged Air Conditioner System	Minimum 11.0 EER	70% of incremental measure cost
Bi-Level Control, Stairwell Lighting	50% Lighting power during unoccupied time	70% of measure cost
Cooling Tower-Decrease Approach Temperature	6 Degrees Fahrenheit	70% of incremental measure cost
Direct Digital Control System-Wireless Performance Monitoring	Energy Management System DDC Retrofit	70% of measure cost
HE Fixtures/Design	Meets federal code	70% of measure cost

[21] As noted in the Steam Cooling Program, the energy efficiency group will coordinate with the steam business development group to ensure the goals of energy efficiency and peak reduction demand management are sustained in every program proposed here. Therefore, the prescriptive rebate for (DX) Packaged Air Conditioner Systems and VSD Centrifugal Chillers may not apply to installations that displace steam cooling.

HE Fixtures/Design	Above federal code by 15%	70% of incremental measure cost
LED Exit Lighting	5 Watts	70% of measure cost
Motor - Premium Efficiency	PE Motors for HVAC Applications	70% of incremental measure cost
Motor - Pump & Fan System - Variable Frequency Drive	Pump And Fan System Optimization w/ VFD	70% of measure cost
Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	70% of measure cost
VSD Centrifugal Chiller (>= 300 tons) with Load control tower	Water cooled VSD centrifugal chiller (0.461 kW/ton)	70% of incremental measure cost

Financial Incentives

Con Edison will provide a financial incentive in the form of a prescriptive rebate to eligible customers who purchase electric air conditioning, ventilation, motors and lighting equipment identified in Table 22. Financial incentives will be available for up to 70 percent of the measure cost depending on the type and efficiency of equipment installed.

The measures proposed for this program include common market-ready technologies included in other successful energy efficiency programs. Energy savings and cost estimates were developed for each measure through research on the proposed measures, engineering calculations and modeling[22] for identical measures in geographic areas with cooling degree days equivalent to those in Con Edison's service territory. Incremental measure and labor costs were determined through calls to installation contractors, on-line research and incorporating cost-of-living adjustments for the New York area[23].

Program Implementation and Milestones

Con Edison will use a combination of in-house resources and third party program implementation contractors to provide certain centralized program administrative and delivery services. Con Edison will provide training for all relevant staff and contractors with respect to necessary business processes, reporting, administrative procedures, roles and responsibilities, quality assurance protocols, budgets and timelines.

Con Edison also will recruit and pre-qualify installation contractors to deliver high-efficiency equipment installation services. Installation contractors that participate in the program ("pooled contractors") on behalf of their customers will be required to complete an application and pre-screening process and will be trained in technology applications and installation best practices. After the contractor pool is established, contractors outside the pool (and thus outside of the direct administrator review process) will be permitted to participate if they agree to proper screening and training and to follow program requirements. Customer-selected contractors will be held to the same reporting and verification requirements as pooled contractors.

[22] Modeling utilized Energy-10 modeling software
[23] ACCRA Cost of Living Index

Con Edison's planned pre-implementation tasks include:

1. Develop detailed work scopes, selection criteria and quality assurance protocols for program service vendors;
2. Refine workflow processes and determine implementation contractor, HVAC contractors and staffing needs;
3. Recruit potential HVAC and electrical contractors;
4. Issue RFPs (where applicable) to qualify and select service providers: implementation, MV&E contractors;
5. Conduct outreach to equipment dealers, trade allies and other local market actors;
6. Develop tracking and allocation procedures;
7. Coordinate with other utilities and program administrators regarding training, marketing, eligible equipment and key delivery strategies;
8. Develop marketing approach and collateral materials, secure marketing fulfillment contractor;
9. Generate training materials and coordinate program training for contractors, trade allies and internal staff;
10. Develop customer education materials; and
11. Determine appropriate date requirements for program evaluation.

Participation

Participation levels were estimated by examining the distribution of sales to each targeted segment with more than 100 kW in demand[24]. The total technical potential was developed using end-use shares in the commercial sector available from the Energy Information Administration (EIA) and engineering estimates of measure savings. Con Edison may further refine these participation levels following the completion of its Market Potential Study. The projected participants are shown below in Table 23. Total participants through 2015, based on the first three years of program participation, in this program represent 0.38% of 2015 commercial customers, although the percentage would be higher if calculated based on all eligible customers.

[24] Savings and participation for under 100kW customers were modeled under the Direct Install Small C&I program.

Table 23. Projected Participation

Segment	Office	Retail	Other C&I	Total
2009	30	20	40	**90**
2010	90	50	130	**270**
2011	180	90	270	**540**
Total	**300**	**160**	**440**	**900**

Marketing Strategy

Con Edison's marketing approach for all of its C&I programs will rely on both traditional and innovative strategies. The Company utilizes a wide range of marketing channels to promote its programs and services. These include broad media outlets such as print media, direct mail, Internet and radio advertisements. Additionally, Con Edison will capitalize on customer touch points including service calls, customer newsletters, and speaking engagements at seminars, conferences and community events.

The Company will continue to utilize these traditional marketing channels, as well as conducting targeted marketing activities. Con Edison intends to proactively market its new energy efficiency programs by leveraging existing relationships and customer data to direct targeted promotional materials to areas with the greatest potential for efficiency gains (both energy and capacity). Con Edison personnel will manage targeted promotional efforts to individual large customers and specific market segments, with tactics including:

- Commercial buildings with tenant occupied space are a difficult market to penetrate. A marketing campaign will be designed to reach individual tenants as well as owners in commercial buildings to encourage participation in energy efficiency. Upon further engagement with customers, those who will benefit from NYSERDA programs can be appropriately referred.

- Facility managers and building engineers are frequently the first line decision makers with respect to facility energy uses. Con Edison will launch an outreach and education effort focused on facility managers and engineers to encourage installation of new energy efficient technologies and adoption of best operating practices.

- Con Edison will leverage relationships with trade allies and industry partners to disseminate information about its C&I programs to the targeted market. Con Edison customer representatives will meet on-site with developers, architects, engineers and other trade allies to promote these efficiency programs. The following is an example listing of industry partners that will be encouraged to participate in this program:

    - Building Owners and Managers Association (BOMA)
    - Real Estate Board of NY (REBNY)

- City University of New York Consortium (CUNY)
- New York Energy Consumers Council (NYECC)
- Property Management companies
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
- Trade Allies (Engineers, ESCOs, etc)
- Equipment manufacturers and distributors
- Con Edison Customer Outreach Groups

Con Edison will engage in customer-focused, aggressive targeted marketing of specific sectors that the Company has identified has a high level of unrealized energy efficiency potential, such as office buildings and multi-family common areas. The Company is also conducting a Market Potential Study of its service territory that will enhance Con Edison's ability to tailor program outreach efforts to specific geographic areas, customer classes, market sectors and individual customers. Summaries of Con Edison's initial target marketing sectors follow.

Office Buildings

Office buildings are among the largest consumers of electricity, using more than one-third of commercial energy supplies. They also make a significant contribution to the system peak 24 percent. Multiple office building properties are frequently owned and managed by a single large commercial property management company, offering opportunities to replicate efficiency improvements across multiple project locations. This segment is characterized by significant electric demand driven by lighting and plug loads as well as cooling and ventilation needs. The commercial office building segment operates equipment at full capacity during seasonal peak periods of demand.

Led by major developers, building owners and property managers, this market segment was a major participant in Con Edison's Enlightened Energy Program during the 1990's. Since that time, new technologies have emerged making this an ideal target market segment for Con Edison's new C&I programs. The program also will appeal to individual businesses (within office buildings) that have made corporate commitments to sustainability.

Multifamily Common Areas

Multifamily buildings dominate residential housing in Con Edison's service territory. Where tenants pay their individual utility bills, landlords have little incentive to invest in energy efficiency measures in individual dwelling units. Utility costs for common areas, however, are generally borne by landlords. It is estimated that 20% of electric energy in a multifamily building is used in common areas. Addressing common areas also provides a marketing opportunity for tenants in individual units. Con Edison believes that demonstrating energy efficiency upgrades in common areas will have a "push" effect on tenants, who may be interested in participating in Con Edison's other residential programs.

While NYSERDA's Multifamily Building Performance Program uses a comprehensive, whole-facility approach, Con Edison's C&I Equipment Rebate program will focus on multifamily buildings that are interested in a more limited effort. The program will address multifamily common areas such as outside perimeter lighting, parking garage lighting and ventilation, and lighting and space conditioning for entrances and hallways, stairwells, community kitchens, laundry and meeting rooms. This will allow owners of multifamily buildings that want to undertake more limited efficiency upgrades to participate in efficiency programs.

Con Edison will also work with landlords and property managers who may be interested in participating in the Equipment Rebate program to determine whether they should more appropriately participate in NYSERDA's Multifamily Building Performance Program.

Workflow

Key steps in program implementation include:

- ***Initial contact.*** Customers may be directed to the program through Con Edison's or NYSERDA's marketing activities, the Company website, the Small Business Direct Installation program, equipment dealers or by contacting a participating equipment dealer or installation contractor.

- ***Completing the program application.*** Customers will generally work with an equipment installation contractor to fill out program applications and ensure that the required documentation is submitted to Con Edison. Customers may submit their own work applications and will be referred to a contractor if they desire.

- ***Ensuring that the equipment meets program qualifications.*** Con Edison will review all submitted documentation to verify that the applicant is a Con Edison customer and that the installed equipment meets the minimum efficiency standard.

- ***Conducting pre-installation inspections for a sample of participants.***

- ***Installing eligible high efficiency equipment.*** Customers will schedule this work directly through their own contractor or an approved installation contractor referred by Con Edison.

- ***Conducting post-installation inspections for a sample of participants.***

- ***Verifying equipment installation for a sample of participants.*** This will be a part of measurement and verification.

- ***Processing rebate checks for qualified equipment.***

Market Barriers and Mitigation Strategies

Table 24 presents the key market barriers to an effective C&I prescriptive rebate program, as well as the strategies the program will use to address each barrier. The Company will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 24. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Mitigation Strategies
Higher initial cost of energy-efficient equipment	Offer rebates to offset higher incremental cost; Educate decision maker on the long-term energy cost-saving benefits of higher efficiency equipment
Time required to complete program application	Provide concise program applications that include program requirements, terms and conditions. Train trade allies to assist customer in completing program application.
Customers don't bother to look for qualifying measures	Trade ally and contractor training to help customers quickly identify appropriate measures and products; Market program and general efficiency awareness to customers, dealers and equipment manufacturers Directly educate large customers
Contractors and dealers do not up-sell to high-efficiency equipment	Provide trade ally training and outreach to explain the benefits of selling higher efficiency equipment; Market program and general efficiency awareness to trade allies, other trade allies and dealers; Generate leads and customer referrals for high-performing contractors; Offer contractor rewards program for highest-performing contractors
Lack of available qualifying equipment	Promote programs to customers so they ask for qualifying equipment; Trade ally and other contractor training; Work with NYSERDA to provide upstream market support
Customers don't understand the long-term value of high-efficiency equipment	Train trade allies and other contractors to explain life-cycle costs to customers; Market program and provide general efficiency awareness to customers
Dealers are unaware of program	Provide outreach and marketing to dealers and contractors

Value Proposition

The process to participate in the Con Edison program will be simple and straightforward. Equipment rebates are available to customers that use a qualified contractor to install any eligible equipment. Customers participating in the program receive the following main benefits:

- Customers save money in the short term through rebates and in the long term through lower utility bills.
- Customers receive reliable, impartial advice about high quality, energy-efficient equipment from a trustworthy source.
- Equipment upgrades will provide customers with significant savings, increased comfort and increased property values.

Projected Savings

Over the three-year planning horizon, a total of approximately 900 customers are expected to participate for annual cumulative savings of approximately 281,000 MWh by 2011. The annual cumulative MWh and coincident peak MW savings through 2015, based on the first three years of program participation and extended through 2015, are shown in Table 25.

Table 25. Projected Savings

Year	MWH Savings	MW Savings
2009	28,000	7
2010	112,200	30
2011	280,500	75
2012	373,900	100
2013	467,400	125
2014	560,900	150
2015	654,400	175

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.43 illustrating that the savings for this program are not concentrated at system coincident peak but spread out over the year.

MV&E Plan

Program Description

This program is designed to encourage Con Edison's C&I customers to install specific high-efficiency equipment in existing facilities. The program offers financial incentives to offset the higher cost of energy efficient motors, electric HVAC and lighting.

Program Theory

The principal objective in this program is to overcome market barriers that impede the adoption of energy-efficient equipment in the C&I sector. The program targets the dominant end uses, namely motors, HVAC and lighting in the retrofit market. The program combines education with financial incentives to address lack of information and upfront cost as the main barriers to investments in energy efficiency in this sector.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The primary goal of the evaluation is to document the energy savings attributable to the program and to help identify areas where program performance may be improved. The evaluation will have process analysis and impact assessment components.

Process Evaluation Methodology

The process evaluation will rely on reviews of program documentation, interviews with program staff, implementation contractors and key market actors and will focus on improving the efficiency of program recruitment, delivery and adoption of measures and overcoming barriers to participation. Key market actors include trade allies and other contractors in existing facility and new construction markets, businesses, community groups and unions. The process evaluation will begin during the early phases of program implementation, in time to provide the necessary feedback to program management on the progress and performance of the program.

The process evaluation will also include a survey of program participants and non-participants. Participant surveys will focus on eliciting information on the customer's experience with the program and will also serve as a vehicle for obtaining more detailed site information in support of the impact evaluation. Participant sampling for this survey will be based on stratified samples designed to satisfy 90/10 criteria for confidence and precision. Participant samples will allow for stratification by facility vintage (existing versus new construction), market segment, geographical location and measure type.

It is anticipated that the survey will be implemented twice over the life of the program. Participant surveys will include a free-rider and participant spillover module and non-participants surveys will include a measure adoption module.

The process evaluation will also include an "evaluability assessment" review of data collection and tracking and review (or development) of the program logic model, indicators and researchable issues.

Impact Evaluation Methodology

This program targets the three dominant end uses in the C&I sector. The markets targeted by the program are diverse and vary widely in how they utilize electricity in these end uses. Therefore, to the extent possible, it is important to focus the analysis not only on installed measures, but also the major market segments targeted by the program such as office buildings, retail, lodging and warehouses among others. This approach would help provide a better understanding of targeted segments and would help validate program design assumptions and inform future program marketing.

The impact analysis will be primarily based on engineering methods using building simulations (DOE's Energy-10, an ASHRAE Standard 140 compliant building energy simulation tool or simple engineering models). The engineering models will be calibrated using site-specific characteristics and selective interval recording of data on key parameters such as run time.

For each major market segment, a model-based sampling (MBS) scheme will be used to identify an efficient, small number of sites for the simulation analysis. It is expected that simulations would be based on "prototype" modeling of a small number of representative sites in each market segment. The simulation modeling will use DOE's DOE2, eQuest, or an ASHRAE Standard 140 compliant tool. The models will be informed with directly observed characteristics for the metropolitan New York climate zone(s), vintage and selective metering of certain equipment. Final determination of the impact evaluation methodology will occur after an MV&E contractor is selected.

Monitoring of certain equipment in existing buildings may be necessary to calibrate the energy simulation models. In such cases, end uses would be monitored for the entire cooling and/or heating season, although a period of at least three weeks during cooling or heating seasons would be sufficient under the International Performance Measurement and Verification Protocols (IPMVP) Option B. The impacts estimated under Option B will be weather-normalized to long-term average weather data. End-use data will be applied to energy simulation, consistent with the IPMVP Option D for use in the demand and energy impact calculations.

Lighting

Impact analysis for lighting measures will be based primarily on engineering validation and will have three components: verification of installation (measure count), calculation of saving (wattage differential) and monitoring hours of operation.

A sample of sites where lighting measures have been installed will be visited to ascertain installation of measures. The number of site visits will be determined using a stratified sample based on a 90/10 criterion for statistical confidence and precision. This sample will be selected to represent functional areas within each of the two target markets. Wattage differentials for each functional area will be determined as the difference between the baseline and new equipment specified during the technical study.

Run time is a key parameter in calculation of savings from lighting retrofits. The impact evaluation will therefore include verification of hours of operation using light loggers on a sample of installations. The number of points to be monitored will be based on a sample stratified to represent functional areas and variability of savings within each functional area using a 90/10 criterion.

HVAC

The analysis of HVAC savings will be based on engineering methods, using building simulations (DOE's DOE-2, an ASHRAE Standard 140 compliant building energy simulation tool or simple engineering models). The engineering models will be calibrated using site-specific characteristics and selective interval recording of data on key parameters such as run time. The models will be informed by directly observed characteristics of facilities, local climate zone, and selective metering of key parameters such as run time.

Statistical Analysis of Consumption Histories

Statistical analysis of consumption histories involving a regression-based comparison of pre- and post-program energy use between participants and a matching sample of non-participants will also be used to determine "net" impacts in this program.

The analysis will be based on a Statistically Adjusted Engineering (SAE) specification. The advantage of this specification is that it will provide estimates of actual savings realization rates for groups of measures affecting the end uses targeted by the program. The SAE model will be defined using the following general specification:

$$ADC_{it} = \alpha + \beta_1 X_i + \beta_2 Lighting + \beta_3 HVAC + \lambda_1 HDD_{it} + \lambda_2 CDD_{it} + \varepsilon_{it}$$

where average daily consumption (ADC) during the pre- and post-program periods for each customer i and calendar month t,

- α is the base consumption
- X_i is a vector of facility characteristics, such as floor space - additional variables may be used to designate facility type
- *Lighting and HVAC* are kWh savings from measures affecting the lighting and HVAC end uses
- HDD_{it}, is average daily heating degree days based on location
- CDD_{it} is the average daily cooling degree days based on facility location
- ε_{it} is the regression error term.

To capture the prevalent heterogeneity in the population of participants, the SAE model will be estimated using an Analysis of Covariance (ANCOVA) model. The advantage of this approach is that it allows each participant or non-participant to have separate estimate of the "intercept" term.[25] By allowing each participant and/or non-participant to have its own intercept, the evaluation will allow for some differences among the analysis subjects. The specification of the ANCOVA model is identical to SAE, except that each observation will have a unique intercept term, represented as α_i.

Data Requirements

Data necessary for the impact assessment will consist of five main elements:

1. At least twelve consecutive months of electricity consumption,
2. Daily weather data from the local weather stations for calculating heating and cooling degree days (HDD and CDD),
3. Expected (planning) estimates of savings from specific measures installed at each site,

[25] Regression models estimate an intercept (in the case of energy modeling, this often represents the base component, e.g., non-weather sensitive component of energy use) and a slope coefficient (this often represents the change in energy consumption for one unit change in the explanatory variable).

4. Modified planning estimates where such modifications have been made subsequent to energy simulation modeling, and

5. Monitored equipment data used to calibrate engineering models.

Calculation of Net Program Impacts

Net energy and demand (system coincident and non-coincident) savings from the program may be obtained directly from the estimated parameters of the SAE model at the end use, market segment and program levels. These estimates will be used to adjust the planning estimates of measure savings for subsequent years. The adjusted savings estimates will also be used in conjunction with actual accrued costs to re-calculate the cost effectiveness of the program.

5. C&I Custom Efficiency Program

The C&I Custom Efficiency program provides a delivery channel for measures that do not fit neatly into Con Edison's other programs. It offers financial incentives to customers installing equipment or systems not covered by the Equipment Efficiency program that result in cost effective energy efficiency savings.

To qualify for financial incentives, eligible customers will be required to provide documentation that their proposed efficiency upgrades pass Con Edison's cost effectiveness threshold and technical criteria. Con Edison will provide 50 percent of the cost of a technical study and may provide additional reimbursement subject to program guidelines. Additionally, Con Edison will offer customers a tiered incentive based on avoided or reduced kilowatt hours (kWh) resulting from the project.

Con Edison's energy efficiency staff will provide overall strategic direction and program management and will be supported by program contractors to conduct certain delivery and administrative functions. Program marketing will utilize traditional strategies, but will also focus heavily on specific market sectors and other opportunities identified as having significant untapped energy efficiency potential,(initially data centers and health care).

Impacts Summary

A summary of the C&I Custom Efficiency program measures projected budget, annual and cumulative savings, costs, benefits and cost effectiveness are presented in Table 26.

Table 26. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	7,536	7,536	7,536	22,608
Coincident Peak Savings (MW)	3	3	3	9
Demand Savings (MW)	3	3	3	9
Total Resource Cost	$7,719,000	$7,872,000	$8,029,000	$23,620,000
Utility Financial Incentives	$416,000	$416,000	$416,000	$1,248,000
Participant Cost Net of Incentives	$861,000	$880,000	$898,000	$2,639,000
Direct Utility Costs	$6,442,000	$6,576,000	$6,715,000	$19,733,000
Customer Incentives or Services	$3,015,000	$3,078,000	$3,143,000	$9,236,000
Program Planning and Administration	$546,000	$557,000	$569,000	$1,672,000
Program Implementation Costs	$1,528,000	$1,560,000	$1,593,000	$4,681,000
Program Marketing and Trade Ally	$966,000	$986,000	$1,007,000	$2,959,000
Evaluation and Market Research	$387,000	$395,000	$403,000	$1,185,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$36,727,112	$38,000,996
NPV Costs	$21,951,583	$21,951,583
Benefit-Cost Ratio	**1.67**	**1.73**

The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the 6 percent that will be allocated to evaluation and market research is still to be determined as well as any portion that may be allocated to Staff to perform its functions). The actual budget for this program may vary from that amount.

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 1.67 to 1 under the base-case and 1.73 to 1 under the TRC plus carbon dioxide test. The analysis also assumes a net-to-gross ratio of 0.90 (*i.e.*, free-ridership net of spillover).

Program Eligibility

This program is available for any type of new or replacement energy efficient equipment that is not eligible for Con Edison's Equipment Efficiency program and is installed in C&I facilities. Also eligible are process improvements including lean manufacturing and retro-commissioning or monitoring-based commissioning that lead to documented savings. Any Con Edison electric C&I customer (owner or tenant) may participate. Initially, Con Edison will focus its marketing activity on data centers and healthcare facilities. In addition, only customers who pay the System Benefits Charge will be eligible.

Table 27. Customer Eligibility Parameters

Fuel	Electric customer
Building Type	Commercial, industrial
Building Vintage	Existing buildings or new construction
Building ownership	Owner or tenant
Technologies	Equipment Rebate program measures excluded

Eligible Measures

Any measure and certain process and operational improvements that provide cost effective energy savings in an eligible customer facility are potentially eligible for incentives under this program. Con Edison has identified data centers and healthcare facilities as its initial target markets. The measures outlined below are examples of measures that would be considered for these types of facilities.

This program will promote certain measures and projects similar to those of the Equipment Rebate program, including HVAC and lighting improvements. Much of the savings, however, will come from high technology solutions to high technology energy inefficiencies. For example, the following best practices for data centers may have a low customer cost and yield significant demand and energy savings.

- Server virtualization for existing data centers and removal of under utilized servers[26]
- Infrastructure and comatose server[27] and storage audits
- Replacing inefficient servers with energy efficient servers[28]
- Power management software to power down idle servers[29]
- Energy efficient storage devices
- High efficiency cooling and fans
- High efficiency lighting and occupancy sensors

Healthcare facilities are generally large buildings that operate 24 hours a day with equipment at or near full capacity during seasonal peak periods. Below are examples of measures that may be implemented by healthcare facilities as part of this program.

- Commissioning and retro-commissioning for installed energy-using systems to have them operate in an optimal fashion in order to maximize energy efficiency
- Equipment optimization, such as HVAC controls and temperature set-points throughout the building. Operational opportunities can be considered as a lighter version of retro-commissioning
- Premium-Efficiency motors
- Motors, Pumps, Fan Systems, Variable Frequency Drive and Variable Air Volume (VAV) Box
- High efficiency lighting and controls
- High efficiency chillers and cooling towers

While not initially a focus of Con Edison's targeted marketing efforts, industrial companies that commit resources to lean manufacturing projects or manufacturing assistance projects that eliminate waste or increase productivity and produce verifiable energy and demand savings may participate in the program. To be eligible for this program, the project must produce savings and additional benefits through one or more of

[26] Server virtualization is a method of partitioning a physical server computer into multiple servers such that each is capable of running on its own dedicated machine. This allows underused multiple physical computers to be consolidated in a smaller number of computers, which reduces energy use. The two most effective measures of server virtualization are virtualization software and consolidation of physical hardware.

[27] Comatose servers are those that run applications no longer needed (Uptime Institute, 2008)

[28] The Environmental Protection Agency has begun the process of developing a new standard for energy efficient servers through the Energy Star program.

[29] Network power management allows placing connected PCs into lower power settings when not in use.

the following: facility optimization, increased machine effectiveness, improved product quality, reduced costs, reduced lead times, improved process-flow and increased inventory turns.

The Custom Efficiency program also will accept commissioning projects. Commissioning projects may include retro-commissioning and enhanced building operations, which have been shown to produce meaningful cost effective savings, as well as longer-term, monitoring-based commissioning projects.

Financial Incentives

The incentive strategy is designed to offset the cost barrier associated with efficient equipment and systems. The measures that may be proposed by customers for this program may include any technology or process improvement that meets Con Edison's cost effectiveness threshold. Two types of financial incentives are offered:

- A technical study is offered to customers to evaluate the feasibility and cost effectiveness of potential efficiency measures or more comprehensive facility upgrades. Con Edison will provide up to 50 percent of the cost of a technical study and may provide additional reimbursement subject to program guidelines. Total technical study reimbursement will be capped at $50,000

- Con Edison will provide a financial incentive in the form of "commercial buyback" of kWh saved or avoided using a tiered rebate structure that rewards customers for increasing levels of efficiency. The buy back structure is outlined in Table 28. Financial incentives will be capped at $ 250,000. A Con Edison-funded technical study is not a pre-requisite to receiving the commercial buy-back incentive offered by this program. Any project that has been analyzed by a qualified professional engineer or other qualified contractor and found to be cost-effective may be eligible for this incentive. To the extent the energy savings result in a peak demand reduction of 5 percent or greater, an adder of up to 10 percent would be applied to the rebate amount.

Table 28. Commercial Buy-Back rebate structure

	Savings Level	Buy Back rebate
Tier 1	Up to 10%	$0.08/kWh
Tier 2	11 to 20%	$0.10/kWh
Tier 3	> 20%	$0.12/kWh
Tier 4	≥ 5% peak demand reduction	10% bonus

Program Implementation and Milestones

Con Edison will use a combination of in-house resources and third party program implementation contractors to provide certain program administrative and delivery

services. Con Edison will provide training for relevant staff and contractors with respect to necessary business processes, reporting, administrative procedures, roles and responsibilities, quality assurance protocols, budgets and timelines.

Con Edison's planned pre-implementation tasks include:

1. Develop detailed work scopes, selection criteria and quality assurance protocols for program service vendors;
2. Refine workflow processes and determine implementation contractor, technical study contractors and staffing needs;
3. Develop eligibility requirements for process improvement and commissioning projects;
4. Issue RFPs (where applicable) to qualify and select service providers: implementation, MV&E and evaluation contractors;
5. Conduct outreach to professional engineering firms, equipment dealers, trade allies and other local market actors;
6. Develop tracking and allocation procedures;
7. Develop marketing approach and collateral materials;
8. Generate training materials and coordinate program training for contractors, trade allies and internal staff;
9. Develop customer education materials; and
10. Develop data requirements for program evaluation.

Participation

Participation levels were estimated by examining the distribution of sales to each targeted segment with more than 100 kW in demand. The total technical potential for this program was developed using end-use shares in the commercial sector available from the Energy Information Administration (EIA) and engineering estimates of measure savings. Con Edison may further refine these participation levels following the completion of its Market Potential Study. While participation will not be limited to healthcare facilities and data centers, the projected participation for those segments are shown below. Total participation through 2015, based on the three-year planning period, is projected to be 0.05% of total commercial customers, although this percentage would be higher if calculated based on eligible customers.

Table 29. Projected Participation

Segment	Healthcare Facilities	Data Centers	Total
2009	8	3	**11**
2010	24	9	**33**
2011	49	18	**67**
Total	**81**	**30**	**111**

Marketing Approach

Con Edison's marketing approach for all of its C&I programs will rely on both traditional and innovative strategies. Con Edison intends to proactively market its new energy efficiency programs by leveraging existing relationships and customer data to direct targeted promotional materials to areas with the greatest potential for efficiency gains (both energy and capacity). The promotional strategy for this program focuses on direct contact with customers and targeted trade allies.

Trade allies will play a key role in implementing the program. The following types of trade allies are predominant.

- Engineering firms
- Lighting, mechanical and motor contractors qualified to specify or install complex or very large systems not covered by the C&I Equipment Rebate program
- Companies specifying, installing and maintaining control systems
- Refrigeration contractors
- Market sector specific trade ally associations, manufacturers, consultants and service providers, architectural firms and equipment suppliers

Con Edison personnel specializing in targeted market sectors will manage marketing for this program. Con Edison will engage in customer-focused, aggressive targeted marketing to specific sectors associated with a high level of unrealized energy efficiency potential. Con Edison will use the results of the Market Potential Study to tailor outreach efforts to specific geographic areas, customer classes, market sectors and individual customers. Summaries of Con Edison's initial target sectors follow.

Data Centers

Data Centers, as defined by the EPA, are spaces specifically designed to accommodate dense arrangements of computing equipment (including telephone company central offices, bio-technology facilities and computer labs) and have dedicated HVAC equipment installed to handle computing equipment heat-load. Data centers traditionally do not fit into common utility efficiency programs, as they are frequently characterized

by highly individual facility design and operational parameters as well as a high level of critical equipment and electrical loads.

Data centers can use up to 100 times the energy per square foot of a typical office space. Information technology (IT) is an increasingly important factor in business growth, leading to increased demand for and investment in IT applications and functions. The energy consumption of computer servers and data centers has doubled in the past five years and is expected to almost double again in the next five years to more than 100 billion kWh annually nation-wide. Typically, a small data center requires HVAC equipment rated for up to 360 tons of refrigeration capacity (not including cooling system redundancy).

Today's data centers are pervasive and range from small rooms to large, dedicated facilities running 24 hours a day, 7 days a week. Con Edison's Custom Efficiency program offers an ideal strategy for data centers to increase efficiency and reduce operating expenses. The program will provide customized energy diagnostics that evaluate facility layout, equipment efficiency and operating profile, air flow, UPS, and HVAC components. Efficiency strategies may be site specific and involve the selection of energy efficient servers, Uninterruptible Power Supply (UPS) systems, cooling system improvements, high efficiency power supply retrofits, air-flow management tune up, replacement of computing and data storage equipment, and operational improvements.

Healthcare

The healthcare sector is characterized by the Department of Energy as having the nation's most complex, diverse and energy intensive facilities. In 2007, the American Society for Healthcare Engineering (ASHE) reported that 91 percent of healthcare facilities faced higher energy costs over the previous year, and more than 50 percent cited increases in double digit percentages.[30] Healthcare facilities have more than 2.5 times the energy intensity of commercial buildings. This market segment is a leader in adopting emerging high efficiency technologies in order to reduce energy consumption and lower their carbon footprint. Healthcare institutions typically own their facilities or have long-term leases so they have a vested interest in long-term energy efficiency strategies. In addition, healthcare facilities operate equipment at or near full capacity during seasonal peak periods. Energy costs in hospitals represent one of the few cost centers hospitals can significantly control without a negative impact on patient care quality.

Common efficiency strategies for the healthcare sector may include Rooftop HVAC and Packaged Terminal Air Conditioning (PTAC) units, AC chillers and high efficiency lighting and control systems as well as retro-commissioning facilities to ensure that major energy systems are operating at an optimal level.

Workflow

Con Edison's energy efficiency staff will provide overall strategic direction and program management for the program and will be supplemented by program contractors to

[30] U.S. Department of Energy – Office of Energy Efficiency and Renewable Energy

conduct certain delivery and administrative functions. The project development process for the Custom Efficiency program is more fluid than other programs and may not follow a precise work path. The Custom Efficiency program will include the highest level of Con Edison involvement, with each custom project having a single assigned contact person to oversee, direct and facilitate the process. Con Edison staff will support the customer to the extent needed, including to help identify and flesh out project ideas, submit program applications, advise customers and their contractors who specify projects, review applications to confirm scope, cost and potential energy savings of proposed projects and facilitate field verification of completed projects, if appropriate. The following workflow is an example of a typical scenario through which an equipment based custom efficiency project may proceed.

1. Customers may be directed to the program through specific customer targeted marketing efforts, a trade ally or program contractor, Con Edison's Small Business Direct Installation program, other marketing activities, the Company website, or customer project management staff.

2. Con Edison staff meets with the customer to evaluate opportunities for energy efficiency projects and develop potential project ideas.

3. The Customer solicits and hires a professional engineering firm or other qualified contractor to perform a detailed technical study of potential projects and evaluate their cost effectiveness. The customer may begin the process here if the customer has already completed a technical study but has not begun efficiency projects.

4. Con Edison evaluates the technical study report to qualify projects. This involves confirming project incremental cost and potential energy and capacity savings data and evaluating cost-effectiveness using the TRC.

5. Installing eligible high efficiency equipment. Customers will schedule this work directly with an approved installation contractor.

6. Verifying equipment installation for all participants, which will be a part of the measurement and verification process.

7. Processing rebates for qualified equipment.

Market Barriers and Mitigation Strategies

Table 30 presents the key market barriers to an effective Custom Efficiency program, as well as the strategies the program will use to address each barrier. Con Edison will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 30. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Mitigation Strategies
Higher initial cost of energy-efficient equipment	Offer customized incentives, including rebates and potential finance options where applicable to offset higher initial cost
Not a high priority for facility operators	Market energy efficiency to decision makers and facility operators to facilitate understanding of capital budget and operating concerns
Limited time, resources and information to consider efficiency in emergency replacement	Provide ongoing customer support and follow through; Provide cost-shared technical consultation to help determine cost-effective options; Targeted dealer outreach and training; Ongoing dealer communications and education
Reliability requirements for mission critical operations	Use only high quality and credible engineers to offer energy efficient solutions without increasing the risk to operations
Low customer and dealer awareness	Targeted customer marketing, education and outreach; Dealer and trade ally communications, training and outreach; Program promotion/advertising; Leverage sector-wide partnerships with government and industry resources
Lack of customer technical knowledge	Provide cost-shared engineering and other expertise
Lack of Customer understanding of environmental issues	Translate energy efficiency actions into environmental benefits for customers
Lack of confidence in savings estimates from vendors	Independent savings estimations through scoping and engineering studies; Independent savings verification for selected projects

Value Proposition

Customers participating in the program receive the following main benefits:

- Customers may receive a comprehensive facility analysis that may be fully reimbursed if they meet certain program guidelines.
- Customers receive an incentive to produce energy and demand savings that will improve their rate of return/payback on major capital or process investments.
- Customers receive reliable, impartial advice about high quality, energy-efficient equipment from a trustworthy source.
- Equipment upgrades will provide customers with significant savings, increased productivity and increased property values.

Projected Savings

Over the three-year planning horizon, about 110 customers are expected to participate for annual cumulative savings of nearly 23,000 MWh. The annual cumulative MWh and coincident peak MW savings through 2015, based on the first three years of program participation, are shown in Table 31.

Table 31. Projected Savings

Year	MWH Savings	MW Savings
2009	2,300	1
2010	9,000	4
2011	22,600	9
2012	29,800	12
2013	35,800	15
2014	41,900	18
2015	47,900	21

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.28, illustrating that there is some concentration of savings in the peak period. But the majority of savings are spread out during the year because more than half of the forecasted savings are from lighting measures.

MV&E Plan

Program Description

This program offers technical assistance and financial incentives for custom measures and equipment. The program will initially target primarily data centers and hospitals.

Program Theory

Data centers and hospitals represent significant shares of commercial electricity use and are expected to continue to increase their energy consumption. These sectors are also highly competitive and driven by scientific breakthroughs and innovations. The facilities encompass many specialized end uses and therefore, their energy efficiency needs tend to be unique. The custom rebate program is designed with the necessary flexibility to address the energy efficiency opportunities in these, as well as other market segments.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The primary goal of the evaluation is to document the energy savings and demand attributable to the program and to help identify areas where the performance of the program with respect to market acceptance and depth of savings might be enhanced. The evaluation will have process analysis and impact assessment components.

Process Evaluation Methodology

The process evaluation will rely on reviews of program documentation, interviews with program staff, technical assistance and installation contractors and key market actors and

will focus on improving the efficiency of program recruitment, delivery and adoption of measures and overcoming barriers to participation. The process evaluation will begin during the early phases of program implementation, in time to provide the necessary feedback to program management.

The process evaluation will also include a survey of program participants, focusing on eliciting information on the customer's experience with the program and will also serve as a vehicle for obtaining more detailed site information in support of the impact evaluation if warranted. Since the number of participants is expected to be small in the early stages of program implementation, MV&E will be performed on the census of participants. It is anticipated that the survey will be implemented at the end of each year over the life of the program. Participant surveys will include a free-rider and participant spillover component.

The process evaluation will also include an "evaluability assessment" review of data collection and tracking and review (or development) of the program logic model, indicators and researchable issues.

Impact Evaluation Methodology

This program targets common end uses such as lighting and HVAC as well as specialized applications that relate to plug load and other measures and uncommon technologies. Process improvement and commissioning projects are also expected to participate and detailed impact evaluation methodology for these projects will be developed after Commission approval. The impact evaluation will therefore be measure or process specific but will always include pre- and post installation inspections. Final determination of the impact evaluation methodology will occur after an MV&E contractor is selected. The MV&E contractor should establish specific protocols for each individual measure in accordance with the International Performance Measurement and Verification Protocol (IPMVP).

Lighting

Impact analysis for lighting measures will be based primarily on engineering validation and will have three components: verification of installation (measure count), calculation of saving (wattage differential) and monitoring hours of operation.

A sample of sites where lighting measures have been installed will be visited to ascertain installation of measures. The number of site visits will be determined using a stratified sample based on a 90/10 criterion for statistical confidence and precision. This sample will be selected to represent functional areas within each of the two target markets. Wattage differentials for each functional area will be determined as the difference between the baseline and new equipment specified during the technical study.

Run time is a key parameter in calculation of savings from lighting retrofits. The impact evaluation will therefore include verification of hours of operation using light loggers on a sample of installations. The number of points to be monitored will be based on a sample

stratified to represent functional areas and variability of savings within each functional area using a 90/10 criterion.

HVAC

The analysis of HVAC savings will be based on engineering methods, using building simulations (DOE's DOE-2, an ASHRAE Standard 140 compliant building energy simulation tool or simple engineering models). The engineering models will be calibrated using site-specific characteristics and selective interval recording of data on key parameters such as run time. The models will be informed by directly observed characteristics of facilities, local climate zone, and selective metering of key parameters such as run time.

The MV&E contractor will determine the appropriate measurement protocol based on the specific HVAC measure installed. Each protocol should include a site interview to determine equipment operating hours, temperature settings, and appropriate details regarding equipment use. The various measurements applicable to HVAC equipment could include pre- and/or post-installation measurement of outdoor air temperature, return air temperature, mixed air temperature (three probes at different locations to account for temperature variations in the collection area and enable a mean temperature to be calculated), true RMS (root mean square) power for the motor, and chiller flow rate. The required measurement equipment could include temperature probes, data loggers, current transformers, and true RMS power meters. Since loads in data centers in general tend to have a low variability, it is expected that a period of two to four weeks of pre and post monitoring would be sufficient for that application.

Plug Load

Each facility will likely have a number of plug load applications that could be replaced by more efficient equipment. Most of the measures applicable to data centers involve installing more efficient equipment based on plug load (storage devices, power supplies, UPS, power management software) that effectively relate to plug load. The evaluation for these measures would follow a procedure of pre and post measurement of the true RMS power on a sample of equipment, along with a site interview to determine operating hours and existing equipment specifications. The required measurement equipment could include temperature probes, data loggers, current transformers, and true RMS power meters. The server virtualization measure for data centers involves the replacement of multiple under-utilized servers with one server operating at a higher level of utility. The evaluation for this measure would require pre-installation measurement of true RMS power and exhaust temperature for the replaced servers and the post measurement of true RMS power and exhaust temperature for the replacement server, along with operating hours.

Data Requirements

Data necessary for the impact assessment will consist of the following:

1. Engineering estimates of savings for each measure installed under the program, according to technical studies;
2. Usage information before and after process improvements or implementation of commissioning improvements;
3. Facility characteristics;
4. Daily weather data from local weather stations to calculate HDD and CDD; and
5. Status and interval data for key equipment parameters.

Calculation of Net Program Impacts

Net energy and demand (coincident and non-coincident) savings from the program may be obtained by adjusting the savings estimates for free-ridership and spillover derived from participant surveys. Actual, verified savings and free-rider/spillover adjustments will be used to adjust the planning estimates. The adjusted savings estimates will also be used in conjunction with actual accrued costs to re-calculate the cost effectiveness of the program.

6. Targeted Demand Side Management Program

Con Edison has long been mindful that cost-effective, long-term DSM could reduce the need for additional capacity, minimize environmental impacts of electric supply resources and promote increased energy awareness by all customers. In addition, when targeted to areas where growth in electric demand will result in the need for new substations, transformers and other delivery infrastructure, DSM resources may defer capital investment for T&D) system load relief.

Since 2003, Con Edison has implemented a Targeted DSM program that to date has been employed in 38 electric networks. Under this program, Con Edison contracts with competitively selected DSM contractors to achieve load reductions through the installation of permanent energy efficiency measures at customer facilities.

Con Edison believes there is value in continuing a Targeted DSM program although, as discussed in more detail herein, the Company may decide to implement the program differently than it has to date. The Company has identified potential DSM target areas that will enable the Company to defer significant T&D infrastructure investment and the Company believes that some form of a targeted program will continue to be necessary to enable the Company to achieve this investment deferral. In addition, the Company expects that new deferral opportunities will arise each year after it issues its annual ten-year load relief plan based on the most recent load forecast, which has typically forecasted the need for additional T&D infrastructure investment as demand continues to grow.

Program History

In 2003, Con Edison commenced a pilot program to employ targeted DSM to reduce the need for additional T&D capacity in specific networks through the use of permanent energy efficiency measures. Con Edison issued an RFP to solicit bids from energy services vendors that would target network areas forecasted to require T&D infrastructure investment (e.g., transformers or substations) due to increased customer demand for electricity. Con Edison subsequently executed contracts for 47 MW of permanent demand reductions pursuant to this pilot RFP. The Commission approved the cost recovery for these contracts on April 2, 2006.[31]

In its 2005 electric rate case, Con Edison agreed to implement a program that would seek to contract for 150 MW of DSM reductions for its 2005-2008 Electric Rate Plan. The Commission approved this program expansion, stating that the "general goal of fostering the use of DSM resources to offset projected peak load growth is very important given the numerous public benefits DSM alone can provide in comparison with typical alternatives. Those benefits include reduced energy consumption, reduced air pollution, avoidance of the environmental impacts associated with construction of electric generation, transmission, and distribution facilities, increased supply diversity, and

[31] Case 03-E-1332, Order on Cost Recovery of Demand Management Program (April 21, 2006).

increased economic growth."[32] The Commission required that Con Edison meet the TRC test for the program.[33]

The 2005-08 Electric Rate Plan required Con Edison to consult with a Targeted DSM collaborative and submit an implementation plan. Con Edison held seven meetings with the collaborative over a five-month period and thereafter filed an implementation plan with the Commission. No objections or comments were received and Con Edison proceeded with the program. Con Edison issued three RFPs under the 2005-08 Electric Rate Plan and entered into contracts for 148 MW (the contracts allow for 10% "overage," thus the Company satisfied the 150 MW Rate Plan requirement). As stated in that filed implementation plan, Con Edison consults with Department of Public Service Staff prior to issuance of each RFP and prior to execution of any contracts pursuant to an RFP.

In the Con Edison 2008 Electric Rate Order,[34] the Commission authorized a continuation of the program for an additional 30 MW under the same terms and conditions as the 2005-08 Electric Rate Plan. The Commission agreed with the recommended decision of the Administrative Law Judges that the Targeted Program "is meeting its targets within the budget established by the Commission, and that while the program could potentially achieve more cost-effective results, continuation of the program is justified by the need to maintain continuity pending a determination in the EEPS proceeding." The Commission also adopted the recommendation of its Staff that Con Edison be required to conduct an independent evaluation of the Targeted Program, in consultation with Staff and interested parties. After such consultation, Con Edison issued an RFP for this evaluation and is continuing to consult with Staff on the selection of a consultant to conduct the evaluation.

Since the Targeted DSM program was established in 2003, Con Edison has entered into 13 contracts with six vendors for a total of 195 MW, to be installed over the 2005 through 2012 period. To date, approximately 16,000 customers (both C&I and residential), have participated in the program, which has provided an installed demand reduction through permanent energy efficiency measures of approximately 53 MW, in line with the pace required for planned infrastructure deferrals.

Proposed Structure for the 2008-11 Time Period

Con Edison is proposing a general framework for the program. Con Edison recognizes that the independent evaluation may result in recommendations for changes in how the program is implemented going forward. Con Edison has also been considering changes to the program and it accordingly proposes to file a detailed implementation plan following completion of the independent evaluation. The Company believes nonetheless, as shown by the potential TRC set forth herein, that a targeted program can provide greater value for ratepayers by providing for the potential deferral of significant T&D infrastructure investments. Accordingly, the program should be continued and the Commission should set aside EEPS funding for Con Edison to use in this program.

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[32] Case 04-E-0572, Order Adopting Three-Year Rate Plan, at 85 (March 24, 2005).
[33] *Id. at* 87; *see also* Case 04-E-0572, Order On Demand Management Action Plan, at 30 (March 16, 2006).
[34] Case 07-E-0523, Order Establishing Rates For Electric Service, at 158 (March 25, 2008).

The savings that can be realized from this program are significant and would complement the other programs that Con Edison is proposing herein and proposed in its Expedited Programs filing.

For example, the Company may use prescriptive and custom efficiency programs similar to the programs proposed herein except that Con Edison would offer rebate enhancements to Con Edison electric customers within any new targeted areas[35]. The Company could offer customers a significant premium depending on the value of the deferral. (DSM contractors could also participate by aggregating a group of eligible customer facilities.) The specific programs and rebate levels to be offered will be based on the nature of the selected network (i.e., daytime or nighttime peaking network), the date the infrastructure project is needed and the premium rebate level that is shown to be cost effective by the TRC test. For purposes of this filing it has been assumed that rebates will offset 100% of customer costs. However, at no time will rebate levels be established at more than 75% of the enhanced value[36] of the T&D deferral or measure cost, whichever is less, which will result in a program that is more cost-effective for ratepayers than the standard program (as shown below, the TRC values would also be higher than the standard programs due to the value of the T&D deferral). The Company anticipates that increased rebate levels will result in increased participation within the targeted networks. In addition, a more direct marketing effort will be developed that will focus on the specific customer segment (i.e., residential or commercial). The increased rebate levels may decline over time as MW goals and investment deferral are achieved.

The Company will also explore beginning the program earlier in the load relief process than it does currently. Under the program in effect for the 2005-08 Electric Rate Plan, the Company would seek to defer only those T&D projects that are projected to be in service within five years after the summer period following the date of offering. But, as the Company has discussed herein, it issues a ten-year load relief plan and there are T&D projects in the second five years with long lead times for which it may be advantageous to start earlier in the DSM deferral process. If the Company begins earlier than five years before the in-service date, certain measures, such as lighting, may initially be excluded from premium rebate levels because they may not be in place when the T&D project is in service.

Con Edison will also continue to review its annual load relief plans to determine additional opportunities for Targeted DSM and is currently exploring alternative mechanisms for program delivery.

[35] The new targeted program may include multi-family, but will exclude new construction, as it has from the program's ineeption.

[36] The enhanced value of the T&D deferral is the amount by which the value of the particular T&D deferral exceeds the generic value given to T&D deferral by DPS Staff.

MV&E Plan

Because the Targeted Program would be implemented to defer capital projects that are required to meet system reliability, the program incorporates a robust monitoring and verification methodology that would also monitor persistence.

For Commercial & Industrial Facilities:

Measures are submitted for approval by a Con Edison customer or the customer's representative through an electronic application. This application will contain the site name, address, Con Edison account number and site contact, along with the name of the applicable Con Edison network. Additionally, this application will include data regarding the existing equipment types such as the number of fixtures, motors, air conditioners, the wattage draw associated with each measure type, and the total projected connected load for all existing equipment. Data associated with the equipment type projected to be installed are also included and will contain the number, wattage and total connected load for the projected equipment to be installed. The resulting differences are totaled to determine the expected amount of demand reduction to be achieved at each site submitted.

Once the facility is deemed eligible and all of the application data is reviewed by Con Edison's internal staff and is deemed to be correct, the application will be approved and the customer is requested to begin scheduling pre-installation inspections at the submitted site(s). Once pre-installation inspections have been completed, the data found by Con Edison is communicated back to the customer electronically.

After the vendor has completed the installation phase of each project, it will submit to Con Edison electronically, a report that incorporates all pertinent data associated with the newly installed equipment, the equipment removed, and an updated calculation of the demand reduction at all sites. This data will then be reviewed by Con Edison for accuracy. When deemed to be correct, the report is approved and the customer can be issued a rebate for the approved installed equipment.

In order to monitor persistence, Con Edison will conduct annual inspections at selected sites to determine whether demand reductions are being maintained at expected levels.

Specific evaluation methodologies are explained within the description of each C&I rebate program included within this filing.

For Residential Facilities:

The methodologies to be used are explained within the description of each residential rebate programs included within this filing. However, the selected sample indicated for the rebate programs may be more comprehensive for purposes of a targeted DSM program.

Projected Savings

A summary of the program's savings based on the three-year planning horizon is provided in Table 32.

Table 32. Projected Savings

Year	MWH Savings	MW Savings
2009	15,300	3
2010	61,300	14
2011	153,300	35
2012	204,400	47
2013	255,500	58
2014	306,600	70
2015	357,700	82

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.5. Total participation through 2015, based on the first three years of program participation, represents 0.18% of total 2015 commercial customers.

Cost-Effectiveness Analysis

The following is a hypothetical scenario to illustrate how such an analysis will be performed for specific T&D project deferrals. This analysis will be performed for each T&D project that has the potential for deferral.

Economic performance of each program was evaluated using the TRC test with and without a carbon dioxide externality adder. Carbon dioxide was included in the total-resource test (TRC + C) valued at $15 per ton,[37] assuming 0.5 tons of carbon dioxide emissions per MWh.[38] Benefit-cost ratios were calculated using the methods described in the California standard protocols for analyzing cost-effectiveness of energy efficiency programs.[39] Table 33 identifies assumptions used in the cost effectiveness analyses of measures and programs.

[37] June 23, 2008 Order, Appendix 3, p. 2.

[38] This assumption was provided by DPS Staff.

[39] See California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects, California Energy Commission, October 2001.

Table 33. Key Assumptions Used in Cost Effectiveness Calculations[40]

	Electric
Avoided Energy Costs (2009)	$86.89 per MWh
Avoided Capacity Costs (2009)	Generation: $105.40 per kW
	Transmission and Distribution: $558 per kW
Externality	0.5 tons of CO_2 per avoided MWh valued at $15 per ton
Line Loss	7.2%
Discount Rate	7.7%
Inflation	2.1%

Table 34. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	51,100	51,100	51,100	153,300
Coincident Peak Savings (MW)	12	12	12	35
Demand Savings (MW)	19	19	19	56
Total Resource Cost	$23,825,000	$24,267,000	$24,718,000	$72,810,000
Utility Financial Incentives	$2,824,000	$2,824,000	$2,824,000	$8,472,000
Participant Cost Net of Incentives	$0	$0	$0	$0
Direct Utility Costs	$21,001,000	$21,443,000	$21,894,000	$64,338,000
Customer Incentives or Services	$15,167,000	$15,486,000	$15,811,000	$46,464,000
Program Planning and Administration	$1,167,000	$1,192,000	$1,217,000	$3,576,000
Program Implemention Costs	$583,000	$595,000	$608,000	$1,786,000
Program Marketing and Trade Ally	$2,917,000	$2,978,000	$3,041,000	$8,936,000
Evaluation and Market Research	$1,167,000	$1,192,000	$1,217,000	$3,576,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$349,689,047	$359,140,944
NPV Costs	$67,666,060	$67,666,060
Benefit-Cost Ratio	**5.17**	**5.31**

As shown in Table 34, this program meets the TRC cost-effectiveness criterion with a benefit-to cost-ratio of 5.17 to 1 under the base-case and 5.31 to 1 under the TRC + C avoided cost scenario.

[40] Except for the externality adder, the amounts set forth in the table come from the March 25, 2008, DPS Staff Report on Recommendations for the EEPS Proceeding. The avoided T&D amount is different because it reflects the value of the Company's current forecast of potential T&D deferrals.

7. Steam Cooling Program

The Steam Cooling program promotes the use of steam powered cooling systems, particularly by existing steam cooling customers (approximately 350) who may be planning to convert to electric cooling (i.e., retention customers), but also by customers interested in retrofitting or adding steam cooling to their facilities (i.e., conversion customers, which includes new construction). This program provides customers with financial incentives to offset the higher cost of new steam-powered cooling equipment and the incremental operations and maintenance costs of steam equipment over electric cooling systems.

The objectives of this program are:

1. To improve electric system reliability and system load factor, as well as reduce electric costs by providing incentives that result in system coincident electric summer peak demand reduction in New York City.

2. To promote the steam system and maintain its viability. The Commission has stated that "Steam is an important and essential source of energy for heating and cooling for approximately 1,800 customers in New York City, many of whom cannot switch to an alternate service." The Commission has accordingly adopted policies that help to maintain the viability of the steam system and the benefits that it provides to the electric system. The Commission has accordingly adopted policies that support steam cooling.[41]

Con Edison's Steam Business Development (SBD) group will provide overall strategic direction and program management in coordination with the Company's energy efficiency staff. Customers may use their own qualified contractors to conduct technical studies and install equipment or Con Edison may recommend experienced contractors. Customers that demonstrate that they have a competitive alternative to steam cooling will be eligible for funding at an incentive level ranging from $600/kW to $1,000/kW and a Con Edison steam air conditioning rate discount. Program marketing will primarily rely on Con Edison's SBD staff and their existing relationships with customers, developers, consulting engineers, and others involved in construction and management of properties in Manhattan.

NYSERDA has had a steam cooling incentive program for existing buildings, but it has recently decided to modify the program and significantly reduce the incentives for steam cooling. The program that Con Edison is proposing is similar to the steam cooling component of the NYSERDA peak load reduction program that was in effect up to June 2008.

[41] Case 04-E-0572, Order On Demand Management Action Plan, at 40-41 (March 16, 2006).

Impacts Summary

A summary of the Steam Cooling program projected budget, annual and cumulative savings, costs,[42] benefits and cost effectiveness are presented in Table 35. Energy savings and cost estimates were developed for each measure through detailed research on the proposed measures, engincering calculations and modeling[43]. Incremental measure and labor costs were determined through Con Edison's knowledge concerning steam and electric cooling.[44]

Table 35. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	2,572	2,572	2,572	7,715
Coincident Peak Savings (MW)	3	3	3	9.2
Demand Savings (MW)	3	3	3	9.2
Total Resource Cost	$3,208,000	$3,318,000	$3,429,000	$9,955,000
Participant Cost Net of Incentives	$107,000	$152,000	$197,000	$456,000
Direct Utility Costs	$3,101,000	$3,166,000	$3,232,000	$9,499,000
Customer Incentives or Services	$2,572,000	$2,626,000	$2,681,000	$7,879,000
Program Planning and Administration	$96,000	$98,000	$100,000	$294,000
Program Implemention Costs	$109,000	$111,000	$113,000	$333,000
Program Marketing and Trade Ally	$232,000	$237,000	$242,000	$711,000
Evaluation and Market Research	$92,000	$94,000	$96,000	$282,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$44,277,859	$44,353,739
NPV Costs	$35,401,128	$35,401,128
Benefit-Cost Ratio	**1.25**	**1.25**

The MV&E costs are estimated at approximately six (6) percent of total program budgets in conformance with the EEPS Order. The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the 6 percent that will be allocated to evaluation and market research is still to be determined as well as any portion that may be allocated to Staff to perform its functions). The actual budget for this program is expected to be less than that amount due to the Company's access to steam interval data and other information.

[42] Cost here includes steam capital and operating costs (steam operating costs are reflected in the "Participant Costs Net of Incentives" line).

[43] Modeling utilized existing customer electric and steam interval data and optimization models (e.g., What's Best).

[44] ACCRA Cost of Living Index

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 1.251 to 1 under the base-case and 1.253 to 1 under the TRC plus carbon dioxide test.[45]

Program Eligibility

This program is available to C&I and high-rise residential electric customers with planned and existing facilities located within or near Con Edison's steam service territory.[46] New construction projects are also eligible. Customers must contribute to the System Benefits Charge (SBC) and continue paying it throughout the contract term. For Steam Cooling projects to be eligible for funding, they must comply with the steam service application process.

The following eligibility requirements apply to all Steam Cooling program customers:

- Existing and new steam customers must submit a rebate application, comprised of standard forms such as an application for steam service, a steam service load letter and point of entry determination letter as appropriate. The rebate application also must include documentation detailing the nature and characteristics of the customer's competitive alternatives to the Company's steam service. Such documentation must clearly demonstrate that the cost of steam chillers is a major factor in the customer's decision to pursue competitive alternatives. The customer must provide any additional information requested by the Company that it reasonably requires to analyze the application.

- The customer will enter into a Steam Service Agreement with Con Edison (i.e., an SC-5 negotiated rate that is only provided to customers that demonstrate to the Company's satisfaction that they have a viable competitive alternative to steam cooling).

- The customer must agree to a pre- and post-installation inspection by Con Edison.

- The customer must agree to use the Company's steam service for the purposes of cooling for a period of time and maintain a minimum level of steam usage during the Summer Electric Peak period as stipulated in the Service Agreement.

- The Company will review the customer's application and determine eligibility for inclusion in the program on a case-by-case basis. In making such a determination, the Company will consider the viability of the customer's competitive alternatives to the Company's steam service, as well as the practical aspects of securing the

[45] The Steam Cooling program is primarily an electric load reduction effort through fuel switching and results in both carbon dioxide and nitrous oxide (NOx) reduction benefits. Con Edison has estimated a net benefit at .0608 tons of CO_2 per MWh saved. This is a comparison of summer electric peaking units to summer steam generation units. There is also a 75% reduction in NOx emissions per ton of steam cooling, which helps to improve City air quality.

[46] From Battery Park north to 96th Street on the west side and 89th street on the east side.

alternatives (e.g., ability to secure environmental permits, building permits, or required capital).

- Projects must result in reduced peak demand during the Summer Peak Demand Reduction Period, through the installation of equipment that provides long-term (e.g., in place and operational for at least five years) system coincident peak demand reduction. The Summer Electric Peak Demand Reduction Period runs from June 1 through September 30, Monday-Friday (excluding holidays) during the hours of 8:00 AM to 10:00 PM.

- Steam Cooling Projects must represent a complete installation, replacement or major renovation of the cooling system including, at a minimum, replacement of the compressor and steam turbine driveline or absorption chiller.

Table 36 outlines basic customer eligibility parameters.

Table 36. Customer Eligibility Parameters

Fuel	Electric or steam customer
Building Type	Commercial, Industrial, Residential
Building Vintage	Existing buildings and New Construction
Building ownership	Owner
Geography	Located within or near steam service territory

Eligible Measures

Table 37 shows Con Edison's proposed list of eligible equipment and efficiency qualifications for the Steam Cooling program. Measures must be installed and operational at the facility for a minimum of five years.

Table 37. Eligible Steam Cooling Equipment Measures

Measure	Eligibility Rating	Comments
Steam turbine chiller	Must meet ASHRAE 90.1 2004	Additional Incentive for COP[47] > 1.02
Two-stage absorption chiller	Must meet ASHRAE 90.1 2004	Additional Incentive for COP > 1.02
Single-stage absorption chiller	Must meet ASHRAE 90.1 2004	Additional Incentive for COP > 1.02

Financial Incentives

Con Edison will provide a financial incentive to eligible customers who complete a technical study of the proposed project and install steam cooling projects using eligible

[47] COP is the Coefficient of Performance measure calculated for cooling systems as the rate of net heat removal divided by total energy input.

equipment identified in Table 37. Financial incentives for electric to steam conversions will be based on nameplate rating and will not exceed the incremental cost of steam cooling as compared to comparable electric cooling. Projects must calculate the avoided electric demand using a baseline electric chiller efficiency of 0.576 kW/ton for comparison.

Incentives are calculated as follows:

- Steam Cooling Retention Projects: $600/kW up to the incremental cost
- Electric to Steam Conversions with COP > 1.02 at full load: $1,000/kW up to the incremental cost
- Electric to Steam Conversions with COP <= 1.02 at full load: $600/kW up to the incremental cost
- In addition, the customer will receive a steam rate incentive.

In the event the customer pays the SBC on less than 50 percent of the total annual electric consumption (kWh) at the Facility, the incentive will be prorated as follows:

Prorated Incentive = (SBC annual kWh/Total annual kWh)*(standard incentive)

Con Edison will provide an estimate of the eligible financial incentive upon review and approval of the customer's steam application. The final payment will be determined based on an approved Steam Service Agreement, field verification and approved invoices. The final incentive payment may differ from the application if the field verification identifies changes to the estimated kW demand reduction.

Program Implementation and Milestones

Con Edison will use in-house resources to manage program implementation, administrative and delivery functions. Con Edison will provide training, as needed, for relevant staff with respect to delivery processes, administrative procedures, roles and responsibilities, quality assurance protocols, budgets and timelines.

Con Edison's planned pre-implementation tasks include:

1. Develop detailed work scopes, administrative and tracking procedures and quality assurance protocols for program delivery staff;
2. Refine workflow processes and determine staffing needs;
3. Conduct outreach to equipment vendors, trade allies and other local market actors;
4. Develop tracking and allocation procedures; and
5. Develop marketing approach and collateral materials.

Participation

Participation levels were estimated by examining customer participation in the NYSERDA program, an analysis of the Company's existing steam customer base and an evaluation of the current steam cooling market potential for the steam system. Total participation through 2015, projected based on the three-year participation estimates, represents less than 0.01% of residential and commercial electric customers, although this percentage would be higher if based on eligible customers.

Table 38. Projected Segment Participation

	Participants
2009	2
2010	6
2011	11
Total	**19**

Marketing Strategy

Con Edison's SBD group will be in charge of marketing the program. Con Edison utilizes a wide range of marketing channels to promote its programs and services. In addition, SBD has been working with its customers and major market participants, including developers, property managers, consultants and architectural engineering firms, to determine the best ways to increase market penetration of steam chillers. SBD will leverage its existing relationships, customer data and customer touch points (e.g., service calls, bill inquiries, etc.) to generate awareness of the program and direct targeted promotional materials to existing and prospective steam customers within or near the Company's steam service territory.

SBD will promote the Steam Cooling program through direct mail, Internet and one-on-one outreach such as client meetings, seminars and conferences and by leveraging its relationships with trade allies and industry partners to disseminate information to the targeted market.

Workflow

SBD will provide overall strategic direction, program management and delivery functions for the program. Third party contractors, including technical study and installation contractors will work on behalf of the customer.

Key steps in program implementation include:

1. Marketing the program. Customers may be directed to the program through marketing activities by the SBD group, Con Edison's or NYSERDA's general marketing activities, the Company website, equipment dealers or other trade allies.

2. Completing the program application. The application must describe each project for a particular facility and indicate an estimated summer peak kW demand reduction for each facility.

3. Ensuring that the equipment meets program qualifications. Con Edison will review demand reduction measures identified in the application, determine program eligibility and projected incentive award and complete field verification.

4. Completing pre-installation field verification. The pre-installation or pre-construction field verification will be conducted by Con Edison staff and is required to document existing facility conditions and equipment and verify information provided in the application.

5. Completing a technical study. The technical study must clearly document permanent demand reduction, the methodology for determining kW demand reduction and kWh savings and include a summary of pre- and post- installation coincident kW demand and kWh use and measure costs. The study must calculate the avoided kW and compare the cost of the electric alternative to the proposed steam cooling system

6. Technical study review. Con Edison staff will review the technical study results to verify that the project meets all program criteria and will enter into a Steam Service Agreement with the customer if it satisfies the criteria.

7. Installing eligible steam chiller equipment. The customer implements the measures as specified. Projects must be completed within 36 months of the application date.

8. Post installation field verification. Con Edison will schedule and conduct field verification of installed projects to verify compliance with the program and the approved project scope.

9. Submittal of deliverables. The customer must provide the following documentation to Con Edison prior to being issued an incentive payment:
   - a completed rebate application,
   - a steam application, steam service load letter, and POE determination, letter approved by Con Edison (as required),
   - a field verification report approved by Con Edison,
   - an invoice approved by Con Edison, and
   - an executed Steam Service Agreement.

10. Process incentive payment for qualified equipment.

Market Barriers and Mitigation Strategies

Table 39 presents the key market barriers to an effective Steam Cooling program, as well as the strategies the program will use to address each barrier. The Company will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 39. Market Barriers and Con Edison Mitigation Strategies in place[48]

Market Barriers	Mitigation Strategies
Equipment Lead Time	Emphasize to vendors and consulting engineering industry the criticality of scheduling design time, equipment orders, rigging, testing – all prior to equipment start-up
Higher initial cost of steam equipment	Offer rebates and Con Edison steam discounts to offset higher incremental cost; Educate customers on the long-term energy cost-saving benefits of higher efficiency equipment
Time required to fill out application	Utilize existing steam service application process
Customers don't bother to look for qualifying measures	Trade ally training to help customers quickly identify appropriate measures and products; Market program and general efficiency awareness to customers

Value Proposition

Customers participating in the program receive the following main benefits:

- Customers receive new, more efficient steam cooling equipment at a discounted rate.
- Projects will improve electric system reliability and system load factor, as well as reduce electric costs.
- Projects will result in long-term system coincident electric summer peak demand reduction in New York City, reducing the need to add capacity infrastructure.
- The program will contribute to the Company's plan to defer T&D investment where appropriate.
- The program will help free up existing electric capacity or reduce new electric capacity installation requirements.

[48] The use of floor by floor electric chillers in new construction is also a barrier to the use of central chiller plants, either electric or steam, that in turn serves to discourage the use of central steam cooling.

Cost Effectiveness

Table 40. Key Assumptions Used in Cost Effectiveness Calculations[49]

	Electric
Avoided Energy Costs (2009)	$89.16 per MWh
Avoided Capacity Costs (2009)	Generation: $121.10 per kW
	Transmission and Distribution: $114.67 per kW
Externality	0.5 tons of CO_2 per avoided MWh valued at $15 per ton [50]
Line Loss	7.2%
Discount Rate	7.7%
Inflation	2.1%

As shown in Table 35, this program meets the TRC cost-effectiveness criterion with a benefit-to cost-ratio of 1.251 to 1 under the base-case and 1.253 to 1 under the TRC + C avoided cost scenario.

Projected Savings

The annual cumulative MWh and coincident peak MW savings through 2015, based on the first three years of program participation, are shown in Table 31.

Table 41. Projected Savings

Year	MWH Savings	MW Savings
2009	2,600	3
2010	5,100	6
2011	7,700	9
2012	10,300	12
2013	12,900	15
2014	15,400	18
2015	18,000	22

[49] The amounts set forth in the table come from the March 25, 2008, DPS Staff Report on Recommendations for the EEPS Proceeding and reflect the appropriate values for the steam territory, except that avoided energy and capacity costs are the New York City (Zone J) only costs from that report, reflecting that steam cooling is a measure that will be implemented in New York City only.

[50] The Steam Cooling program is primarily an electric load reduction effort through fuel switching and results in both Carbon Dioxide and NOx reduction benefits. Con Edison has estimated a net benefit at .0608 tons of CO_2 per MWh saved. This is a comparison of summer electric peaking units to summer steam generation units. There is also a 75% reduction in NOx emissions per ton of steam cooling.

Using the Commission's definition, the peak coincidence factor in 2015 for this program is 0.09, illustrating that the savings for this program are highly concentrated in the coincident peak, rather than spread out during the year.

MV&E Plan

Program Description

This program is designed to encourage Con Edison's customers to install specific electric load reduction equipment in both existing and new facilities. The program offers financial incentives to offset the incremental cost of load reduction through steam cooling.

Program Theory

The principal objective in this program is to overcome market barriers that impede the adoption of steam equipment for electric load reduction. The program targets central plant air conditioning in the retrofit and new construction markets. The program combines education with financial incentives to address lack of information and up-front costs as the main barriers to investments in energy demand reduction.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The primary goal of the evaluation is to document the energy savings attributable to the program and to help identify areas where program performance may be improved. The evaluation will have process analysis and impact assessment components

Process Evaluation Methodology

The process evaluation will rely on reviews of program documentation, interviews with program staff, implementation contractors and key market actors and will focus on improving the efficiency of program recruitment, delivery and adoption of measures and overcoming barriers to participation. The process evaluation will begin during the early phases of program implementation, in time to provide the necessary feedback to program management on the progress and performance of the program.

The process evaluation will also include a survey of program participants and non-participants. Participant surveys will focus on eliciting information on the customer's experience with the program and will also serve as a vehicle for obtaining more detailed site information in support of the impact evaluation. Participant sampling for this survey will be based on stratified samples designed to satisfy 90/10 criteria for confidence and precision. Participant samples will allow for stratification by facility vintage (existing versus new construction), market segment, geographical location and measure type.

It is anticipated that the survey will be implemented twice over the life of the program. The process evaluation will also include an "evaluability assessment" review of data collection and tracking and review (or development) of the program logic model, indicators and researchable issues.

Impact Evaluation Methodology

This program targets a dominant end use in the commercial and high rise residential sector. It is important to focus the analysis not only on the installed measures, but also the major market segments targeted by the program such as office buildings, retail, lodging, and high- residential, among others. This approach will help provide a better understanding of targeted segments and help validate program design assumptions and inform future program marketing.

The impact analysis will be primarily based on engineering methods using metering and billing information assembled by Con Edison through existing meter stations. The SBD group has analysis spreadsheets, historical profiles, and simulation and optimization models to identify impacts and confirm benefits.

Monitoring of certain equipment in existing buildings may be utilized to re-calibrate the energy simulation models. In such cases, end uses would be monitored for the entire cooling and/or heating season, although a period of at least three weeks during cooling or heating seasons would be sufficient under the International Performance Measurement and Verification Protocols (IPMVP) Option B. The impacts estimated under Option B will be weather-normalized to long-term average weather data. End-use data will be applied to energy simulation, consistent with the IPMVP Option D for use in the demand and energy impact calculations.

Statistical Analysis of Consumption Histories

Statistical analysis of consumption histories involving a regression-based comparison of pre- and post-program energy use between participants and a matching sample of non-participants will also be used to determine "net" impacts in this program.

Data Requirements

Data necessary for the impact assessment will consist of five main elements:

1. At least twelve consecutive months of electricity and steam consumption;
2. Daily weather data from the local weather stations for calculating heating and cooling degree days (HDD and CDD);
3. Expected (planning) estimates of savings from specific measures installed at each site;
4. Modified planning estimates where such modifications have been made subsequent to energy simulation modeling; and
5. Monitored equipment data used in calibration of engineering models.

Calculation of Net Program Impacts

Net energy and demand (coincident and non-coincident) savings from the program may be obtained directly from the analysis of electric and steam meter station data. These estimates will be used to adjust the planning estimates of measure savings for subsequent years. The adjusted savings estimates will also be used in conjunction with actual accrued costs to re-calculate the cost effectiveness of the program.

8. Refrigerator Replacement Pilot Program

This pilot program encourages the replacement of inefficient refrigerators in tenant occupied, rent-controlled and rent-stabilized dwellings, with ENERGY STAR® rated units. There are more than one million rent controlled and rent stabilized apartments in New York City and Westchester County. This is a difficult market to penetrate. The Company is accordingly beginning with a pilot program that can be expanded if it proves to be successful.

This innovative program directly targets the bifurcated multifamily market and seeks to overcome market barriers associated with this sector. The program targets both master-metered and individually-metered rental property. Participants will qualify for financial incentives of $150 (shared between tenant and landlord). The program also provides free pick up and environmentally responsible disposal of old appliances.

Con Edison's energy efficiency staff will provide overall strategic direction and program management and will be supported by a program contractor that specializes in appliance recycling to provide turnkey pick up and disposal of old appliances. Con Edison will coordinate contractor procurement with its Appliance Bounty program and with NYSERDA and other utilities in the state to benefit from potential economies of scale. Marketing for this pilot program will primarily involve direct outreach to property owners and property management companies.

Impacts Summary

A summary of the Refrigerator Replacement Pilot program projected budget, annual and cumulative savings, costs, benefits and cost effectiveness are presented in Table 42.

Table 42. Summary of Projected Benefits, Costs and Cost Effectiveness

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	1,594	1,594	1,594	4,781
Coincident Peak Savings (MW)	0.2	0.2	0.2	0.5
Demand Savings (MW)	0.3	0.3	0.3	1.0
Total Resource Cost	$3,088,000	$3,154,000	$3,220,000	$9,462,000
Participant Cost Net of Incentives	$2,125,000	$2,170,000	$2,215,000	$6,510,000
Direct Utility Costs	$963,000	$984,000	$1,005,000	$2,952,000
Customer Incentives or Services	$750,000	$766,000	$782,000	$2,298,000
Program Planning and Administration	$98,000	$100,000	$102,000	$300,000
Program Implemention Costs	$45,000	$46,000	$47,000	$138,000
Program Marketing and Trade Ally	$25,000	$26,000	$27,000	$78,000
Evaluation and Market Research	$45,000	$46,000	$47,000	$138,000

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$5,202,404	$5,509,323
NPV Costs	$4,828,207	$4,828,207
Benefit-Cost Ratio	**1.08**	**1.14**

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion, with a benefit-to-cost ratio of 1.08 to 1 under the base-case and 1.14 to 1 under the TRC plus carbon dioxide test.

Program Eligibility

This program targets tenants and property owners of rent-controlled and rent-stabilized multifamily housing in Con Edison's service territory. Con Edison will operate the pilot program for three years and will target up to 350 buildings. Assuming approximately 45 dwellings per building, Con Edison expects a maximum of 15,000 refrigerators to be replaced during the pilot.

This difficult to reach market sector is dominated by bifurcation -- utility bills and equipment ownership are shared between the tenant and landlord, which tends to diminish the benefits associated with traditional efficiency incentive approaches. In master-metered buildings, the landlord owns the appliances and pays the electric bill for the building but passes costs on to tenants through their rent. In this market segment, there is little incentive to make small capital investments, such as refrigerator replacements, because they cannot be passed on to tenants without their consent. In individually-metered buildings, the tenant pays the electric bill, but the landlord owns the appliances, so there is no incentive for the tenant to invest in new appliances. The Refrigerator Replacement Pilot Program will use a bifurcated incentive mechanism to penetrate this market.

Eligible Measures

The Refrigerator Replacement Pilot program will target refrigerators that are ten years old or older in order to maximize potential energy savings. Approximately 60% of

refrigerators in rent stabilized apartments are greater than 10 years old, 30% are 5-10 years old and 10% are 1-5 years old. The average annual energy cost associated with running these refrigerators is $144.47. A new unit would save approximately $70.11 annually or $5.84/month in retail electricity costs per apartment.

Table 43 shows a summary of efficiency measures and qualifications for the program.

Table 43. Eligible Equipment Measures

Measure	Eligibility Rating	Incentive
Refrigerator pick up and disposal	Working unit; ≥ 10 CU FT.; ≥ 10 years old	Free
New Refrigerator	ENERGY STAR®	$150

Financial Incentives

There are several distinct financial incentives associated with the program that are provided to both tenants and landlords. Landlords are expected to purchase new refrigerators, but in return they will receive an incentive of $50 per refrigerator to cover their administrative costs. In addition, tenants must agree to a monthly rent increase equal to 1/40 of the cost of the refrigerator but tenants will receive a rebate payment of $100 to help offset the rent increase. Customers receive free pick up and disposal services for old refrigerators, which are disposed of in an environmentally responsible manner.

In very low income housing, Con Edison will pursue funding from Housing and Urban Development (HUD), the Department of Energy (DOE), NYSERDA and the Housing Preservation District (HPD) to support the program without raising rent for these tenants.

Table 44. Financial Benefits Associated with the Program.

	Master-metered building		Individually-metered building	
	Tenant incentive	Landlord incentive	Tenant incentive	Landlord incentive
Appliance pick up and disposal	Free	Free	Free	Free
ENERGY STAR® refrigerator rebate	$100	-	$100	-
Administrative incentive	-	$50	-	$50
Rent adjustment of 1/40 refrigerator cost	-	~$11.85/month	-	~$11.85/month
Reduced energy costs	-	~$5.84	~$5.84	

Con Edison expects to offer the Refrigerator Replacement Pilot program throughout the three-year Plan period. Each year, the Company will evaluate program performance and may make adjustments to incentive levels, program design or other aspects of the pilot to maximize results and market acceptance.

Program Implementation and Milestones

Con Edison will administer, manage and deliver the program and will use a third party program implementation contractor to provide appliance pick up and disposal services. Con Edison also will work with refrigerator manufacturers and dealers to negotiate bulk purchase agreements on behalf of program participants.

Con Edison's planned pre-implementation tasks include:

- Meet with key partners including rent stabilized building landlords with large portfolios, New York State Division of Housing and Community Renewal (DHCR), Rent Stabilization Association (RSA), NYC and NYSERDA as well as refrigerator manufacturers and retailers
- Determine roles of existing retail and wholesale distribution channels
- Develop program protocols and delivery processes
- Develop a procurement plan and RFP in conjunction with the new Appliance Bounty program, for new refrigerator bulk purchases and delivery, removal and dismantling of the existing units
- Distribute RFP(s)
- Develop monitoring and verification protocols to ensure that program goals are being met
- Develop reporting requirements for ENERGY STAR® and others

Participation

Participation levels were estimated by examining the distribution of sales to the targeted segment. Con Edison may further refine these participation levels following the completion of its Market Potential Study. The resulting projected participants are shown below in Table 45. Total participation in 2011, based on projected participation for the three-year planning period, represents 0.53% of all 2015 residential customers, but it is a larger percentage of eligible customers.

Table 45. Projected Participation

	Refrigerators
2009	1,500
2010	4,500
2011	9,000
Total	**15,000**

Marketing Strategy

During the pilot phase, Con Edison will conduct outreach directly to multifamily building owners to inform them about and promote the program. Con Edison staff will work with landlords and tenants to negotiate the new refrigerator/rent increase agreement. Con Edison will also encourage participants to dispose of unwanted, inefficient or second room air conditioning units through its Appliance Bounty program.

Workflow

Con Edison's energy efficiency staff will provide overall strategic direction and program management for the program and will be supported by program contractors to conduct appliance pick up, delivery and disposal.

Key steps in program participation include:

- ***Working with landlords and tenants.*** Con Edison staff will conduct outreach to promote the program and work to arrange multiple refrigerator purchases and pick ups. This may include direct mail outreach, conducting presentations to homeowners associations, one-on-one meetings with participants and other activities.

- ***Scheduling an appliance collection and delivery.*** Landlords will arrange for bulk pick ups of old refrigerators and delivery of new refrigerators with the recycling contractor and appliance dealers.

- ***Transporting appliances to a recycling facility.*** The appliance is disassembled and the applicable components are recycled. The remaining components are disposed of in an environmentally responsible manner. Environmentally responsible disposal involves removing chlorinated fluorocarbons (CFCs) from the refrigerant (and possibly foam insulation), preparing refrigerant for reclamation or recycling and recycling other materials such as metal (and possibly plastic) components.

- ***Processing rebate checks.*** The program contractor will track appliance disposal through the process and report to Con Edison and Con Edison will process rebates.

Market Barriers and Mitigation Strategies

Table 46 presents the key market barriers to an effective Refrigerator Replacement Pilot program, as well as the strategies the program will use to address each barrier. The Company will seek to overcome these barriers on an ongoing basis throughout the program delivery period.

Table 46. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Program Strategies
Bifurcated market	Provide incentives to both landlords and tenants; Explain benefits of program to both landlords and tenants
Time required to fill out rebate forms	Provide simple rebate forms through a variety of media (mail-in, online);
Lack of tenant awareness	Consumer education and outreach; Trade ally outreach and training
Low dealer awareness	Ongoing dealer communications, outreach and education

Value Proposition

The process to participate in the Con Edison program will be simple and straightforward. Customers participating in the program receive the following main benefits:

- Landlords and tenants, who may otherwise not have access to energy efficiency programs, have an opportunity to participate and see benefits through rebates and reduced energy bills.
- The hassle and cost associated with disposing of inefficient and unwieldy appliances is eliminated for customers.
- Customers can trust that their old appliances have been recycled to the greatest extent possible and disposed of properly.

Budget

The MV&E costs are estimated at approximately six (6) percent of total program budgets in conformance with the EEPS Order. The evaluation and market research budget shown is six (6) percent of the total budget (the portion of the 6 percent that will be allocated to evaluation and market research is still to be determined as well as any portion that may be allocated to Staff to perform its functions). The actual budget for each individual program may vary from that amount.

Table 47. Total Projected Program Costs

Cost Components	Plan Year 2009	2010	2011	Total
Total Resource Cost	$3,088,000	$3,154,000	$3,220,000	$9,462,000
Participant Cost Net of Incentives	$2,125,000	$2,170,000	$2,215,000	$6,510,000
Direct Utility Costs	$963,000	$984,000	$1,005,000	$2,952,000
Customer Incentives or Services	$750,000	$766,000	$782,000	$2,298,000
Program Planning and Administration	$98,000	$100,000	$102,000	$300,000
Program Implemention Costs	$45,000	$46,000	$47,000	$138,000
Program Marketing and Trade Ally	$25,000	$26,000	$27,000	$78,000
Evaluation and Market Research	$45,000	$46,000	$47,000	$138,000

Cost Effectiveness

As shown in Table 48, this program meets the TRC cost-effectiveness criterion with a benefit-to cost-ratio of 1.08 to 1 under the base-case and 1.14 to 1 under the TRC + C avoided cost scenario.

Table 48. Cost Effectiveness Analysis

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$5,202,404	$5,509,323
NPV Costs	$4,828,207	$4,828,207
Benefit-Cost Ratio	**1.08**	**1.14**

Projected Savings

Over the three-year planning horizon, a total of 15,000 customers are expected to participate for an annual cumulative savings of nearly 4,800 MWh by 2011. The cumulative MWh and coincident peak MW savings through 2015, based on the first three years of program participation, are shown in Table 49.

Table 49. Projected Savings

Year	MWH Savings	MW Savings
2009	500	0.05
2010	1,900	0.20
2011	4,800	0.51
2012	4,800	0.51
2013	4,800	0.51
2014	4,800	0.51
2015	4,800	0.51

Using the Commission definition, the peak coincidence factor in 2015 for this program is 1.07 illustrating that the savings for this program is mostly spread out during the year, with lower usage during the peak coincident period than the non-coincident period.

MV&E Plan

Program Description

This pilot program will test the cost effectiveness of producing long-term annual energy savings in this rent controlled/stabilized housing market by removing operable, inefficient refrigerators from the power grid in an environmentally safe manner and replacing them with ENERGY STAR® models.

Program Theory

As noted above, the rent controlled/stabilized housing market generally lacks adequate incentive for replacement of highly inefficient older refrigerators. Regardless of whether the whether a building is master metered or individually metered, there is an inadequate incentive for the landlord to replace any refrigerator prior to unit burn-out or tenant vacancy. In addition, at burn-out, the landlord has limited incentive to seek to replace the unit with a higher cost, energy efficient unit because the tenant in place must consent to a rent increase for the higher cost unit. Finally, it is likely that the landlord will choose the least cost method for disposal. Low cost disposal is often performed by refrigerator refurbish companies that will replace the burned out parts (e.g., compressor motor) and resell the unit. The program's estimated impacts derive from both the retirement (accelerated or not) of older inefficient refrigerators and their replacement with new energy efficient models and the removal from the potential secondary markets of these older and less efficient refrigerators.

Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval.

General Evaluation Approach

The primary goal of the evaluation is to document the energy impacts and peak-load savings resulting from the program. The evaluation will also seek to determine the success of the program in attaining its objectives of providing energy efficiency appliances to this market with an incentive divided between the landlord and the tenant. There will be a process and an impact component for this evaluation.

Process Evaluation Methodology

The process evaluation will rely on reviews of pilot documentation, including delivery, pick-up and disposal invoices, interviews with pilot staff, implementation contractors and key market actors. It will focus on improving participation and identifying areas where the pilot might be improved and translated into a viable program. The process evaluation will begin during the early phases of program implementation, in time to provide the necessary feedback to program management on the progress and performance of the pilot.

The process evaluation will also include a survey of all pilot participants (both landlords and tenants) by post card mail-in. This survey will focus on customer's experience with and satisfaction with the pilot. The process evaluation will also include an "evaluability assessment" review of data collection and tracking and review (or development) of the program logic model, indicators and researchable issues.

Impact Evaluation Methodology

The impact analysis will provide estimates of energy savings attributable to the program. The impact assessment methodology will be based on engineering methods using simple

engineering model algorithms. A key component in this analysis will be the derivation of energy consumption of the recycled units, or the full-year unit energy consumption (UEC).

UEC estimates will be obtained based on information provided by the implementation contractor on model number, vintage, serial number and unit size. Usage data will be compiled as reported by the Association of Home Appliance Manufacturers (AHAM) for each unit. As appropriate, degradation curves will be used to estimate the usage based on the age of the unit.

For the replacement models, savings will be calculated using the actual nameplate energy guide data on the new unit. The average savings from the MV&E sample will then be used to extrapolate savings to the population of participants.

A survey of participating customers will be undertaken to provide data needed to assess the NTG ratio for the program and to provide the necessary data to address process evaluation issues. Data elements to be addressed by the survey include the following:

Customer Information. These data will be acquired to characterize the participants and allow for extrapolation of the results to the entire pilot population.

Participants' Perceptions and Satisfaction. These questions will provide information about how the participant became aware of the pilot program, his satisfaction with its various components and the utility overall, and suggestions for improving pilot delivery.

Free Riders. Participants will be asked questions about what they would have been most likely to do with their appliance(s) if they had not participated in the Program and when they would have taken action. The key data from this set of questions will include whether the landlord has recently purchased a new refrigerator/freezer. A series of questions will be developed to clarify the specific actions that would have been taken and improve upon the validity of the responses.

The evaluation will also include selected "ride-alongs" with the recycling vendor (s) to verify eligibility compliance of the collected units and to ensure appropriate field procedures are followed.

9. Rate Impact

The electric rate (bill) impact in 2015 for each program and the entire portfolio on non-participant customers, based on levelized annual energy and capacity savings, is shown on Tables 50 through 53. The rate impact reflects the recovery of program costs (net of avoided T&D cost savings) and lost revenues from lower sales level.

Table 50 shows the percentage change on delivery rate in 2015, with and without the avoided T&D cost savings.

Table 50. Impact on Electric Delivery Rate in 2015 (in % Change)

	With Avoided T&D Cost Savings	Without Avoided T&D Cost Savings
60-Day Programs		
Small Business Direct Install	0.67%	1.08%
Residential HVAC	0.07%	0.16%
90-Day Programs		
Residential Direct Install	0.21%	0.25%
Residential Room Air Conditioner	0.03%	0.11%
Appliance Bounty	0.05%	0.15%
C&I Equipment Rebate	1.91%	2.48%
C&I Custom Efficiency	0.18%	0.25%
Additional Programs		
Targeted DSM	0%	1.18%
Steam Cooling	0.02%	0.11%
Refrigerator Replacement Pilot	0.01%	0.01%
Total Portfolio	2.93%	5.52%

Table 51 shows the percentage change on overall rate in 2015, with and without the avoided T&D cost savings.

Table 51. Impact on Electric Overall Rate in 2015 (in % Change)

	With Avoided T&D Cost Savings	Without Avoided T&D Cost Savings
60-Day Programs		
Small Business Direct Install	0.19%	0.31%
Residential HVAC	0.02%	0.05%
90-Day Programs		
Residential Direct Install	0.06%	0.07%
Residential Room Air Conditioner	0.01%	0.03%
Appliance Bounty	0.01%	0.05%
C&I Equipment Rebate	0.56%	0.72%
C&I Custom Efficiency	0.05%	0.07%
Additional Programs		
Targeted DSM	0%	0.34%
Steam Cooling	0.01%	0.03%
Refrigerator Replacement Pilot	0%	0%
Total Portfolio	0.90%	1.74%

Table 52 shows the delivery and overall rate impact on the basis of MWh saved in 2015. There is no difference between the two rate impacts per MWh saved for non-participant customers.

Table 52. Electric Rate Impact Per MWh Saved in 2015 (in $/MWh)

	On Delivery Rate	On Overall Rate
60-Day Programs		
Small Business Direct Install	46	46
Residential HVAC	99	99
90-Day Programs		
Residential Direct Install	159	159
Residential Room Air Conditioner	59	59
Appliance Bounty	55	55
C&I Equipment Rebate	122	122
C&I Custom Efficiency	165	165
Additional Programs		
Targeted DSM	0	0
Steam Cooling	47	47
Refrigerator Replacement Pilot	102	102
Total Portfolio	82	82

Table 53 shows the delivery and overall rate impact on the basis of MW saved in 2015. There is no difference between the two rate impacts per MW saved for non-participant customers.

Table 53. Electric Rate Impact Per MW Saved in 2015 (in $/MW)

	On Delivery Rate	On Overall Rate
60-Day Programs		
Small Business Direct Install	228,790	228,790
Residential HVAC	54,154	54,154
90-Day Programs		
Residential Direct Install	927,509	927,509
Residential Room Air Conditioner	27,542	27,542
Appliance Bounty	29,136	29,136
C&I Equipment Rebate	458,482	458,482
C&I Custom Efficiency	374,796	374,796
Additional Programs		
Targeted DSM	0	0
Steam Cooling	39,381	39,381
Refrigerator Replacement Pilot	956,932	956,932
Total Portfolio	236,416	236,416

10. Independent Program Administrator Proposals

The June 23 Order provided that third parties could submit to NYSERDA or the utilities, or both, proposals to act as independent administrators. The Order further provided that utilities should discuss any timely received independent program administrator proposals and explain the utility's inclusion or omission of such proposals.

These proposals were to have been submitted by August 7, 2008 and were to have met the specific guidelines set forth in the June 23 Order. Con Edison received six proposals prior to the August 7 deadline and one proposal subsequent to that deadline. Con Edison has determined not to accept these proposals for the reasons set forth the below.

Con Edison received a proposal from Consumer Power Line that recommended fundamental changes to the basic structure of the Energy Efficiency Portfolio Standard and was therefore not a specific proposal *per se* that the Company could include in this filing.

Con Edison also received two proposals related to building commissioning, one from EnerNOC and one, after the deadline, from the CUNY. EnerNOC proposed to target 20 customers for monitoring-based commissioning at a cost of approximately $5.7 million over the three-year program period, with additional funding required from Con Edison for MV&E and marketing support. CUNY proposed to create and operate a New York City Retro-Commissioning Center to facilitate the implementation of retro-commissioning and enhanced building operations in New York City buildings. Con Edison is concerned that the small size of the EnerNOC proposal will limit the availability of commissioning projects to a few large customers. The CUNY proposal seeks to establish standards and procedures to accelerate and broaden the acceptance of commissioning as an important conservation effort and utilize "student interns both as a way of controlling some of the labor-intensive aspects of retro-Commissioning project costs and to develop new career pathways and workforce resources." Con Edison agrees that commissioning is valuable and has proposed a custom program that will, among other things, specifically accept commissioning and retro-commissioning projects. The Company expects to solicit proposals from qualified vendors to facilitate the delivery of the custom program, including commissioning projects. Such a process will allow all the interested vendors an opportunity to bid on these services and the Company to compare proposals for expertise and cost effectiveness. Accordingly, the Company decided not to include the EnerNOC and CUNY proposals in this filing.

Con Edison received a proposal from EarthKind Energy Inc. for a program focused on solar thermal projects. Con Edison has proposed solar thermal technology in its 60 day filing. As a result, Con Edison will not include the proposal at this time and encourages EarthKind to participate in Con Edison's programs as a vendor integrated within the program rather than as an independent administrator.

Con Edison received a proposal from CoolNRG for the one-time mass distribution of CFLs within the Con Edison service territory. The Company is concerned that the CoolNRG Proposal, which is designed to deliver a highly publicized CFL distribution effort, may not provide the level of measurement and verification needed for Con Edison's targeted megawatt-hour reductions. The Company also notes that the New York State Energy Research and Development Authority ("NYSERDA") has proposed a "Statewide Residential Point-of-Sale Lighting (CFL Expansion) Program" in its August 22, 2008 filing with the Commission that seeks to achieve many of the same goals as the CoolNRG proposal. The Company believes that it should not consider the CoolNRG proposal until the Commission determines how it will proceed with the NYSERDA program.

The Company does note, however, that the CoolNRG proposal may be an effective marketing tool to jump-start awareness of the new era of energy efficiency in New York City and that it supports this program being addressed at the Commission's Advisory Group on customer outreach and education/marketing policy.

Con Edison also received a proposal from Positive Energy Services to provide energy consumption information to residential customers in order to encourage energy efficiency. The Company believes this is a useful measure, but determined at this time that the Positive Energy proposal is not necessarily the best method for providing this information. There may be other ways to accomplish this goal. The Company will continue to explore this method of providing customers with information and obtaining savings and determine whether it may be appropriate to use it in some form in the future.

Con Edison received a proposal from Paradigm Energy and its Performance Partners. While Paradigm's Multifamily Energy Efficiency and Renewable Energy Program offers a number of viable concepts and administrative approaches when addressing the multifamily housing market, the outcomes or goals can largely be captured in NYSERDA's Multi-Family Performance Program. That said, Con Edison will consider incorporating (in future program efforts) certain proposed design elements such as marketing by sub-segment supported by turn-key services, customer incentives and finance/loan packages.

Con Edison has notified these independent administrators of its decisions regarding each proposal.