PENDING PETITION MEMO

Date: 8/22/2008

TO : OGC
OEGW
OEEE

FROM: CENTRAL OPERATIONS

UTILITY: CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

SUBJECT: 08-E-1007

Petition of Consolidated Edison Company of New York, Inc. for Approval of an Energy Efficiency Portfolio Standard (EEPS) "Fast Track" Utility-Administered Electric Energy Efficiency Program.

PENDING PETITION MEMO

Date: 8/22/2008

TO : OGC
OEGW
OEEE

FROM: CENTRAL OPERATIONS

UTILITY: CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

SUBJECT: 08-G-1008

Petition of Consolidated Edison Company of New York, Inc., for Approval of an Energy Efficiency Portfolio Standard (EEPS) "Fast Track" Utility-Administered Gas Energy Efficiency Program.

conEdison
a conEdison, Inc. company

Richard B. Miller
Assistant General Counsel
212-460-3389
millerrich@coned.com

August 21, 2008

Via Overnight Mail

2008 AUG 22 AM 10:59

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

Re: Case 08-__ - ___ Con Edison's Filing of Expedited 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") that contains the first 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. In accordance with the discussion that took place at the procedural conference on July 29, 2008, the Company is filing these programs under a new case number with a draft notice for publication under the State Administrative Procedure Act.[1] The Company requests expedited consideration so that it may commence delivery of these beneficial programs as soon as possible.

On June 23rd 2008, the Commission issued a landmark order that adopted the goal of reducing electricity usage by 15% statewide by 2015.[2] Con Edison supports this State goal and is pleased to submit its first set of programs contemplated by Ordering Clauses 9 and 11 of the June 23rd Order, *i.e.*, this filing contains the Company's program plan for implementation of the two electric programs (the "Expedited Programs") and one natural gas efficiency program:

---

[1] No active party list has been established for the case number that would be applicable to Con Edison but the Company has provided a courtesy copy to interested parties via the ListServer. The Company will serve its filing as directed by the Commission, but requests that it be permitted to use electronic service.

[2] Case 07-M-0548 - Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs* (June 23, 2008) ("June 23rd Order").

- Small Business Direct Installation program for Con Edison's electric customers;
- Residential ENERGY STAR electric heating, ventilation and air conditioning program for Con Edison's electric customers; and
- Residential gas equipment program for Con Edison's natural gas customers.

The plan set forth herein provides in detail all of the information required by the June 23rd Order (p. 58), including: (1) benefit/cost estimates using the Total Resource Cost test methodology; (2) description of the collaborative discussions the Company has held with other utilities, NYSERDA and other interested parties to accomplish statewide uniformity to the extent practicable; and (3) measurement, verification and evaluation plans that conform with the guidelines distributed by Department of Public Service Staff on August 7, 2008.

The Company envisions this filing, together with the second filing contemplated by the Order, as the key components of its comprehensive 500 MW electric energy efficiency initiative. The programs presented here will accordingly contribute to the Company's broader energy efficiency strategy of becoming a key provider of energy efficiency services to its customers in support of the State's 15X15 program, PlaNYC 2030 goals and the Company's plan to defer over a $1 billion in electric transmission and distribution infrastructure investment.[3]

The June 23rd Order required the utilities to file the gas programs but made the two electric Expedited Programs optional. Con Edison decided to file all of the programs permitted by the June 23rd Order. In addition, to provide more efficient program administration and delivery, Con Edison will implement the residential efficient gas equipment and electric HVAC programs as a single residential program. Con Edison will also integrate the electric Expedited Programs with its other existing programs, *e.g.*, its targeted demand side management and demand response programs and the programs it will file in the second filing required by the Commission in the June 23rd Order.[4]

As recognized by the Commission in its June 23rd Order (at 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

---

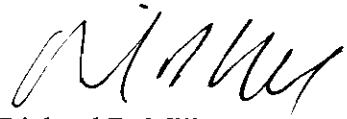
[3] On August 20, 2008, the Commission adopted a policy on incentives but an order is not available at this time. The Company expects -- that while each of these programs has a 3-year goal-- the incentive regime applied to the Company will be based on the total achievements for all of its programs at the end of the three-year period, and not for any one program. Similarly, in order to have flexibility to achieve its overall goal, the Company expects that it will be allowed to shift a certain level of funds between and among programs (up to 40%) without Commission approval (the Company would provide appropriate notification to Staff in such instances).

[4] Con Edison notes that on April 15, 2008, pursuant to the Commission's order in Case 06-G-1332, the Company filed its gas efficiency collaborative report with the Commission. The Company proposed in that report to administer a gas efficiency program for rate year 2 of its gas rate plan, beginning on October 1, 2008. The Company will also integrate the gas equipment program that the Company has been authorized to file here with the overall gas efficiency program that the Commission adopts for the Con Edison service territory for rate year 2.

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 an ongoing relationship and regularly communicates with its customers. 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. This institutional knowledge, combined with the engineering and technical understanding of its electric and gas 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 the programs to achieve infrastructure benefits.

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

Respectfully submitted,



Richard B. Miller

Enc.
cc: Case 07-M-0548 ListServer

NYS DEPARTMENT OF STATE

Notice of Proposed Rule Making

Public Service Commission
(SUBMITTING AGENCY)

NOTE: Typing and submission instructions are at the end of this form. Please be sure to COMPLETE ALL ITEMS. Incomplete forms and nonscannable text attachments will be cause for rejection of this notice.

Pursuant to the provisions of the State Administrative Procedure Act (SAPA), NOTICE is hereby given of the following agency action:

1. Proposed action:

   The Public Service Commission (the "PSC") is considering whether to approve, reject, in whole or in part, or modify a proposal filed by Consolidated Edison Company of New York, Inc. (the "Company") to implement electric and gas efficiency programs.

2. Statutory authority under which rule is proposed:

   Public Service Law sections 2, 5 and 66.

3. Subject of rule:

   Con Edison's energy efficiency programs for residential and small business customers.

4. Purpose of rule:

   Pursuant to the Commission's June 23rd Order in Case 07-M-0548, the Commission is considering Con Edison's proposal to implement three energy efficiency programs: (1) Small Business Direct Installation program for Con Edison's electric customers; (2) Residential ENERGY STAR electric heating, ventilation and air conditioning program for Con Edison's electric customers; and (3) Residential gas equipment program for Con Edison's natural gas customers.

5. Terms of rule (check applicable box):

   [ ] The rule contains 2,000 words or less. An original copy of the text in scannable format is attached to this form.

   [ ] The rule contains more than 2,000 words. Therefore, an original copy of a summary the text (in scannable format) is attached to this form.

   [X] Pursuant to SAPA § 202(7)(b), the agency elects to print a description of the subject, purpose and substance of the rule containing less than 2,000 words. The original text in scannable format is attached to this form.

6. The text of the rule and any required statements or analyses may be obtained from:

   Name of agency contact: Margaret Maguire, Clerk II
   Office address: Three Empire State Plaza
   Albany, New York 12223
   Telephone number: (518) 474-3204

7. Regulatory Impact Statement (RIS) (check applicable box):

[ ] A RIS of 2,000 words or less is submitted with this notice.

[ ] A summary of the RIS is submitted with this notice because the full text exceeds 2,000 words.

[ ] A consolidated RIS is submitted with this notice because:

[ ] the rule is one of a series of closely related and simultaneously proposed rules.

[ ] the rule is one of a series of virtually identical rules proposed during the same year.

[ ] An RIS is not submitted because this rule is a technical amendment and, therefore, exempt from SAPA § 202-a. Attached to this notice is a statement of the reason(s) for claiming this exemption.

[ ] An RIS is not submitted because this rule is subject to a consolidated RIS printed in the Register under a notice of proposed rule making ID No. PSC-_____; Register date: _____.

[X] An RIS is not submitted with this notice because this rule is a "rate making" as defined in SAPA § 102(2)(a)(ii).

8. Regulatory Flexibility Analysis for Small Businesses (RFASB) (check applicable box):

[ ] An RFASB of 2,000 words or less is submitted with this notice.

[ ] A summary RFASB is submitted with this notice because the full text exceed 2,000 words.

[ ] A consolidated RFASB is submitted with this notice because this rule is the first of a series of closely related rules that will be the subject of the same analysis.

[ ] An RFASB is not submitted because this rule will not impose any adverse economic impact or reporting, recordkeeping or other compliance requirements on small businesses. A statement is attached setting forth this agency's finding and the reasons upon which the finding was made, including what measures were used by this agency to ascertain that this rule will not impose such adverse economic impact or compliance requirements on small businesses.

[ ] An RFASB is not submitted because this rule is subject to a consolidated RFASB printed in the Register under a notice of proposed rule making, ID No. _____; Register date: _____.

[X] An RFASB is not submitted with this notice because this rule is a "rate making" as defined in SAPA § 102(2)(a)(ii).

9. Rural Area Flexibility Analysis (RAFA) (check applicable box):

[ ] An RAFA of 2,000 words or less is submitted with this notice.

[ ] A summary RAFA is submitted with this notice because the full text exceeds 2,000 words.

[ ] A consolidated RAFA is submitted with this notice because this rule is the first of a series of closely related rules that will be the subject to the same analysis.

[ ] An RAFA is not submitted because this rule will not impose any adverse impact or reporting, recordkeeping or other compliance requirements on public or private entities in rural areas. A statement is attached setting forth this agency's finding and the reasons upon which the finding was made, including what measures were used by this agency to ascertain that this rule will not impose such adverse impact or compliance requirements on rural areas.

[ ] An RAFA is not submitted because this rule is subject to a consolidated RAFA printed in the Register under a notice of proposed rule making, ID No. _____; Register date: _____.

[X] An RAFA is not submitted because this rule is a "rate making" as defined in SAPA § 102(2)(a)(ii).

10. Job Impact Statement (JIS) (check applicable box):

[ ] A JIS of 2,000 words or less is submitted with this notice.

[ ] A summary JIS is submitted with this notice because the full text exceeds 2,000 words.

[ ] A JIS/Request for Assistance is submitted with this notice.

[ ] A consolidated JIS is submitted with this notice because this rule is the first of a series of closely related rules that will be subject to the same analysis.

[ ] A JIS is not submitted because it is apparent from the nature and purpose of the rule that it will not have a substantial adverse impact on jobs and employment opportunities. A statement is attached setting forth this agency's finding that the rule will have a positive impact or no impact on jobs and employment opportunities; except when it is evident from the subject matter of the rule that it could only have a positive impact or no impact on jobs and employment opportunities, the statement shall include a summary of the information and methodology underlying that determination.

[ ] A JIS is not submitted because this rule is subject to a consolidated JIS printed in the **Register** in a notice of proposed rule making ID No. _____; Register date: _____.

[X] A JIS is not submitted with this notice because this rule is a "rate making" as defined in SAPA § 102(2)(a)(ii).

[ ] A JIS is not submitted because this rule is proposed by the State Comptroller or Attorney General.

11. Prior emergency rule making for this action was previously published in the _____ issue of the Register, I.D. No. _ _____.

12. Expiration Date (check only if applicable):

[X] This proposal will not expire in 180 days because it is for a "rate making" as defined in SAPA § 102(2)(a)(ii).

13. Public Hearings (check box and complete as applicable)

[ ] A public hearing is required by law and will be held at __ a.m./p.m. on _____, 19__, at
_____
_____

[X] A public hearing is not required by law, and has not been scheduled.

[ ] A public hearing is not required by law, but will be held at __ a.m./p.m. on _____, 19 __, at
_____
_____

14. Interpreter Service (check only if a public hearing is scheduled):

[ ] Interpreter services will be made available to hearing impaired persons, at no charge, upon written request submitted within a reasonable time prior to the scheduled hearing. Requests must be addressed to the agency contact designated in this notice.

15. Accessibility (check appropriate box only if a public hearing is scheduled):

[ ] All public hearings have been scheduled at places reasonably accessible to persons with a mobility impairment.

[ ] All public hearings except the following have been scheduled at places reasonably accessible to persons with a mobility impairment:
1. _____
2. _____
3. _____

[ ] None of the scheduled public hearings are at places that are reasonably accessible to persons with a mobility impairment.

[ ] An **optional** explanation is being submitted regarding the nonaccessibility of one or more hearing sites.

16. Submit data, views or arguments to (complete only if different than previously named agency contact):

Name of agency contact Jaclyn A. Brilling, Secretary
Office address Three Empire State Plaza
Albany, New York 12223
Telephone number (518) 474-6530

17. Additional matter required by statute:

    [X] Check box if NOT applicable.

18. Public comment will be received until:

    [X] 45 days after publication of this notice (MINIMUM, public comment period).

    [ ] 5 days after the last scheduled public hearing required by statue (MINIMUM, with required hearing).

    [ ] Other: (specify) _____.

19. Regulatory Agenda: (**The Division of Housing and Community Renewal; Workers Compensation Board; and the departments of Agriculture and Markets, Banking, Education, Environmental Conservation, Health, Insurance, Labor and Social Services** and any other department specified by the governor or his designee must complete this item. If your agency had an optional agenda published, that should also be indicated below):

    [ ] This action was listed as a Regulatory Agenda item in the first January issue of the Register, 19_.

    [ ] This action was listed as a Regulatory Agenda item in the last June issue of the Register, 19_.

    [ ] This action was not under consideration at the time this agency's Regulatory Agenda was submitted for publication in the Register.

AGENCY CERTIFICATION (To be completed by the person who PREPARED the notice)

I have reviewed this form and the information submitted with it. The information contained in this notice is correct to the best of my knowledge.

I have reviewed Article 2 of SAPA and Parts 260 through 263 of 19 NYCRR, and I hereby certify that this notice complies with all applicable provisions.

Name _____ Signature _____
Address _____
Date _____ Telephone _____

Please read before submitting this notice:

1. Except for this form itself, all text must be typed in scannable format as described in the Department of State's "NYS Register Procedures Manual."

2. Submit the **orginal notice and scanner copy** collated as (1) form; (2) text or summary of rule; and if any, (3) regulatory impact statement, (4) regulatory flexibility analysis for small businesses, (5) rural area flexibility analysis, (6) job impact statement - **and ONE copy of that set.**

3. **Hand deliver to:** DOS Office of Information Services, 41 State Street (3rd Floor), Albany
   Address mail to: Register/NYCRR unit, Department of State, Albany, NY 12231

PUBLIC SERVICE COMMISSION OF THE STATE OF NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

SMALL BUSINESS DIRECT INSTALLATION AND RESIDENTIAL HVAC PROGRAMS

Filed pursuant to the Commission's June 23rd Order in Case 07-M-0548

August 21, 2008

Glossary of Acronyms

Acronym	Definition
ACCRA	Council for Community and Economic Research (C2ER)
AEA	Association for Energy Affordability
ANCOVA	Analysis of Covariance
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
BIDs	Business Improvement Districts
CFL	Compact Fluorescent Lights
CAC	Central Air Conditioning
Commission	New York Public Service Commission
Con Edison or Company	Con Edison Company of New York
COP	Coefficient of Performance
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
GPM	Gallons per minute
HDD & CDD	Heating and Cooling Degree Days
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation & Air Conditioning
IPMVP	International Performance Measurement and Verification Protocols
MBS	Model-Based Sampling
NRDC	Natural Resources Defense Council
NYPA	New York Power Authority
NYSEG	New York State Electric and Gas, a subsidiary of Energy East Corporation
NYSERDA	New York State Energy Research and Development Authority
OEM	Original Equipment Manufacturer
RFP	Request for Proposals
RMS	Root Mean Square
SAE	Statistically-adjusted engineering model
SC	Service Classification
SEER	Seasonal Energy Efficiency Ratio
SRCC	Solar Rating and Certification Corporation
T&D	Transmission and Distribution
TRC	Total Resource Cost

Table of Contents

CONSOLIDATED EDISON COMPANY OF NEW YORK
ENERGY EFFICIENCY PORTFOLIO STANDARD
PROGRAM PROPOSAL

1 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's (Commission) in Case 07-M-0548. This filing contains the Company's program plan for implementation of the two electric (the "Expedited Programs") and one natural gas efficiency programs outlined in the Order (together, the "Programs"):

- Small Business Direct Installation program for Con Edison's electric customers;
- Residential ENERGY STAR Electric Heating, Ventilation and Air Conditioning (HVAC) program for Con Edison's electric customers; and
- Residential Gas Equipment program for Con Edison's natural gas customers.

The plan set forth herein provides in detail all of the information required by the Commission's June 23rd Order (p. 58), including benefit/cost estimates using the Total Resource Cost (TRC) Test methodology and measurement, verification and evaluation (MV&E) plans customized to each program. In addition, as described herein, the Company has held collaborative discussions with NYSERDA, utilities and other interested parties, which are described in section 1.3.

The Company envisions the proposed Programs, together with the second filing contemplated by the Order, as the key components of its comprehensive 500 MW electric energy efficiency initiative. The programs presented here are a component of the Company's broader energy efficiency strategy of becoming a key provider of energy efficiency services to its customers in support of the State's 15X15 program, PlaNYC 2030 goals, Westchester initiatives and the Company's plan to defer over a $1 billion in electric transmission and distribution (T&D) infrastructure investment.[1]

In an effort to provide more efficient program administration and delivery, Con Edison will implement the residential efficient gas equipment and electric HVAC programs as a single residential program. While program impacts, budgets, cost, savings and other metrics are presented separately in this program proposal and will be tracked, documented and reported separately to the Commission, there are tangible benefits

[1] On August 20, 2008, the Commission adopted a policy on incentives. A detailed order is not available at this time. The Company expects, however, that while each of these programs has a 3-year goal -- the incentive regime applied to the Company will be based on the total achievements for all of its programs at the end of the three-year period, and not for any one program. Similarly, in order to have flexibility to achieve its goal, the Company expects that it will be allowed to shift a certain level of funds between and among programs without Commission approval (the Company would provide appropriate notification to Staff and interested parties in such instances).

associated with offering a single, comprehensive Residential HVAC program to customers, including:

- Economies of scale associated with:
  - program marketing;
  - administration and delivery, including the potential use of a centralized implementation team to handle some administrative functions;
  - identical business, delivery, rebate processing and tracking mechanisms;
  - integrated marketing materials;
  - implementation team training on program protocols and guidelines and installation best practices;
  - quality assurance; and
  - consolidated MV&E and reporting.

- Consistency in communications with customers and enhanced opportunities for cross marketing with other Con Edison efficiency programs as well as those offered by NYSERDA and others.

Con Edison will integrate the Programs with its other existing programs, *e.g.*, its targeted demand side management ("DSM") and demand response ("DR") programs and the programs it will propose in the second filing required by the Commission in the June 23rd Order.

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 an ongoing relationship and regularly communicates with its customers. 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. This institutional knowledge, combined with the engineering and technical understanding of its electric and gas 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 the electric Expedited Programs to achieve capacity benefits and verify their attendant infrastructure investment deferrals.

The following sections provide summary-level TRC data on the programs, as well as summary information on collaboration and MV&E[2]. More specific information is contained in the detail description for each program.

[2] 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 plans for which it will

1.1 Summary TRC Data

Summaries of the energy savings, demand impacts and costs for the electric, gas and combined portfolios are reported in Table 1, Table 2, and Table 3. For each portfolio, the tables also show TRC benefit/cost ratios under two alternative avoided cost scenarios, one with a carbon dioxide adder of $15/ton and one without.

Table 1. Projected Electric Portfolio (Residential and Small Business)[3]

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	100,815	100,815	100,815	302,444
Coincident Peak Savings (MW)	29	29	29	87
Total Resource Cost	$53,239,875	$54,350,207	$55,483,820	$163,073,901
Participant Cost Net of Incentives	$24,561,560	$25,077,353	$25,603,977	$75,242,891
Direct Utility Costs	$28,678,314	$29,272,854	$29,879,842	$87,831,011
Customer Incentives or Services	$19,611,414	$20,023,254	$20,443,742	$60,078,411
Program Planning and Administration	$738,000	$750,400	$763,000	$2,251,400
Program Implemention Costs	$5,093,000	$5,199,500	$5,309,100	$15,601,600
Program Marketing and Trade Ally	$1,802,000	$1,836,000	$1,870,000	$5,508,000
Evaluation and Market Research	$1,433,900	$1,463,700	$1,494,000	$4,391,600

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits (TRC)	$379,809,898	$394,956,723
NPV Costs (TRC)	$151,538,126	$151,538,126
Benefit-Cost Ratio (TRC)	**2.51**	**2.61**

ultimately seek approval will be sufficient to support infrastructure deferrals where necessary and appropriate.

[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. The NPV of the benefits represents discounted avoided cost benefit of the stream of energy savings over the life of measures installed in each program year. The analysis also assumes a net-to-gross ratio of 0.90 for all programs (i.e., free-ridership net of spillover). This Table, as with all the TRC tables, reflects levelized annual participation rates, when there will be ramp up for each program. Accordingly, all numbers in the Tables should be considered estimates only. Finally, the Company notes that, because of rounding, the Totals in the Tables may not equal the sum of the three-years.

Table 2. Projected Gas Portfolio

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Measure Installations	13,258	13,258	13,258	39,775
Savings (dekatherms)	111,908	111,908	111,908	335,723
Total Resource Cost	$7,049,088	$7,076,788	$7,105,188	$21,231,063
Federal and State Tax Rebates	$240,083	$240,083	$240,083	$720,250
Participant Cost Net of Incentives	$2,504,117	$2,504,117	$2,504,117	$7,512,350
Direct Utility Costs	$4,304,888	$4,332,588	$4,360,988	$12,998,463
Customer Incentives or Services	$2,835,088	$2,835,088	$2,835,088	$8,505,263
Program Planning and Administration	$639,700	$653,100	$666,900	$1,959,700
Program Implemention Costs	$100,000	$102,100	$104,200	$306,300
Program Marketing and Trade Ally	$515,800	$526,600	$537,700	$1,580,100
Evaluation and Market Research	$214,300	$215,700	$217,100	$647,100

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits (TRC)	$37,042,114	$39,551,166
NPV Costs (TRC)	$19,745,435	$19,745,457
Benefit-Cost Ratio (TRC)	**1.88**	**2.00**

Table 3. Entire Portfolio

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Savings (MWh)	100,815	100,815	100,815	302,444
Coincident Peak Savings (MW)	29	29	29	87
Savings (dekatherms)	111,908	111,908	111,908	335,723
Total Resource Cost	$60,288,962	$61,426,994	$62,589,007	$184,304,964
Federal and State Tax Rebates	$240,083	$240,083	$240,083	$720,250
Participant Cost Net of Incentives	$27,065,677	$27,581,470	$28,108,094	$82,755,241
Direct Utility Costs	$32,983,202	$33,605,441	$34,240,830	$100,829,473
Customer Incentives or Services	$22,446,502	$22,858,341	$23,278,830	$68,583,673
Program Planning and Administration	$1,377,700	$1,403,500	$1,429,900	$4,211,100
Program Implemention Costs	$5,193,000	$5,301,600	$5,413,300	$15,907,900
Program Marketing and Trade Ally	$2,317,800	$2,362,600	$2,407,700	$7,088,100
Evaluation and Market Research	$1,648,200	$1,679,400	$1,711,100	$5,038,700

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits (TRC)	$416,852,012	$434,507,888
NPV Costs (TRC)	$171,283,561	$171,283,583
Benefit-Cost Ratio (TRC)	**2.43**	**2.54**

As shown in Table 3, the Programs, as planned, are expected to achieve 302,444 MWh in cumulative savings, which meets the 301,363 MWh saving target set in the Commission's Order. The evaluation and market research budget shown is five (5) 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 five percent that will be allocated between evaluation and market research is still to

be determined. The actual budget for each individual program may vary from that amount.

1.2 General Program Delivery Approach

The Programs are the first in a larger portfolio of energy efficiency initiatives that Con Edison will offer to its customers. The following describes general delivery philosophies and activities that are consistent features of Con Edison's programs.

- ***Delivery Approach:*** Con Edison will use its own staff and third parties to provide administrative and delivery functions for the Programs. The Company's objective is to find the optimal balance of costs, ratepayer value, quality of service, follow up and energy savings while leveraging contact with customers through the Company's own staff.

- ***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 scheduling customer energy surveys to the installation of complex heating and cooling equipment. Con Edison will provide on-going training through the Programs' period of delivery.

- ***Integration:*** Existing programs offered by Con Edison, NYSERDA, other utilities, the New York Independent System Operator (NYISO), as appropriate, and stakeholders create a range of opportunities for Con Edison's customers. The Company is working to ensure appropriate integration of programs where customer segments, technologies, service territories and efficiency opportunities overlap. Con Edison's efforts to coordinate with other program administrators are outlined in Section 1.3, below.

- ***Marketing:*** Con Edison is actively engaged in marketing its existing customer programs and services and will leverage its experience and existing marketing channels for program promotion. New programs, however, will require new marketing strategies and Con Edison plans to explore a range of approaches to overcome barriers in its market, reach underserved populations and maximize participation in its programs.

- ***Benefit Cost Analysis:*** Benefit cost analysis is performed at the program level and the Company will conduct benefit cost analysis on any new technologies being considered for the Programs. In addition, Con Edison will review, and if necessary, recalculate measure screening based on information obtained from the evaluation efforts.

1.3 Coordination with Other Program Administrators and Stakeholders

Con Edison has good working relationships with other utilities, the New York Power Authority (NYPA), the City of New York (NYC), NYSERDA, and various stakeholders in NYC, Westchester County and the State. Con Edison has participated in joint meetings with other New York utilities, NYSERDA, NYPA, NYC, and other stakeholders including:

- On July 28, 2008, Con Edison and the other New York utilities held a web-cast meeting with other interested parties on their proposed 60-day filings. This meeting included discussions on uniformity and balance among programs, eligible equipment and rebates, incentive strategies, consumer protection issues and market challenges. The meeting also provided an opportunity for other interested parties to ask questions and to provide input and comments.

- On August 1, 2008, Con Edison participated along with the other New York utilities in a meeting with NYSERDA to establish a collaborative process to coordinate EEPS program development and filings.

- Con Edison attended meetings sponsored by the NYC Economic Development Corporation on July 16, 23 and 25, 2008 on coordinating energy efficiency initiatives and marketing in NYC. Also participating in these meetings were NYSERDA, NYPA, National Resources Defense Council (NRDC), Department of Public Service Staff (DPS), and the Association for Energy Affordability (AEA). The meetings established two separate working groups – one to collaborate on multifamily energy efficiency initiatives and the second to collaborate on existing commercial energy efficiency initiatives.

- On August 20, 2008, Con Edison met with NYSERDA to discuss the potential for joint programs, an integrated marketing and delivery approach, and the potential for combining certain evaluation efforts to allow for budget savings and tracking.

- In preparing for the EEPS filings, Con Edison met frequently with other individual stakeholders, such as National Grid, Orange and Rockland Utilities, NYC, NYSERDA and NRDC as well as energy services companies, vendors and other key stakeholders.

- In areas where Con Edison delivers electricity and National Grid delivers natural gas, Con Edison intends to work with National Grid to integrate all energy efficiency programs to offer customers the same features and benefits provided elsewhere. Con Edison has had discussions with National Grid regarding integration of marketing and 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 a similar integration strategy for the small portion of their service territories that overlap in Westchester County.

- Dynamic state-wide or regional marketing campaigns have been shown to be successful market drivers in other areas of the country. Con Edison is working with Department of Public Service (DPS) staff as part of the newly-formed Outreach and Education Advisory Group to address state-wide and regional outreach efforts.

- The New York utilities have been meeting and discussing whether to use one evaluation contractor for the some or all of the programs. The use of a single

contractor for evaluating all of the New York efficiency programs could reduce customer costs and provide for consistent comparison of results across programs.

Con Edison has worked with NYSERDA to deliver energy efficiency programs to customers in its 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. The Company also will continue to work with those entities and other interested parties in the State to identify areas where collaboration can increase program and budgetary efficiency (*e.g.*, delivery protocols and training). Con Edison intends to continue these beneficial discussions to foster productive efficiency strategies and develop new program opportunities. As it has in the past, Con Edison will continue to promote appropriate NYSERDA and other programs to its customers to maximize their available energy efficiency opportunities.

Con Edison also will work with NYC and the County of Westchester, NYC Economic Development Corporation and local municipalities to increase awareness of the program. The Company will work with the City, County and other governmental offices and various agencies to provide program information on their respective websites and in newsletters, to display program promotional material in their offices throughout the Company's service territory, and when possible, to leverage marketing and advertising dollars.

1.4 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 high standards in program delivery. These measures may include:

- Tracking of program activities and costs through the proposed DSM Tracking System;
- Applying qualifying protocols in recruiting field staff such as those who conduct energy surveys;
- Developing a list of qualified equipment vendors and installation contractors through careful screening and qualification;
- 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 major measures to ensure proper installation and functioning of measures.

1.5 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 practices in process and impact evaluation. 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 MV&E staff and interested parties from the beginning to ensure that evaluation data are available when needed, that they are gathered in a systematic manner and that they are valid and reliable;
- Providing enhanced MV&E for measures with the largest savings, performance uncertainties, or that will provide important infrastructure deferrals;
- Using multiple methods to enhance results and provide information sufficient for system planning purposes;
- Using industry standard approaches and protocols – 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 include 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. The New York utilities are considering using a single evaluation contractor. This could enable the utilities to use common and consistent methods and take advantage of cost-saving opportunities associated with certain evaluation elements such as planning, design and implementation of data collection protocols.

1.6 Timing of MV&E Activity

The process evaluation will begin in 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-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 2009, 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 "waves" with reports available end of year 2010 and 2011.

1.7 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[4], 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 the Company 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 by third-party contractors.

1.8 Reporting

Con Edison is proposing 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 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. 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 in the report include:

- Program Planning & Administrative Expenditures, year to date
- Program Marketing Expenditures, year to date
- Customer Incentive Expenditures, year to date

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

- 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

2 Small Business Direct Installation Program

Con Edison's Small Business Direct Installation program will promote energy efficiency for existing commercial and industrial customers with monthly peak demand less than 100 kilowatts (kW). The program will provide free on-site energy surveys, direct installation of free low-cost efficiency measures and recommendations for more extensive energy efficiency upgrades. Participants in the program who choose to install the more extensive recommended measures will receive prescriptive rebates of up to 70 percent of the incremental cost of the installed measure. Con Edison's energy efficiency staff will provide overall strategic direction and program 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[5].

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. Con Edison has initiated discussions 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 the similar integration strategy for a small portion of their service territories that overlap in Westchester County.

2.1 Impacts Summary

A summary of the program's savings, costs and cost effectiveness, as measured from the TRC perspective is set forth in Table 4.

[5] Con Edison may consider implementing a cap on the total number of surveys delivered.

Table 4. Projected Program Benefits, Costs Economic Summary

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Number of Surveys	5,640	5,640	5,640	16,920
Savings (MWh)	96,625	96,625	96,625	289,875
Coincident Peak Savings (MW)	21	21	21	64
Total Resource Cost	$46,762,250	$47,740,175	$48,739,991	$143,242,417
Participant Cost Net of Incentives	$21,720,584	$22,176,717	$22,642,428	$66,539,729
Direct Utility Costs	$25,041,666	$25,563,458	$26,097,564	$76,702,688
Customer Incentives or Services	$17,261,566	$17,624,058	$17,994,164	$52,879,788
Program Planning and Administration	$444,000	$450,200	$456,500	$1,350,700
Program Implemention Costs	$4,833,000	$4,934,000	$5,038,000	$14,805,000
Program Marketing and Trade Ally	$1,251,000	$1,277,000	$1,304,000	$3,832,000
Evaluation and Market Research	$1,252,100	$1,278,200	$1,304,900	$3,835,200

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$321,301,752	$335,656,876
NPV Costs	$133,109,052	$133,109,052
Benefit-Cost Ratio	**2.41**	**2.52**

Based on the projected savings and costs, this program meets the TRC cost-effectiveness criterion with a benefit-to-cost ratio of 2.41 to 1 under the base-case and 2.52 to 1 under the TRC plus carbon dioxide test.

2.2 Program Goals and Objectives

The proposed program and the specific hardware retrofit measures proposed herein are cost-effective energy efficiency strategies that will contribute to New York State's and New York City's energy efficiency goals and the Con Edison plan to defer over $1 billion in electric T&D investment.

Specific objectives associated with this program include:

- Reducing energy use, peak demand, local air pollution impacts and carbon dioxide emissions in Con Edison's service territory.
- Increasing small business customer awareness of energy efficiency opportunities available in their facility, from both equipment upgrades and behavioral changes.
- Maximizing available cost-effective energy savings for every small business participant in the program.
- Generating customer awareness of energy efficiency programs available through Con Edison, NYSERDA and other entities to support their energy efficiency objectives.
- Effectively driving the adoption of low-cost, but high value energy efficiency measures in customer facilities.

- Building higher-level customer, trade ally and stakeholder relationships by providing value-added energy efficiency services, training, education, hardware, verification and customer support.

- Supporting the local economy by helping to reduce small-businesses' operational costs, utilizing local labor and promoting the adoption of high-quality equipment.

The sections below describe Con Edison's anticipated delivery approach, marketing and outreach strategies, MV&E plan and expected demand and energy savings and impacts.

2.3 Operational Structure

2.3.1 Program Eligibility

Con Edison small business customers (owners and tenants) in existing buildings with less than 100 kW of monthly peak demand who pay the System Benefits Charge will be eligible.

Table 5. Customer Eligibility Parameters

	Eligibility Parameters
Customer Class	Service Classification 2, 4, 9[6]
Business Type	All
Building Type	All
Building Vintage	Existing buildings
Size	Less than 100 kW monthly peak demand

2.3.2 Financial Incentives

Energy surveys will be provided to small business customers at no cost 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 equipment and building envelope and provide recommendations on cost-effective energy efficiency upgrades, or may advise the customer to seek out a more comprehensive facility evaluation.

Con Edison will provide some energy efficiency measures at no cost to participants (see Table 6), and in the case of more costly efficiency upgrades, will cover 70 percent of the incremental cost of the measure.[7] Wherever possible, these measures will be installed in the customer's facility at the time of the energy survey[8]. However, some measures may

[6] Excluding Public Light and Power

[7] Con Edison is investigating the possibility of providing on-bill financing for the balance of the customer contribution.

[8] Measures for on-site installation will include the free measures (CFLs, low-flow aerators, high pressure rinse sprayers, water-heater setback). The Company will also consider installing certain non-free measures

require installation by an electrical or HVAC contractor. In this case, Con Edison will schedule installation at the customer's request.

The measures proposed for the Small Business Direct Installation Program are based on successful direct installation programs offered by utilities such as MidAmerican Energy Company, Connecticut Light and Power and The United Illuminating Company. Energy savings and cost estimates were developed for each measure through detailed research using sources such as industry research papers and technical evaluations, as well as engineering calculations and modeling[9] of identical measures in geographic areas with cooling degree days similar 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[10]. While there are technical interactions that affect savings where multiple measures are installed together, our analysis treats measure savings as independent[11].

Table 6 identifies the direct installation energy efficiency measures that will be offered by this program. Con Edison will provide direct installation measures that are appropriate to each individual customer's building type and business sector. Note that all measures may not apply to all customers, for example, a high-pressure rinse sprayer is only appropriate for customer facilities that include a commercial kitchen.

Energy survey reports may include recommendations for additional, more costly equipment upgrades. Surveyors will provide customers with information on additional financial incentives that may be available for equipment upgrades under other Con Edison, NYSERDA, or other applicable utility efficiency programs or under federal incentives such as the Energy Policy Act of 2005 (EPAct) tax credits.

Con Edison will continually review its programs and may revise qualifying equipment measures, eligibility and incentive levels or structure in the future 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.

---

at the time of the survey, such as: occupancy sensors, vending machine controls and programmable thermostats.

[9] Modeling utilized Energy-10 modeling software.

[10] ACCRA Cost of Living Index

[11] For example, in a small office building, overall measure savings decrease by 2.4% when a programmable thermostat and air-side economizer for a direct expansion cooling system are installed together.

Table 6. Eligible Measures and Incentives

Measure	Eligibility Rating	Incentive
Compact fluorescent lamps	ENERGY STAR®	Free
Low-flow aerators	1.5 Gallons Per Minute (GPM)	Free
High-pressure rinse sprayers	1.6 GPM	Free
Water Heater Thermostat Setback	Thermostat setback and replacement (115 degrees)	Free
LED exit signs	5 Watts	70% of installed cost
Water pipe insulation	R-4 Insulation	70% of installed cost
Occupancy sensors	Fluorescent	70% of installed cost
Vending machine controls	Passive Infrared Sensor Monitoring Vacancy of Area and Cycling Cooling Controls	70% of installed cost
HVAC retro-commissioning	N/A	70% of cost
Programmable thermostat	ENERGY STAR®	70% of installed cost
Evaporator fan controls	N/A	70% of installed cost
Anti-condensation door heater controls	Variable temperature controls	70% of installed cost
Efficient lighting package	Meets federal code	70% of installed cost
High-efficiency lighting package[12]	Above federal code by 15%	70% of incremental installed cost
Bi-Level Control for stairwell lighting	50% Lighting power during unoccupied time	70% of installed cost
LED Refrigeration Case Lights	28 Watts	70% of incremental installed cost

N/A = Not Applicable

2.3.3 Program Implementation and Milestones

Con Edison's energy efficiency staff will finalize program design and conduct 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 and timelines and will provide ongoing facilitation and oversight throughout the program delivery period. The implementation contractor will be required to report regularly to Con Edison.

[12] This package will include lamps, ballasts, fixtures and full retrofit kits as required by the lighting application. For example, a change from T12 to T8 requires a fixture replacement, while replacing a standard T8 with a more efficient T8 does not.

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 business groups, 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. Continue coordinating with other utilities and NYSERDA regarding training, marketing, procurement, eligible equipment and rebate levels and key delivery strategies (MV&E contractor may also be selected in coordination with other utilities and NYSERDA);
9. Finalize marketing approach using data mining and website intake information wherever possible and develop collateral materials; and
10. Train service vendors.

2.3.4 Participation

Participation rates were estimated by examining the distribution of sales to each targeted segment with less than 100 kW in demand. The total technical potential for this program was developed using end-use shares in the commercial and industrial sector available from the Energy Information Administration (EIA) and engineering estimates of measure savings. After establishing the technical potential, participation rates were developed for each segment by selecting a mix of measures with cumulative savings that would ultimately meet the three-year saving goal. Con Edison will further refine these participation rates following the completion of its market potential study and after reviewing evaluation results. The resulting participation projections are shown in Table 7.

Table 7. Projected Survey Participation by Market Segment

Segment	Total 2009-2011
Grocery	690
Lodging	120
Other Small Commercial	2,460
Restaurant	1,830
Retail	4,830
Small Office	4,440
Small Industrial/ Warehouse	2,550
Total	16,920

2.3.5 Portfolio Balance

Con Edison will work to integrate its existing small business customer programs, described below, with its Small Business Direct Installation Program and other new energy efficiency programs that are adopted. Each customer interaction is an opportunity to promote energy efficiency. Con Edison will evaluate a full range of customer efficiency opportunities and work with each customer to maximize energy efficiency potential in its facility, including directing customers to the most appropriate program available to facilitate investment in appropriate measures. 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 Con Edison programs 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 new Small Business Direct Installation program will become an additional incentive that it can offer to support small businesses.

- ***Demand Response Programs:*** The new Small Business Direct Installation Program will provide an excellent opportunity to cross promote and integrate Con Edison's demand response programs for its small business customers. Energy survey personnel will be trained to fully explain the programs to customers and make a referral, as appropriate. With respect to Con Edison's Direct Load Control Program, over time, Con Edison will consider training its contractors to install programmable thermostats with load control on appropriate central air conditioning units.

- ***Targeted DSM program:*** Under Con Edison's 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 targeted DSM program 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.

2.4 Education and Training

Con Edison has identified four specific areas where the development of education and training programs will be critical to supporting a robust, successful program. Con Edison will develop education and training programs to begin prior to program launch and continue over the life of the programs. Areas of focus for education and training efforts are:

- ***Customer education:*** Con Edison will develop appropriate educational materials that will be provided to customers at the time of their energy survey. These materials may include targeted, sector-specific materials and reminder posters for common areas.

- ***Internal staff education:*** Appropriate Con Edison staff will be familiar with its programs, able to articulate program benefits and 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, including customer and commercial service representatives.

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

- ***Other education*:** Con Edison will reach out to local trade allies, such as equipment dealers, builder and realtor associations and other professional groups through methods such as direct mail, one-on-one outreach, "lunch and learn" meetings, seminars and community presentations to inform them about the Company's programs, the benefits that will be available to them and their customers through the program and information on how to participate.

2.5 Marketing Approach

Con Edison's marketing approach for the Small Business Direct Installation Program will rely on both traditional and innovative tactics. 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 is currently conducting a market potential study of its service territory, which will be completed by April 2009, and will enhance the Company's ability to tailor outreach efforts to specific geographic areas, customer classes, market sectors, technologies and individual customers. Con Edison will add focused marketing in specific geographic areas to its broader marketing efforts to promote community-wide participation.

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. Several specific marketing and promotional strategies are outlined below.

- Con Edison will leverage its customer service representatives and field personnel as well as vendor relationships and trade allies to promote programs. The Company will conduct outreach to trade allies and other stakeholders for participation. This kind of word-of-mouth advertising can be one of the most effective means of promoting programs. Con Edison's awards program for dealers and trade allies substantially contributes to its oil to gas conversion program; the Company will offer a similar program to its energy efficiency trade allies and dealers. Con Edison also will generate leads and customers referrals for its trade allies, which helps increase their interest in supporting the Company's programs.

- Recognizing that its service territory is comprised of a wide range of customer segments and cultural and ethnic groups, Con Edison plans to implement a grassroots approach to reaching these customers. The Company will conduct outreach to cultural organizations, trade associations, neighborhood and community groups and other trusted representatives to promote programs and deliver program information. Con Edison also will leverage its existing relationships through customer service representatives, trade allies and local vendors and will sponsor organizations and events to establish a presence among targeted community groups and neighborhoods.

- In order to ramp up the program, Con Edison will seek out multi-location businesses for targeted promotion. Con Edison will seek to coordinate with other utilities and NYSERDA where appropriate. These customers may include business chain stores and franchises, large property management companies and multi-building owners.

- Con Edison intends to harness the Internet as a major platform for marketing and supporting its energy efficiency programs. The Company website is already a

widely known resource[13]. Con Edison will embark on several enhancements to create a web-based energy efficiency portal that will provide, among other things:

- centrally located information, application forms, product cut sheets, approved contractor lists and suppliers of eligible products and services;
- decision support information such as measurement and verification, 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
- customer project tracking.

- Partnerships with New York City and Westchester County agencies, such as the New York Economic Development Corporation, Business Improvement Districts (BIDs), the New York City Department of Small Business Services, Mayor Bloomberg's office, 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 promote this, as well as its other programs through the agencies' newsletters and on their websites and through other outreach material.

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

2.6 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 conduct certain delivery and administrative functions.

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 schedules an appointment. Customer data will be saved and tracked for reporting purposes and to coordinate participation in other programs.

- Completing an on-site energy survey. The Company representative will conduct a walk-through energy survey of the customer's facility and directly install simple

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

energy efficiency measures, as set forth in Table 6. The representative 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 recommendations for appropriate follow-up evaluation activities. The representative also will review with the customer additional available financial incentives or programs that may benefit the customer, discuss best practices for operating building energy systems efficiently and disseminate educational energy efficiency materials.

- Providing the business owner with a survey report. The survey report will include recommendations for appropriate energy efficiency projects and information on incentives available from Con Edison and other sources. 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 each customer. After the energy survey, Con Edison will follow up with customers to inquire about the survey, verify that direct installation measures were installed and ask whether the customer intends to implement recommended measures. Con Edison also will offer further assistance (*e.g.,* identifying installation contractors or supporting additional program participation) and address any quality assurance issues on a case-by-case basis.

2.7 Market Barriers and Mitigation Strategies

Table 8 presents the key market barriers to an effective Small Business 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	Free on-site energy surveys and direct installation measures for immediate savings; Provide information on additional rebates to help offset the cost of efficient equipment; Help customers implement a phased approach to installing larger upgrades
Lack of customer awareness of programs and energy efficiency actions	Free, third-party analysis and recommendations; General education and information about simple operational changes and initiatives that provide on-going savings; Grassroots, social marketing to hard-to-reach business sectors and sub-sectors
Limited time, resources and awareness on how to act on recommendations	Immediate direct installation of certain measures; Trade ally network and referral program to help identify appropriate contractors; Follow-up calls and letters to help customers move through installation steps; Provide simple maintenance tips for ongoing savings; Communicate with customer management or decision-makers
Dealer and trade ally awareness	Ongoing dealer and trade ally communications, outreach and education
Customers wary of biased advice	Grassroots, social-based marketing and outreach through local community groups; Develop informational materials in languages common to specific business sectors
Customers skeptical of energy-savings calculations	Free independent assessment and recommendations; Develop case studies of actual projects with energy savings where appropriate
Bifurcated market – lack of incentive for building owners and tenants to invest in improvements	Work with property managers, owners and tenants to communicate larger value of efficiency (beyond utility bill savings)

2.8 Value Proposition

Con Edison's proposed program offers the following main benefits:

- Customers receive a free energy survey and impartial energy-savings recommendations from trained professionals with minimal disruption.
- Customers receive immediate savings through the direct installation of low-cost lighting, water heating and other energy-saving measures.
- Equipment upgrades will provide customers with meaningful savings, increased comfort and increased property values.
- The program supports the local economy by generating employment opportunities for energy survey contractors, equipment dealers and installers and other energy efficiency end-use service sectors.

- The program targets small and medium sized businesses – a hard-to-reach and often underserved market sector – providing them with operational savings and equipment upgrades that can potentially lead to[14]:
    - higher profitability,
    - greater stability and stronger business position,
    - greater ability to retain staff,
    - greater indoor comfort and air quality for staff and customers, and
    - increased productivity.
- The program will help reduce regional air pollution.
- The program will help reduce peak demand, moderate commodity prices, improve system reliability and potentially reduce the need for construction of new generation, transmission and distribution facilities.
- The program will contribute to New York State's 15X15, PlaNYC 2030 goals, Westchester initiatives and the Company's plan to defer over $1 billion in electric T&D investment.

2.9 Screening Metrics

2.9.1 Savings, Costs and Cost Effectiveness

Assessment of cost effectiveness begins with a valuation of the program's gross "total resource" benefits, as measured by the electric avoided costs[15] 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,

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

and,

[14] "Energy Efficiency and Job Creation." Howard Gellar, John DeCicco and Skip Laitner. http://www.aceee.org/pubs/ed922.htm.
"Estimates of improved Productivity and Health from Better Indoor Environments." William J. Fisk [1] and Arthur H. Rosenfeld.
http://www3.interscience.wiley.com/journal/119174485/abstract?CRETRY=1&SRETRY=0.

[15] 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 costs were shaped to represent Con Edison's service territory on an 8760 basis.

Total Resource Cost = NPV (Incremental Measure Costs + Utility Costs not including participant incentives).

2.9.2 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 conservation measure included in a program, hourly (8760) 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 differentiated impacts of the measure.[16] 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.

2.9.3 Program Cost Components

The cost component of the analysis considered incremental measure costs and direct utility costs. Incremental measure costs are the incremental expenses associated with installation of energy efficiency measures (net of the customer rebate) and on-going operation and maintenance costs, where applicable. Direct utility costs are the customer rebates and the expenses associated with development, marketing, delivery and 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. (*i.e.*, 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, 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 commercial and industrial (C&I) auditors. This also includes vendor recruitment, training and coordination costs (*e.g.*, quality installation training).

[16] 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.

Customer Incentives or Services

- Cost of surveys.
- Rebates paid to customers for implementing energy efficiency.

Program Implementation

- Costs associated performing program tasks on the Company's behalf.

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, 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 (*i.e.*, consultant contracts).

The evaluation and market research budget shown is five percent of the total budget. The portion of the five percent that will be allocated to evaluation and market research is still to be determined.

Table 9. Total Projected Program Costs

Cost Components	Plan Year 2009	2010	2011	*Total*
Total Resource Cost	$46,762,250	$47,740,175	$48,739,991	$143,242,417
Participant Cost Net of Incentives	$21,720,584	$22,176,717	$22,642,428	$66,539,729
Direct Utility Costs	$25,041,666	$25,563,458	$26,097,564	$76,702,688
Customer Incentives or Services	$17,261,566	$17,624,058	$17,994,164	$52,879,788
Program Planning and Administration	$444,000	$450,200	$456,500	$1,350,700
Program Implemention Costs	$4,833,000	$4,934,000	$5,038,000	$14,805,000
Program Marketing and Trade Ally	$1,251,000	$1,277,000	$1,304,000	$3,832,000
Evaluation and Market Research	$1,252,100	$1,278,200	$1,304,900	$3,835,200

2.9.4 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[17], assuming approximately 0.9 lbs of carbon dioxide emissions per kWh[18] and 11.7 lbs of carbon dioxide per therm[19]. Benefit-

[17] June 23, 2008 Order, Appendix 3, p. 2.
[18] Company generated estimate based on marginal generational impact.
[19] http://www.aga.org/Legislative/legislative+advocacy/issues/ClimateChangeEnvironmentalAnalysis.htm

cost ratios were calculated using the methods described in the California standard protocols for analyzing cost-effectiveness of energy efficiency programs.[20]

Table 10. Key Assumptions Used in Cost Effectiveness Calculations[21]

	Electric	Gas
Avoided Energy Costs (2009)	Summer: $84.06 per MWh	Summer: $0.86 per therm
	Winter: $88.32 per MWh	Winter: $1.13 per therm
Avoided Capacity Costs (2009)	Generation: $105.40 Transmission and Distribution: $103.20	N/A
Externality	0.9 lbs of CO_2 per avoided kWh valued at $15 per ton	11.7 lbs of CO2 per avoided therm valued at $15 per ton
Line Loss	7.2%	0%
Discount Rate	7.7%	
Inflation	2.1%	

Table 11. Cost Effectiveness Analysis

TRC Test	**Without Carbon Dioxide**	**With Carbon Dioxide**
NPV Benefits	$321,301,752	$335,656,876
NPV Costs	$133,109,052	$133,109,052
Benefit-Cost Ratio	**2.41**	**2.52**

As shown in Table 11, this program meets the TRC cost-effectiveness criterion with a benefit-to cost-ratio of 2.41 to 1 under the base-case and 2.52 to 1 under the TRC + C avoided cost scenario.

2.10 Quality Assurance

Quality assurance measures for this program will include post-survey follow up with participants to elicit information on satisfaction with delivered services, inspection of an appropriately-sized random sample of all sites to verify installation of measures and post installation inspection of the census of sites receiving major measures to ensure proper installation and functioning of measures.

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

[21] 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.

2.11 MV&E Plan

2.11.1 Program Description

The Small Business Direct Installation Program promotes energy efficiency for existing commercial and industrial customers with monthly peak demand of less than 100 kilowatts (kW). The program is a two-stage program. The first stage involves a survey of small business facilities together with the direct installation of low-cost or no-cost measures and a menu of recommendations for further upgrades. The second stage is the actual installation of the more extensive, incentivized measures selected by participants.

2.11.2 Program Theory

The Small Business Direct Installation Program is designed to address the particular needs of a particular market segment characterized by diversity in business type, ownership structure and energy use. This segment is also recognized as being typically hard to reach and, to some extent, underserved. Historically, this segment has also been more reluctant to invest in energy efficiency owing to a number of market barriers (discussed in section 2.7). The two-stage structure of this program is intended to achieve some immediate savings through direct install measures at the time of the survey and provide the necessary information, education, technical assistance and financial incentives to advance energy efficiency in this segment.

2.11.3 Projected Savings

Over the three-year planning horizon, a total of nearly 17,000 customers are expected to participate for a cumulative savings of nearly 290,000 MWh.

2.11.4 Program Schedule

Con Edison plans to begin offering this program to customers as soon as possible following Commission approval. The schedule for the implementation of the MV&E for all programs is set forth in section 1.6.

2.11.5 General Evaluation Approach

The primary goal of the evaluation is to document the energy and capacity savings attributable to the program and to ensure reliability and persistence of the expected impacts. These savings may be instantaneous (as a result of the direct install) or may occur over time (as a result of the adoption of recommended measures). The evaluation will have a process analysis and an impact assessment component.

The process evaluation will consist of surveys of participants and non-participants, interviews with staff and implementers and interviews with key market actors, including local social and business organizations.

The impact evaluation will involve verification of measures installed, may include selective on-site monitoring of complex measures in larger buildings and may include a pre-post billing analysis of participating and nonparticipating facilities matched by building type, usage and geographic location. Con Edison's small commercial and industrial customer information will be the primary 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.

2.11.6 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.

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 include trade allies, local businesses and local community groups and unions.

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 fuel, building type 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 wave will include direct installation-only participants, non-participants and an appropriate sample of full participants, *i.e.*, those that adopted additional measures through the program.

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.

2.11.7 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 Company is currently assessing three principal components, as outlined below. Final determination of the impact evaluation methodology will occur 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, and

- Identifying any operational or performance issues for further study by program staff.

2. Billing analysis of the census of participants and a matched comparison group of non-participants and on-site, enhanced verification of key, high-impact measures.

   The verification sample would be drawn from all participants with a 90/10 criterion or better at the end of each of the three program years.

   All participants will be included in a multiple-fuel energy usage statistical analysis. Participants would be matched to a sample of non-participants with the same historical patterns and levels of energy use. A fixed-effects regression specification will be employed to take advantage of time-series and cross-sectional data available from the customer database. A statistically-adjusted engineering model (SAE) may also be used for key, high-impact measures installed.

   The major issue for the billing analysis is the lag between the survey and the adoption of major measures. 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 would be performed in quarterly "waves" with the first wave taking place during the first quarter of the second year of the program (2010). Before performing the analysis, consumption histories will be "cleaned" to screen missing or anomalous readings. In cases, such as commercial redistribution, where consumption histories for the participant facility are not available, average results from other similar facilities may be used as proxy.

3. More rigorous, enhanced verification for high-impact measures installed after the survey, with a focus on measures with the highest potential savings and those with the highest performance uncertainties. The highest potential savings measures will be lighting retrofits. Measures with performance uncertainties include, among others, retro commissioning, economizers, lighting controls and vending machine controls.

   An independent sample of these measures will be verified and engineering estimates will be recalculated if necessary. Some short-term monitoring may be required to establish certain parameters such as hours of operation. Samples for verification of measures with some performance uncertainty will be independently drawn by measure, using 90/10 criterion. Recommendation for changes in engineering assumptions or calculations will be generated, if necessary.

The kWh savings for the program will be developed through the billing analysis. Individual measure savings and realization rates will be derived through simple engineering calculations based on the verification studies. The kW savings will be calculated from program engineering information and load factors derived from sector load shapes.

2.11.8 Net-to-Gross Methodology

In its proposed program plan, Con Edison has made a preliminary net adjustment of ten (10) percent for free-ridership and spillover. These assumptions will be validated as part of the Company's impact evaluation. Net-to gross will be determined in two ways. First, a survey-based approach for participants will include free-ridership and spillover modules implemented as part of the full-participant survey. Program free-rider and spillover rates will be estimated and applied to participant savings.

Second, net savings will be determined directly through the regression-based billing analysis combining all groups. The net savings from this analysis will account for free-ridership and spillover but will not be able to provide individual estimates for the components. However, since the energy use of the non-participant sample will be matched to the participants, the regression-based analysis would provide a robust estimate of the net effects.

2.11.9 Data Collection

The evaluation contractor will work with program staff to develop 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.

The major threat to validity will be baseline assumptions or existing conditions. The evaluation contractor will work with the program staff and implementer to ensure that the appropriate data are collected.

In addition to the program tracking database, evaluation data will include surveys and interviews, site visit verification protocols and forms and engineering algorithms and calculations. If any metering, monitoring or measurement is implemented, they will conform to the appropriate International Performance Monitoring and Verification Protocols (IPMVP), typically IPMVP Option A – retrofit isolation.

3 Residential HVAC Program

Con Edison's Residential HVAC (heating, ventilation and air conditioning) program promotes the purchase and installation of high-efficiency equipment by residential customers in new and existing homes. This program combines the Residential ENERGY STAR® HVAC and Residential Efficient Gas Equipment programs identified in the June 23, 2008 Order. 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 natural gas and electric heating, cooling and water heating measures (ENERGY STAR®-labeled equipment is specified where available). Additionally, this program will require the use of quality installation[22] methods for applicable heating and cooling equipment.

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 will qualify for financial incentives of up to 60 percent of the incremental cost (which includes both equipment and installation) of the installed measure. Program marketing will utilize traditional as well as innovative grassroots tactics and also will leverage Con Edison's network of trade allies, as well as Con Edison's own staff.

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 initiated discussions 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 the small portion of their service territories that overlap in Westchester County.

As noted above, Con Edison proposes to implement these services under a single residential program. While program impacts, budgets, cost, savings and other metrics are presented separately here, and will be tracked, documented and reported separately, there are benefits associated with offering a single, cohesive Residential HVAC program to customers, including:

- Economies of scale associated with:
    - program marketing;
    - administration and delivery, including the potential use of a centralized implementation team to handle some administrative functions;
    - identical business, delivery, rebate processing and tracking mechanisms;
    - integrated marketing materials;

[22] Quality installation methods ensure that equipment is installed according to original equipment manufacturer (OEM) product guidelines including proper equipment sizing, airflow, duct sealing and air conditioning refrigerant charge.

- training contractors on program protocols and guidelines, and installation best practices; and
- consolidated MV&E and reporting.

– Greater consistency in communications with customers and enhanced opportunities for cross marketing with other Con Edison efficiency programs as well as those offered by NYSERDA and others.

3.1 Impacts Summary

A summary of the Residential HVAC program's projected annual and cumulative savings, costs, benefits and cost effectiveness for the electric and gas measures are presented in Table 12 and Table 13.

Table 12. Summary of Projected Benefits, Costs and Cost Effectiveness (Electric Component)

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Measure Installations	11,573	11,573	11,573	34,719
Savings (MWh)	4,190	4,190	4,190	12,569
Coincident Peak Savings (MW)	8	8	8	23
Total Resource Cost	$6,477,625	$6,610,032	$6,743,828	$19,831,485
Participant Cost Net of Incentives	$2,840,976	$2,900,636	$2,961,550	$8,703,162
Direct Utility Costs	$3,636,649	$3,709,396	$3,782,279	11,128,323
Customer Incentives or Services	$2,349,849	$2,399,196	$2,449,579	7,198,623
Program Planning and Administration	$294,000	$300,200	$306,500	900,700
Program Implemention Costs	$260,000	$265,500	$271,100	796,600
Program Marketing and Trade Ally	$551,000	$559,000	$566,000	1,676,000
Evaluation and Market Research	$181,800	$185,500	$189,100	556,400

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$58,508,146	$59,299,847
NPV Costs	$18,429,074	$18,429,074
Benefit-Cost Ratio	**3.17**	**3.22**

Table 13. Summary of Projected Benefits, Costs and Cost Effectiveness (Gas Component)

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Measure Installations	13,258	13,258	13,258	39,775
Savings (dekatherms)	111,908	111,908	111,908	335,723
Total Resource Cost	$7,049,088	$7,076,788	$7,105,188	$21,231,063
Federal and State Tax Rebates	$240,083	$240,083	$240,083	$720,250
Participant Cost Net of Incentives	$2,504,117	$2,504,117	$2,504,117	$7,512,350
Direct Utility Costs	$4,304,888	$4,332,588	$4,360,988	$12,998,463
Customer Incentives or Services	$2,835,088	$2,835,088	$2,835,088	$8,505,263
Program Planning and Administration	$639,700	$653,100	$666,900	$1,959,700
Program Implemention Costs	$100,000	$102,100	$104,200	$306,300
Program Marketing and Trade Ally	$515,800	$526,600	$537,700	$1,580,100
Evaluation and Market Research	$214,300	$215,700	$217,100	$647,100

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$37,042,114	$39,551,166
NPV Costs	$19,745,435	$19,745,457
Benefit-Cost Ratio	**1.88**	**2.00**

Both the electric and gas components of this program are cost effective as indicated by TRC benefit-to-cost ratios of 3.17 to 1 for the electric component and 1.88 to 1 for the gas component of the program. The analysis also assumes a net-to-gross ratio of 0.90 for all programs (*i.e.*, free-ridership net of spillover).

3.2 Program Goals and Objectives

The proposed program and the specific HVAC measures proposed herein are cost-effective energy efficiency strategies that will contribute to Con Edison's and New York State's energy efficiency goals.

Specific objectives associated with this program include:

- Increasing customer knowledge of the performance, reliability and energy savings associated with high-efficiency heating, cooling and water heating equipment and where to obtain energy efficient equipment.

- Increasing the market penetration of energy efficient heating, cooling and hot water equipment in customer homes.

- Helping customers to reduce energy costs and increase the comfort and value of their homes through the proper installation of high-efficiency heating, cooling and hot water heating equipment.

- Generating customer awareness of energy efficiency programs available through Con Edison, NYSERDA and other entities to support their energy efficiency objectives.

- Maximizing available energy and cost savings for every participant by recommending efficiency opportunities supported by NYSERDA and other programs.

- Monitoring customer perception of the performance and reliability of high-efficiency HVAC equipment and the savings achieved.

- Training program allies such as plumbing and HVAC contractors on the benefits of high-efficiency equipment and on quality installation and service procedures.

- Effectively driving the adoption of quality installation methods among residential HVAC installation contractors.

- Driving new participation in Con Edison's Direct Load Control Program by cross promoting the program through Con Edison's program service contractors.

- Building higher-level customer, trade ally and stakeholder relationships by providing value-added energy efficiency services, training, education, financial incentives, verification and customer support.

- Supporting the local economy by helping to reduce customer utility costs and promoting the adoption of high-quality equipment.

- Reducing night-time peak demand in residential networks, reducing the need for transmission and distribution facilities and improving reliability in those networks, while also contributing to a reduction in coincident system peak demand.

The sections below describe Con Edison's anticipated delivery approach, marketing and outreach strategies, MV&E plan, expected energy savings and impacts and other critical parameters that form the backbone of the proposed program.

3.3 Operational Structure

3.3.1 Program Eligibility

This program is available for equipment installed in residential buildings with up to four units.[23] There are approximately 835,000 such residential buildings in Con Edison's service area. To be as cost effective as possible, the program will target customers seeking to replace air conditioning, space heating or water heating equipment or building a new home. Any residential customer (owner or tenant) may participate; however, in situations where energy is delivered by more than one utility company, the installed measure must save energy delivered directly by Con Edison to be eligible for the incentives offered by Con Edison. In addition, only customers who pay the System Benefits Charge will be eligible.

[23] Customers wishing to purchase high-efficiency equipment for residential homes with more than four units will be directed to an appropriate multifamily efficiency program.

Table 14. Customer Eligibility Parameters

	Electric Measures	Natural Gas Measures
Customer Class	SC-1, SC-2, SC-7, SC-8, SC-9, SC-12	SC-1, SC-2, SC-3, SC-9 - firm transportation
Building Type	One to four unit residential homes	One to four unit residential homes
Building Vintage	Existing buildings or new construction	Existing buildings or new construction

3.3.2 Financial Incentives

Con Edison will provide a financial incentive in the form of a prescriptive rebate to customers who purchase high-efficiency natural gas or electric heating, air conditioning and water heating equipment identified in Table 15 and Table 16 that is installed using industry accepted quality installation procedures. Additional incentives will be available for low-cost, customer or contractor installed efficiency measures (*e.g.*, low-flow showerheads, faucet aerators, tank wraps and air sealing). These incentives will be paid in the form of a rebate delivered directly to customers who meet eligibility requirements. Financial incentives will be available up to $1,000, depending on the type and efficiency of equipment installed. Finally, the program will provide Energy Efficiency Kits (Efficiency Kits), containing a range of low-cost natural gas savings measures that can be installed by Con Edison customers themselves.

The measures proposed for this program include those listed in the June 23, 2008 Commission Order, as well as common market-ready technologies included in other successful utility energy efficiency programs. Energy savings and cost estimates were developed for each measure through detailed research on the proposed measures. Energy savings estimates for programmable thermostats and solar attic fans were developed from secondary sources.

For the remaining measures, engineering calculations and modeling[24] for identical measures in geographic areas with Heating and Cooling Degree Days equivalent to those in Con Edison's service territory were used to establish the appropriate energy savings. 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[25]. While there are technical interactions that may slightly alter savings if multiple measures are installed together, our analysis treats measure savings as independent[26].

Table 15 shows Con Edison's proposed list of eligible natural gas equipment, incentive levels and efficiency qualifications. Table 16 shows Con Edison's proposed list of eligible electric equipment, incentive levels and efficiency qualifications.

[24] Modeling utilized Energy-10 modeling software

[25] AACRA Cost of Living Index

[26] For example, in a single-family home overall measure savings decrease by 2.8% when a programmable thermostat and SEER 16 central air conditioning unit are installed together. Similarly, the interaction between the same two measures in a multi-family home result in a 2.1% difference in savings.

Table 15. Eligible Natural Gas Equipment Measures

Measure	Eligibility Rating	Incentive
Furnaces (forced hot air)	AFUE ≥ 92%	$100
Furnaces (forced hot air with electronically commutated motors or ECM)	AFUE ≥ 92%	$400
Boilers (forced hot water)	AFUE ≥ 90% or greater	$1,000
Boilers (forced hot water)	AFUE ≥ 85% and < 90%	$500
Boilers (steam with electronic ignition)	AFUE ≥ 82%	$200
Indirect Water Heater – natural gas forced hot water boiler	ENERGY STAR rated	$300
Tankless Water Heater (with electric ignition)	EF ≥ .82	$300
Solar water heating equipment	SRCC Requirements[27]	50% of installed cost after tax rebates
Programmable Thermostat	ENERGY STAR®	50% of installed cost
Outdoor boiler reset control	N/A	50% of installed cost
Drain water heat exchanger	N/A	50% of installed cost

AFUE = Annual Fuel Utilization Efficiency; EF = Energy Factor N/A = Not Applicable

[27] Solar Rating and Certification Corporation

Table 16. Eligible Electric Equipment Measures

Measure	Eligibility Rating	Incentive
Solar Attic Fan	N/A	60% of incremental installed cost
Ductless Mini-Splits	SEER 15, 9.0 HSPF	50% of incremental installed cost
Central Air Conditioning	14.5 SEER	35% of incremental installed cost
Central Air Conditioning	15 SEER	40% of incremental installed cost
Central Air Conditioning	16 SEER	50% of incremental installed cost[28]
Air Source Heat Pump	14.5 SEER, 8.5 HSPF	35% of incremental installed cost
Air Source Heat Pump	15 SEER, 8.6 HSPF	40% of incremental installed cost
Air Source Heat Pump	16 SEER, 8.8 HSPF	50% of incremental installed cost
Ground/Water Source Heat Pump	EER 14.1, COP 3.3	35% of incremental installed cost

EER = Energy Efficiency Ratio; SEER = Seasonal Energy Efficiency Ratio; COP = Coefficient of Performance; HSPF = Heating Seasonal Performance Factor

Recent changes have been made to the New York City Energy Code regarding proper venting of high-efficiency natural gas heating equipment. These changes will be monitored to determine if they result in higher installation costs that could have a detrimental impact on the market share of high-efficiency equipment installations.

Con Edison will continually review its programs and may revise qualifying equipment measures, eligibility and incentive levels or structure in the future 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 the TRC impacts.

Additional savings will be obtained through the distribution of Efficiency Kits. Con Edison selected Efficiency Kits and the measures they contain are based upon similar programs offered by utility companies including, Philadelphia Electric Company (a subsidiary of Exelon), New Jersey Natural Gas Company, Southern California Gas Company, and Tennessee Valley Authority.

The Efficiency Kit will offer residential customers a low-cost package of easily adoptable energy-saving measures for the home, along with installation instructions for each of the measures and a printed energy efficiency tips wheel. The Efficiency Kits will be available

[28] Con Edison will offer tiered rebates to encourage customers to select higher efficiency air conditioners and heat pumps.

to Con Edison customers who install natural gas energy efficient equipment and apply for the rebate incentive. The Efficiency Kit will be mailed free of charge with customer rebate payments.

The Energy Efficiency Kits contain natural gas and water savings measures, including:

- one 1.25 GPM earth massage showerhead
- one 1.25 GPM dual spay kitchen swivel aerator
- two 1.25 GPM bathroom aerators
- two window insulation kits
- twelve draft stoppers - four switch gaskets and eight outlet gaskets
- two 3/16" x 3/8" x 17" foam weather strips
- one hot water temperature card
- one furnace whistle
- one energy efficiency tips wheel
- one bilingual (English and Spanish) instructional sheet

The measures in the Efficiency Kits will be reviewed for their effectiveness in achieving measurable energy savings on an on-going basis. Over time, Con Edison may substitute some measures in the Efficiency Kits to ensure that they maximize energy savings as equipment standards change.

3.3.3 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 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. All program contractors will report regularly to Con Edison.

Con Edison also will recruit and pre-qualify HVAC contractors to deliver high-efficiency equipment installation services. Contractors that participate in the program ("pooled contractors") will be required to complete an application and pre-screening process and will be trained in the use of industry-accepted quality installation procedures. After the contractor pool is established, contractors outside the pool (and thus direct administrator review) 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.

Quality installation will be a key component of the program. Studies have found that a significant number of residential central air conditioning and heating systems are installed improperly, which can lead to dramatically reduced efficiency.[29] Con Edison will require that all of its approved HVAC installation contractors be trained to install equipment according to original equipment manufacturer (OEM) product guidelines.

[29] Source: C. Neme, J. Proctor, S. Nadel, *National Energy Savings Potential from Addressing Residential HVAC Installation Problems*, 1999

Contractor quality installation training will address the key components of proper equipment installation, including equipment sizing, airflow, duct sealing and air conditioning refrigerant charge. Con Edison will review available quality installation procedures and standards and develop protocols that are appropriate for its service territory.

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 contractors;
4. Issue RFPs (where applicable) to qualify and select service providers: implementation contractor and evaluation contractor;
5. Review available quality installation standards for their suitability to the New York market;
6. Define quality installation standards and protocols for the program and then develop rebate protocols and application forms;
7. Conduct outreach to equipment dealers, trade allies and other local market actors;
8. Develop tracking and allocation procedures;
9. Coordinate with other utilities and program administrators regarding training, marketing, eligible equipment and rebate levels and key delivery strategies;
10. Develop marketing approach and collateral materials, secure marketing fulfillment contractor;
11. Coordinate quality installation training for HVAC contractors;
12. Generate training materials and coordinate program training for trade allies and internal staff; and
13. Develop customer education materials.

3.3.4 Participation

The participation rates for this program were developed using housing counts for the single-family market segment and applying central air-conditioning saturation rates from Con Edison market research data to obtain the technical potential available. Con Edison will further refine these participation rates following the completion of its market potential study and after reviewing evaluation results. 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 for each measure is shown below.

Table 17. Projected Electric Measure Installations

Technology	Total 2009-2011
Solar Attic Fan	1,050
Central Air Conditioner	17,040
Ductless Mini-Split	375
Heat Pumps	705

Table 18. Projected Gas Measure Installations

Technology	Total 2009-2011
Furnaces (forced hot air)	2,300
Boilers (forced hot water)	7,300
Indirect Water Heater – natural gas forced hot water boiler	3,900
Solar Water Heating Equipment	250
Tankless Water Heater (with electric ignition)	3,900
Energy Efficiency Kits	18,600
Outdoor boiler reset control	225
Drain water heat exchanger	225

Table 19. Projected Gas and Electric Measure Installations

Technology	Total 2009-2011
Programmable Thermostat	18,550

3.3.5 Portfolio Balance

Con Edison will integrate its existing residential customer programs with its Residential HVAC Program, NYSERDA's residential programs and other new energy efficiency programs that are adopted. For example, each customer interaction is an opportunity to promote energy efficiency. Con Edison intends to educate its appropriate internal staff, trade allies and 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:

- ***Direct Load Control Central Air Conditioning (CAC) Program:*** The new Residential HVAC Program will provide an excellent opportunity to cross promote and integrate Con Edison's Direct Load Control CAC Program to its residential customers. HVAC 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.

- ***Home Performance with ENERGY STAR® Program:*** Con Edison will provide information to participants in its Residential HVAC program regarding NYSERDA's Home Performance ENERGY STAR® program. Conversely, Con Edison customers that participate in NYSERDA's Home Performance with ENERGY STAR® program will be eligible for Con Edison's Residential HVAC equipment rebates. Con Edison will work with NYSERDA to ensure that program contractors are informed about both programs and make program information available to all eligible customers. Customers will be guided from Con Edison to NYSERDA and vice-versa to ensure that they are able to take advantage of all efficiency opportunities and that savings are appropriately allocated.

- ***Oil to Gas Conversion Program:*** Customers who switch from heating oil to natural gas through Con Edison's program provide excellent opportunities for the installation of programmable thermostats, high efficiency natural gas heating and water heating equipment and Energy Efficiency Kits. Con Edison's representatives will inform customers about the opportunities available through the Residential HVAC program and will provide referrals and follow up.

- ***Utility Program Integration:*** In areas where Con Edison's 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 a similar integration strategy for the small portion of their service territories that overlap in Westchester County.

- ***Targeted DSM Program:*** Under Con Edison's targeted DSM program, the Company contracts with vendors to provide permanent energy efficiency to 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 Targeted Program contractors to supplement the energy efficiency gains achieved in the Targeted DSM program, *e.g.*, Con Edison can refer customers that it recruits to DSM contractors and also seek to develop marketing strategies for those customers that have already worked with the contractors.

3.4 Education and Training

Con Edison has identified four specific areas where the development of education and training programs will be critical to supporting a robust, successful program. Using resources available through its Learning Center and other convenient venues, Con Edison will develop and implement education and training programs that will begin prior to program launch and will continue and evolve over the life of the programs. Areas of focus for education and training efforts follow:

- ***Customer education***: Con Edison will develop materials related to the proper maintenance and upkeep of the installed equipment and Con Edison's contractors will review these materials with the customer at the time of the installation. Additionally, general energy efficiency educational material will be provided to customers along with their rebate check. Con Edison also will provide educational information to customers about the program and its benefits through traditional marketing channels such as advertising or direct mail.

- ***Internal staff education***: Con Edison will train appropriate staff to be familiar with its programs, able to articulate program benefits and 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, including customer and commercial service representatives.

- ***Contractor education***: Con Edison will coordinate training on quality installation methods and advanced energy efficiency equipment installation for HVAC installation contractors. Additionally, Con Edison will provide both classroom-style training and written materials to inform them about the program, the benefits that will be available to them and their customers through the program and information on how to participate as well as program protocols and guidelines, installation best practices, quality assurance requirements and delivery approach. Con Edison also will provide its contractors with marketing training and brochures 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 and community presentations targeting trade allies and other stakeholders to inform them about the Company's programs, the benefits that will be available to these stakeholders and their customers through the program and information on how to participate.

3.5 Marketing Approach

Con Edison's marketing approach for the Residential HVAC Program will rely on both traditional and innovative tactics. 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). Additionally, the Company is conducting a market

potential study of its service territory that will enhance Con Edison's ability to tailor outreach efforts to specific geographic areas, customer classes, market sectors and individual customers.

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. Several specific marketing and promotional strategies are outlined below:

- The Company will leverage its customer service department and field personnel as well as vendor relationships and trade allies to promote programs. Con Edison will train its appropriate staff to articulate program benefits and provide direction for participating. The Company also will organize "lunch and learn" meetings, seminars and community presentations targeting trade allies and other stakeholders for participation. "Word-of-mouth" advertising can be one of the most effective means of promoting programs. Con Edison offers an awards program for dealers and trade allies that substantially contributes to its oil to gas conversion program and will offer such a program to its energy efficiency trade allies and dealers. Con Edison also generates leads and directs customers to Con Edison's trade allies, which helps increase their interest in supporting the Company's programs.

- Con Edison intends to harness the Internet as a major platform for marketing and supporting its energy efficiency programs. The Company website is already a resource that is widely known and promoted among its customers.[30] Con Edison will enhance the site to create a web-based energy efficiency portal. These enhancements will include:

    - centrally located information, application forms, product cut sheets, approved contractor lists and suppliers of eligible products and services;
    - an on-line home energy analysis tool;
    - 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
    - customer project tracking.

- A strong emphasis will be placed on working with home builders, remodelers and residential sector contractors who install and service heating, cooling and water

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

heating equipment. Information collected by Con Edison from field services contractors suggests that installation contractors and distributors can influence customers to purchase high-efficiency products versus standard-efficiency products.

- Partnerships with NYC and Westchester County agencies, such as the Housing Preservation and Development agency, Mayor Bloomberg's office, and various governmental (including municipal) offices will be important for increasing awareness of the program. Con Edison has existing relationships with many of these entities and will work with them to promote this, as well as its other programs, through newsletters, email, and on websites.

- Con Edison will forge new relationships with retail equipment outlets, real estate associations, property managers and other groups to encourage promotion of the program to their constituents. Con Edison will arrange speaking engagements at association meetings and leverage organization newsletters and websites.

- Con Edison is collaborating with NYSERDA and other utilities to develop consistent marketing messages and materials and will work with the Commission's Outreach and Education Advisory Group to support state-wide customer education and outreach activities.

3.6 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 conduct certain delivery and administrative functions.

Key steps in program implementation include:

1. Customers may be directed to the program through Con Edison's or NYSERDA's marketing activities, the Company website, equipment dealers or by contacting a participating HVAC installation contractor for a service call.

2. Completing the program application. Customers will generally work with the HVAC contractor to fill out program applications and ensure that the required documentation is submitted to Con Edison or its implementation contractor, as appropriate, for processing.

3. Ensuring that the equipment meets program qualifications. The program implementation contractor 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. For low-cost equipment rebates, such as faucet aerators and water heater tank blankets, only a simple application and receipt will be required.

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

5. Processing rebate checks for qualified equipment and efficiency kits.

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

3.7 Market Barriers and Mitigation Strategies

Table 20 presents the key market barriers to an effective residential heating and air conditioning 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 20. Market Barriers and Con Edison Mitigation Strategies

Market Barriers	Mitigation Strategies
Higher first cost of energy-efficient equipment	Offer rebates to offset higher incremental cost; Educate customers on the long-term energy cost-saving benefits of higher efficiency equipment
Time required to fill out rebate forms	Provide simple rebate forms through a variety of media (mail-in, online); Allow trade allies to fill in rebate forms for customers at the time of equipment purchase
Customers don't bother to look for qualifying measures	Trade ally training to help customers quickly identify appropriate measures and products; In-store brochures and collateral; Market program and general efficiency awareness to 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; Generate leads and customer referrals for high-performing contractors; Offer contractor rewards program for highest-performing contractors
Lack of availability of qualifying equipment	Promote programs to customers so they ask for qualifying equipment and dealers stock it; Trade ally training; Work with NYSERDA to provide upstream market support
Customers don't understand the long-term value of high-efficiency equipment	Train trade allies to explain life-cycle costs to customers; Market program and general efficiency awareness to customers; Provide efficiency education to customers
Customers are not educated about efficiency or how to install measures	Answer customer questions through call center and vendor support; Provide free Energy Efficiency Kits with installation instructions and efficiency tips wheel
Dealers are unaware of program	Provide outreach and marketing to dealers

3.8 Value Proposition

The process to participate in the Con Edison program will be simple and straightforward. Equipment rebates are available to any qualifying customer that uses a participating contractor that installs any qualifying equipment[31]. 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 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.
- The program supports local economic development by generating new business opportunities for local HVAC contractors and dealers.
- The program will reduce local air pollution impacts.
- The program will help reduce night-time peaking demand in residential networks, reducing the need for transmission and distribution facilities and improving reliability in those networks, while also contributing to a reduction in coincident system peak demand.
- The program will contribute to New York State's 15X15, PlaNYC 2030 goals, Westchester initiatives and to the Company's plan to defer over $1 billion in electric T&D investment.

3.9 Screening Metrics

3.9.1 Savings, Costs and Cost Effectiveness

Assessment of cost effectiveness begins with a valuation of the program's gross "total resource" benefits, as measured by the electric and natural gas avoided costs[32] 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:

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

[31] Customers are not required to use participating contractors for solar attic fans and programmable thermostats.

[32] 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 costs were shaped to represent Con Edison's territory on an 8760 basis.

where,

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

and,

Total Resource Cost = NPV (Incremental Measure Costs + Utility Costs not including participant incentives).

3.9.2 Program Benefit Components

Benefits used in the Total Resource Cost test calculation are comprised of the value of avoided time and seasonally differentiated electric capacity, energy, transmission and distribution cost and avoided line losses and avoided natural gas costs. For each electric energy efficiency measure included in a program, hourly (8760) system avoided costs were adjusted by the measure's hourly load shape to capture the full value of time and seasonally differentiated impacts of the measure. Non-energy benefits such as water savings were not factored into the calculation of benefits because these benefits are typically hard to quantify and because the benefits tend to be too small to alter the outcomes of the analysis.

3.9.3 Program Cost Components

The cost component of the analysis considered incremental measure costs and direct utility costs. The incremental measure costs are the incremental material and labor expenses associated with installation of the energy efficiency measures (net of customer rebate) and on-going operation and maintenance costs, where applicable. Direct utility costs are customer rebate and the expenses associated with development, deployment and operation of the program and fall into the five following categories:

Program Development and Administration

- Costs to administer the program include, but are not limited to fully-loaded personnel costs, including overhead expenses. (*i.e.*, 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

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

- Trade Ally includes all activity associated with energy efficiency training and education of the trade ally community, which includes, but is not limited to heating contractors, weatherization contractors, efficiency equipment and products installers. This also includes vendor recruitment, training, and

coordination costs (*i.e.*, quality installation training).

Customer Incentives or Services

- Cost of surveys.
- Rebates paid to customers for implementing energy efficiency.

Program Implementation

- Costs associated with performing 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, equipment installation inspections, rebate processing and individual program reporting.

Evaluation and Market Research

All activities associated with the evaluation of current and potential energy efficiency programs. These activities include, but are not be limited to benefit-cost ratio analysis, program logic models, cost per therm analysis, efficiency product saturation analysis, customer research and all ad hoc analyses that are necessary for program evaluation. In addition, activities that pertain to regulatory compliance or reporting conducted by energy efficiency group personnel or contractors would fall under this category. Expenses associated with evaluation include all internal and external costs (*i.e.*, consultant contracts). The measurement and evaluation costs are estimated at approximately five (5) percent of total program budgets. The portion of the five percent that will be allocated between evaluation and market research is still to be determined.

While the costs and benefits associated with gas and electric measures are estimated and presented separately, administration will be handled at the program level, rather than by fuel-type, to create an economy of scale that will streamline program delivery.

Table 21. Total Program Costs

Cost Components	Plan Year 2009	2010	2011	Total
Total Resource Cost	$13,526,712	$13,686,819	$13,849,016	$41,062,547
Federal and State Tax Rebates	$240,083	$240,083	$240,083	$720,250
Participant Cost Net of Incentives	$5,345,092	$5,404,753	$5,465,666	$16,215,512
Direct Utility Costs	$7,941,536	$8,041,983	$8,143,266	$24,126,786
Customer Incentives or Services	$5,184,936	$5,234,283	$5,284,666	$15,703,886
Program Planning and Administration	$933,700	$953,300	$973,400	$2,860,400
Program Implemention Costs	$360,000	$367,600	$375,300	$1,102,900
Program Marketing and Trade Ally	$1,066,800	$1,085,600	$1,103,700	$3,256,100
Evaluation and Market Research	$396,100	$401,200	$406,200	$1,203,500

3.9.4 Savings, Costs and Cost-Effectiveness Analysis

Economic performance of each program was evaluated from the total-resource perspective with and without externalities. Carbon dioxide was included in the total-resource test (TRC + C) valued at $15 per ton[33] and assuming 0.9 lbs of carbon dioxide emissions per kWh[34] and 11.7 lbs of carbon dioxide per therm[35]. Benefit-cost ratios were calculated using the methods described in the California standard protocols for analyzing cost-effectiveness of conservation programs.[36]

Table 22. Key Assumptions Used in Cost Effectiveness Calculations [37]

	Electric	Gas
Avoided Energy Costs (2009)	Summer: $84.06 per MWh	Summer: $0.86 per therm
	Winter: $88.32 per MWh	Winter: $1.13 per therm
Avoided Capacity Costs (2009)	Generation: $105.40 Transmission and Distribution: $103.20	
Externality	0.9 lbs of CO_2 per avoided kWh valued at $15 per ton	11.7 lbs of CO2 per avoided therm valued at $15 per ton
Line Loss	7.2%	0%
Discount Rate	7.7%	
Inflation	2.1%	

[33] June 23, 2008 Order, Appendix 3, p. 2.
[34] Company generated estimate based on marginal generational impact.
[35] http://www.aga.org/Legislative/legislative+advocacy/issues/ClimateChangeEnvironmentalAnalysis.htm
[36] See California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects, California Energy Commission, October 2001.
[37] 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.

Table 23. Benefit Cost Analysis

Benefit/Cost Component	Plan Year 2009	2010	2011	Total
Measure Installations	24,831	24,831	24,831	74,494
Savings (MWh)	4,190	4,190	4,190	12,569
Coincident Peak Savings (MW)	8	8	8	23
Savings (dekatherms)	111,908	111,908	111,908	335,723
Total Resource Cost	$13,526,712	$13,686,819	$13,849,016	$41,062,547
Federal and State Tax Rebates	$240,083	$240,083	$240,083	$720,250
Participant Cost Net of Incentives	$5,345,092	$5,404,753	$5,465,666	$16,215,512
Direct Utility Costs	$7,941,536	$8,041,983	$8,143,266	$24,126,786
Customer Incentives or Services	$5,184,936	$5,234,283	$5,284,666	$15,703,886
Program Planning and Administration	$933,700	$953,300	$973,400	$2,860,400
Program Implemention Costs	$360,000	$367,600	$375,300	$1,102,900
Program Marketing and Trade Ally	$1,066,800	$1,085,600	$1,103,700	$3,256,100
Evaluation and Market Research	$396,100	$401,200	$406,200	$1,203,500

TRC Test	Without Carbon Dioxide	With Carbon Dioxide
NPV Benefits	$95,550,260	$98,851,013
NPV Costs	$38,174,509	$38,174,531
Benefit-Cost Ratio	**2.50**	**2.59**

The projected cumulative annual savings of the program are estimated at nearly 12,600 MWh. There will be a total of 23 avoided peak-coincident MW in 2011. This program is cost effective as indicated by TRC benefit-to-cost ratios of 2.50 to 1 for base-case scenario and 2.59 under the TRC+C scenario.

3.10 Quality Assurance

Quality assurance for this program will include screening and pre-qualification of installation contractors and a post installation inspection of an appropriately-sized random sample of all sites.

3.11 MV&E Plan

3.11.1 Program Description

The Residential HVAC Program is an incentive program for energy efficient heating, cooling and hot water heating equipment and control measures such as programmable thermostats. The program offers incentives for the installed cost of a comprehensive set of electric and gas HVAC measures. The program is available to residential buildings with up to four units.

3.11.2 Program Theory

The principal objective in this program is to overcome market barriers that impede the adoption and quality installation of energy efficient HVAC equipment in the residential sector. To this end, the program combines information and education with financial incentives to encourage residential customers to opt for higher efficiency measures when making purchase decisions for their heating and cooling equipment. The program's

electric and gas services are offered under a unified program structure to take advantage of cost savings resulting from economies of scale.

3.11.3 Projected Savings

This program is expected to produce cumulative savings of nearly 12,600 MWh of electricity and approximately 335,700 dekatherms of gas over the three-year planning horizon.

3.11.4 Program Schedule

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

3.12 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.

3.13 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, local business, 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 some stratification by fuel, building type, 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.

3.14 Impact Evaluation Methodology

A pre/post longitudinal analysis of actual consumption, using a quasi-experimental research design will be the main method for determining the energy savings in this program. This analysis will be augmented by engineering-based 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. Final determination of the impact evaluation methodology will occur after selection of an MV&E contractor.

3.14.1 Engineering Analysis

This program offers a diverse set of measures. Several of the measures such as high-efficiency heat pumps and mini split heat pump equipment are new technologies. It is, therefore, important to use measure-specific analytic methods on a small sample of participating sites. Such analysis would help develop a better understanding of individual equipment and would help validate program design assumptions and inform the statistical analysis.

For each major equipment type, 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 sites for each major equipment type. The simulation modeling will use DOE's Energy-10, or an ASHRAE Standard 140 compliant tool. The models will be informed with directly observed characteristics for the metropolitan New York climate zone, home vintage and type and selective metering of certain equipment.

Monitoring of certain high-impact equipment may be necessary to calibrate the energy simulation models. In such cases, the units 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. These metered data also will be utilized to provide post-retrofit load shapes. End-use data will be applied to energy simulation, consistent with the IPMVP Option D for use in the demand and energy impact calculations.

To calibrate the models, the evaluation will use an iterative process to compare collected data with modeled output for whole building and cooling end-use load shapes and calculated calibration statistics. Monthly billing data and weather data with matching periods will be utilized to calibrate whole building model usage to within the ranges of ±15% Root Mean Square (RMS) error and ±5% Mean Bias error. Cooling end-use data would then be applied at the hourly level to a requirement of ±30% RMS error and ±10% Mean Bias Error. The final calibrated model will then be run using long term average weather data to obtain the final 8760 end-use consumption and savings load shapes.

Solar attic fans are unique in terms of technology and impacts. Based on available engineering estimates, solar attic fans are projected to save less than 200 kWh per year in cooling electricity use. This represents a *de minimus* amount of savings for a typical 1-4 family home. Since this measure cannot be properly modeled, the primary impact evaluation approach for this measure will be simple engineering models, taking into account direction of fan exposure and attic insulation rating. As part of this analysis, a

sample of 60 sites will be surveyed to collect data on technical parameters including exposure and existing attic insulation levels.

3.14.2 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 be the principal method for determining electricity and gas savings in this program. Since the analysis combines data on participants and non-participants, it will also yield estimates on "net" savings.

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 individual measures (or group of measures) installed under the program. The SAE model involves estimating a regression model with the following specification:

$$ADC_{it} = \alpha + \beta EE_{jt} + \lambda_1 HDD_{it} + \lambda_2 CDD_{it} + \varepsilon_{it}$$

where, for each customer i and calendar month t,

- α is the base consumption
- ADC_{it} is the average daily consumption during the pre- and post-program periods
- EE_t is initial engineering estimates of savings for each measure j; the associated beta represents the savings realization rate
- 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 potential 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.[38] By allowing each participant and/or non-participant to have its own intercept, you 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.

3.14.3 Data Requirements

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

1. Twelve consecutive months of consumption histories for electricity and gas;

2. Daily weather data from the local weather stations for calculating heating and cooling degree days (HDD and CDD);

[38] Regression models estimate an intercept (in the case of energy modeling, this often represents the base component, i.e., 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).

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.

3.14.4 Calculation of Net Program Impacts

Net energy and demand (coincident and non-coincident) savings from the program may be obtained directly from the estimated parameters of the SAE model at the measure 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.