Detailed Program Budget

	Year 1	Year 2	Year 3
Project Delivery	$0	$0	$0
Admin	$4,050	$3,600	$3,600
Marketing	$2,700	$2,400	$2,400
Incentives	$33,750	$30,000	$30,000
Evaluation	$2,025	$1,800	$1,800
Total Budget	**$42,525**	**$37,800**	**$37,800**

Program Cost-Effectiveness

Total Resource Cost Test	Societal Test	Participant Test	Ratepayer Impact Measure Test	Utility Cost Test
0.66	0.69	0.25	0.53	2.05

5. Commercial and Industrial Programs

Empire's commercial and industrial DSM programs serve non-residential customers, encouraging investment in building operator certification and energy efficient measures such as lighting, cooling equipment and motors.

5.1 C&I Energy Efficiency Rebate Program

The C&I Energy Efficiency Rebate Program provides incentives to lower the cost of identifying and purchasing energy efficient equipment for commercial or industrial facilities. The program consists of three parts, an energy audit, prescriptive rebates and custom rebates. Empire markets this program through partnerships with contractors and distributors of energy efficient systems and equipment. Other marketing includes newspaper advertisements, targeted mailings to customers and contractors, bill inserts and advertising in HVAC trade publications.

Program goals include:

- Education about the benefits of installing high efficiency equipment.
- Effectively install efficient equipment and systems through the Empire Program.
- Help commercial and industrial customers reduce their electricity bills

5.1.1 Energy Audit

Energy audits provide customers with a comprehensive analysis of their building energy use and recommendations on ways to reduce energy costs and improve energy efficiency. An incentive covers 50% of the audit cost, up to $300 for facilities less than 25,000 square feet and up to $500 for facilities over 25,000 square feet. Customers with multiple buildings are eligible for multiple audit rebates. To receive the incentive, the audit must be performed by an Empire certified energy auditor, a copy of the audit report must be submitted with the rebate application, and the participant must implement at least one of the recommendations that qualify for an Empire equipment rebate.

5.1.2 Prescriptive Rebate

Pre-qualified prescriptive rebates are available for new construction and retrofits. The rebated

measures are proven technologies that are readily available with known performance characteristics. An audit is not required to participate. A $20,000 incentive cap is imposed per facility per program year. However, if funds are still available in the last three months of the program year, the cap may be exceeded. Multiple rebate applications for different measures may be submitted. Eligible equipment categories include lighting, motors, variable frequency drives and HVAC equipment.

Eligible Measures and Incentive Levels[19]

LIGHTING			
Measure		**Incentive**	
High Performance T8 Fixtures replace T12 or standard T8 lighting. Must meet specifications set by the Consortium for Energy Efficiency (retrofit only).		$20 for 2- lamp fixtures $30 for 3- lamp fixtures	
Standard T8 Lamps and Ballasts replace T12 systems (lamp and ballast).		$2 per lamp $10 per ballast	
Lighting Power Density - must be at least 25% below ASHRAE Std. 90.1.		$1 per watt per sq.ft. reduction	
High Intensity Fluorescent - T5 or T5HO lamps with electronic ballasts.		$50 per fixture	
Pulse Start Metal Halide (retrofit only)		$50 per fixture	
Lighting Controls - switch replacement sensors limited to rooms less than 250 sq.ft.		$20 switch replacement sensor $50 ceiling/remote mounted sensor	
LED Exit Sign		$10 per sign	
HVAC			
Type and Size		**Efficiency**	**Incentive**
Split System Air Conditioner <65,000 Btu/h		14.0 SEER, 12.0 EER	$92 per ton
Unitary System Air Conditioner <65,000 Btu/h		14.0 SEER, 11.6 EER	$92 per ton
Unitary or Split System Air Conditioner ≥65,000 to <135,000 Btu/h		11.5 EER	$73 per ton
Unitary or Split System Air Conditioner ≥135,000 to <240,000 Btu/h		11.5 EER	$79 per ton
Unitary or Split System Air Conditioner ≥240,000 to <760,000 Btu/h		10.3 EER	$79 per ton
Air Cooled Chiller		1.03 IPLV	$40 per ton
MOTORS			
Horsepower	**Open Drip Proof**	**Totally Enclosed Fan Cooled**	**Incentive**
1	85.50%	85.50%	$50
1.5	86.50%	86.50%	$50
2	86.50%	86.50%	$60
3	89.50%	89.50%	$60
5	89.50%	89.50%	$60
7.5	91.00%	91.70%	$90
10	91.70%	91.70%	$100
15	93.00%	92.40%	$115
20	93.00%	93.00%	$125
25	93.60%	93.60%	$130
Variable Frequency Drives (VFD)			
Horsepower		**Incentive**	
1.5 to 10 HP		$130 per HP	
10 to 20 HP		$115 per HP	
≥ 20 HP		$95 per HP	

5.1.3 Custom Rebate

Non-residential customers that install energy efficient equipment in a new or existing facility that does not qualify for a prescriptive rebate may receive a custom incentive. An audit is not required to participate, but applications must be pre-approved by Empire before equipment is purchased and

[19] Empire Missouri 2010 incentive levels were utilized for all measures except LED Exit Signs, Air Cooled Chillers and Variable Frequency Drives.

installed. Custom projects are reviewed to ensure they produce a Societal Benefit-Cost Test of 1.05 or higher and have an incremental payback greater than two years.

A $20,000 incentive cap is imposed per facility per program year. However, if funds are still available in the last three months of the program year, the cap may be exceeded. Multiple rebate applications for different measures may be submitted.

Incentives are the lesser of the following:

- A buy-down to a two year payback;
- 50% of the incremental cost; or
- 50% of lifecycle avoided demand and energy costs.

2010 Program Summary

In 2010, Empire had 30 custom participants and 15 prescriptive participants. Eligible prescriptive rebate equipment categories included lighting, motor and HVAC equipment.

C&I Energy Efficiency Program Summary

2010 Program	Custom	Prescriptive
Participants	30	15
Expenditures	$228,310	$33,908
Energy Savings (kWh)	4,529,981	280,653
Demand Savings (kW)	995	166
TRC Benefit-Cost Ratio	8.52	5.61

2012 Proposed Program

The net energy and demand savings were estimated based on a mix of eligible equipment, adjusted by product-specific net-to-gross factors and an average 85 percent coincidence factor.[20] The program lifetime was estimated at 15 years and the direct participant costs were estimated at $7,800 for prescriptive projects and $15,000 for customer projects.[21]

Incentives are capped at $20,000; for the purposes of this analysis, the average incentive was estimated at $2,800 for prescriptive projects and $7,500 for custom projects. Delivery is 12 percent of total incentives while administration and marketing are 5 percent and 3 percent of incentives, respectively, and evaluation is 5 percent of the total budget.

[20] Frontier Associates, LLC (2010). Arkansas Comprehensive Programs Deemed Savings. Prepared by Nexant; Consortium for Energy Efficiency. High-Efficiency Commercial and Conditioning and Heat Pump Initiative. http://www.cee1.org/com/hecac/hecac-main.php3; Public Utilities Commission of Ohio (2010). State of Ohio Energy Efficiency Technical Reference Manual. Prepared by Vermont Energy Investment Corporation; Michigan Public Service Commission (2012). Michigan Energy Measures Database. Prepared by Morgan Marketing Partners; Xcel Energy. 2009/2010 Biennial DSM (Revised February 20, 2009) - Technical Assumptions.

[21] Frontier Associates, LLC (2010). Arkansas Comprehensive Programs Deemed Savings. Prepared by Nexant; Michigan Public Service Commission (2012). Michigan Energy Measures Database. Prepared by Morgan Marketing Partners; Public Utilities Commission of Ohio (2010). State of Ohio Energy Efficiency Technical Reference Manual. Prepared by Vermont Energy Investment Corporation.

Expected Net Energy Savings

Eligible Measure	Savings per Unit	Year 1	Year 2	Year 3
Custom	25,028	1,251,411	2,502,822	3,754,233
Prescriptive	11,903	1,190,310	1,785,465	2,380,620

Expected Net Demand Savings

Eligible Measure	Savings per Unit	Year 1	Year 2	Year 3
Custom	7.40	370	740	1,110
Prescriptive	3.03	303	455	607

Expected Participation

Eligible Measure	Year 1	Year 2	Year 3
Custom	50	100	150
Prescriptive	100	150	200

Detailed Program Budget

	Custom			Prescriptive		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Project Delivery	$45,000	$90,000	$135,000	$33,492	$50,238	$66,984
Admin	$18,750	$37,500	$56,250	$13,955	$20,933	$27,910
Marketing	$11,250	$22,500	$33,750	$8,373	$12,560	$16,746
Incentives	$375,000	$750,000	$1,125,000	$279,100	$418,650	$558,200
Evaluation	$22,500	$45,000	$67,500	$16,746	$25,119	$33,492
Total Budget	**$472,500**	**$945,000**	**$1,417,500**	**$351,666**	**$527,499**	**$703,332**

Program Cost-Effectiveness

	Total Resource Cost Test	Societal Test	Participant Test	Ratepayer Impact Measure Test	Utility Cost Test
Custom	1.84	1.91	0.77	0.80	3.31
Prescriptive	1.63	1.70	0.56	0.79	3.97

5.2 Building Operator Certification

The Building Operator Certification (BOC) Program is a training and certification program that educates facility managers and operators in the energy efficiency of their equipment and processes. The training includes approximately 80 hours of classroom and project work in building systems operation and maintenance. Each course in the series is completed in a one-day training session, except *BOC 103 – HVAC Systems and Controls*, a two-day course.

Empire offers incentives for Level 1 training, topics HVAC Systems and Controls, Efficient Lighting Fundamentals, Facility Electrical Systems, and Indoor Air Quality. To become certified, participants must pass an exam at the end of each day of training and complete assigned projects. Rebates of $575, half of the training tuition, are provided to Empire participants that complete the certification process.

The program is administered by the Missouri Energy Center in partnership with the Midwest Energy Efficiency Alliance (MEEA). The program is targeted towards customers with facilities that employ full-time building operators.

Empire works with Missouri Energy Center and MEEA to promote and market the certification program. Marketing activities include targeted mailing to building operators and presentations to the Chamber of Commerce. Empire will give presentations at Chamber of Commerce meetings and trade conferences.

Program goals include:

- Education of non-residential building operators about the benefits of efficiency.
- Help commercial and industrial customers reduce their electricity bills.

2010 Program Summary

There were no BOC Program participants from January through December 2010. Expenditures totaled $1,029 during this time.

2012 Proposed Program

The energy and demand savings were adjusted by a 53 percent coincidence factor.[22] The direct participant costs were estimated at $1,150, the current cost of training, and the estimated useful life was 15 years.[23]

Participants receive an incentive of $575 upon completion of the training program. Delivery is 12 percent of total incentives while administration and marketing are 2 percent and 12 percent of incentives, respectively, and evaluation is 5 percent of the total budget.

Expected Net Energy Savings

Savings per Unit	Year 1	Year 2	Year 3
8,139	325,560	569,730	813,900

Expected Net Demand Savings

Savings per Unit	Year 1	Year 2	Year 3
1.643	66	115	164

Expected Participation

Year 1	Year 2	Year 3
40	70	100

Detailed Program Budget

	Year 1	Year 2	Year 3
Project Delivery	$2,760	$4,830	$6,900
Admin	$460	$805	$1,150
Marketing	$4,600	$8,050	$11,500
Incentives	$23,000	$40,250	$57,500
Evaluation	$1,541	$2,697	$3,853
Total Budget	**$32,361**	**$56,632**	**$80,903**

[22] Kansas City Power & Light (2009). Evaluation of Kansas City Power and Light's Building Operator Certificate Program. Prepared by Opinion Dynamics Corporation; Xcel Energy. 2009/2010 Biennial DSM (Revised February 20, 2009) - Technical Assumptions.

[23] Empire District Electric. Building Operator Certification. www.empiredistrict.com/Dochandler.ashx?id=4019; Frontier Associates, LLC (2010). Arkansas Comprehensive Programs Deemed Savings. Prepared by Nexant; Public Utilities Commission of Ohio (2010). State of Ohio Energy Efficiency Technical Reference Manual. Prepared by Vermont Energy Investment Corporation.

Program Cost-Effectiveness

Total Resource Cost Test	Societal Test	Participant Test	Ratepayer Impact Measure Test	Utility Cost Test
6.84	7.12	2.40	0.90	11.71

5.3 Interruptible Service Rider

The Interruptible Service Rider Program is intended as a load shedding strategy to be used where system peak demand exceeds available capacity or extreme energy prices are expected. The purpose of load shedding is to avoid the occurrence of involuntary load curtailments and/or excessive purchased energy prices

The program is designed to reduce customer load during peak periods, upon request by Empire. The rider is available to commercial and industrial customers with a minimum monthly billing demand of 200 kW and an anticipated minimum load curtailment capability of 200 kW. The program year runs from June 1 through May 31.

Customers voluntarily enter into a contract for a term of one to five years for no greater than 50 MW annually. The contract is automatically renewed for the term of equal length unless termination notice is given by the customer or Empire. The customer rate for service interruption varies according to the length of the contract. Curtailments are limited to ten per year, with a maximum interruption of eight hours per curtailment event.

Empire markets this program through partnerships with contractors and distributors of energy efficient systems and equipment. Other marketing includes newspaper advertisements, targeted mailings to customers and contractors, bill inserts and advertising in HVAC trade publications. Empire will give presentations at Chamber of Commerce meetings and trade conferences.

Program goals include:

- Education of non-residential customers about the benefits of reducing load during peak periods.
- Effectively install efficient equipment and systems through the Empire Program.
- Help commercial and industrial customers reduce their electricity bills

2010 Program Summary

Beginning June 1, 2010, there were three contracts with total interruptible demand of 3,100 kW for a monthly credit of $5,758.

Interruptible Service Rider Summary

	2010 Program
Participants	3
Expenditures	$67,896
Energy Savings (kWh)	0
Demand Savings (kW)	3100
TRC Benefit-Cost Ratio	n/a

2012 Proposed Program

Delivery is 20 percent of total incentives while administration and marketing are 5 percent of incentives and evaluation is 5 percent of the total budget.

Expected Net Demand Savings

Savings per Unit	Year 1	Year 2	Year 3
500	5,000	15,000	22,500

Expected Participation

Year 1	Year 2	Year 3
10	30	45

Detailed Program Budget

	Year 1	Year 2	Year 3
Project Delivery	$6,000	$18,000	$27,000
Admin	$1,500	$4,500	$6,750
Marketing	$1,500	$4,500	$6,750
Incentives	$30,000	$90,000	$135,000
Evaluation	$1,950	$5,850	$8,775
Total Budget	**$40,950**	**$122,850**	**$184,275**

Program Cost-Effectiveness

Total Resource Cost Test	Societal Test	Participant Test	Ratepayer Impact Measure Test	Utility Cost Test
36.20	36.20	n/a	9.68	9.68

6. Portfolio Management and Implementation Strategies

Empire program staff will work with AEG, trade allies and distributors, and a third-party program implementation contractor to market and deliver Empire's energy efficiency programs. An evaluation contractor will be retained to provide an independent evaluation of each program.

6.1 Marketing and Customer Recruitment

Empire staff will be responsible for marketing the efficiency programs and developing marketing materials for customers, including bill inserts, newspaper advertisements, and direct mail, with input from the program implementation contractor. Empire will also be responsible for maintaining an up-to-date utility website with information on efficiency programs and how to participate.

The third-party implementation contractor will recruit contractors to participate in the residential HVAC and C&I efficiency programs. The implementation contractor will be responsible for developing and maintaining relationships with Empire trade allies, providing information on the benefits of energy efficiency to contractors and training on quality installations and energy audits.

The implementation contractor will send Empire program management staff weekly and monthly updates on marketing activities, customer and contractor recruitment, and training seminars.

6.2 Rebate Processing

Empire will maintain a call center with staff that will answer customer questions and process applications to programs. This call center (including the 800 number) may be managed by a third party contractor. AEG will provide support to Empire by processing rebates. Empire will mail rebate checks to program participants, where applicable.

6.3 Energy Audits

Onsite energy audits will be conducted by trained auditors. These auditors will be managed by an implementation contractor. Information on the number and type of energy audits conducted, recommendations, and measures installed as a result of the audit will be given to Empire program management staff on a monthly basis.

6.4 Customer/Contractor Feedback

Empire will gather customer feedback on its programs through its call center, implementation contractors and program evaluations. Customer complaints will be handled immediately by Empire program management staff or by the implementation contractor. General customer and contractor feedback will be gathered during the evaluation through participant surveys or focus groups and reported to Empire with recommendations on program improvements.

6.5 Planning, Reporting and Program Tracking

Empire will work with the PSC to ensure that programs are tracked and reported in a way that meets the state's utility program reporting requirements. AEG will work with Empire to develop a tracking system that is efficient and effective at recording customer feedback, rebates, energy savings, and other program process indicators. This tracking system will be maintained by Empire, and will be utilized by staff and third-party contractors as a central database for program inputs.

7. Evaluation, Measurement and Verification Activities

Empire has designated approximately 5% of its total program budgets for Evaluation, Measurement and Verification (EM&V) activities, which is the industry standard. To cost-effectively evaluate Empire's energy efficiency programs, the evaluation contractor will evaluate each program every two years, starting with the beginning of the second program year.

This plan provides a high level, multiple year evaluation approach for Empire's energy efficiency program portfolio. This plan is the first stage of a two-stage evaluation planning process. The second stage is annual detailed evaluation plans, which will be prepared by the evaluation contractor for the programs that will be evaluated.

7.1 Process Evaluation Approach

Process evaluations will be conducted at the end of the first year of each program. The purpose of a process evaluation is to assess the effectiveness of program processes, evaluate the achievements of objectives and make recommendations for improvements. A good process evaluation will:

- Assist program implementers and managers with managing programs to achieve cost effective savings while maintaining high levels of customer satisfaction.
- Determine awareness levels to refine marketing strategies and reduce barriers to participation.
- Provide recommendations for changing the program's structure, management, administration, design, delivery, operations or targets.
- Determine if best practices should be incorporated.
- Gather information from a variety of sources to address the issues stated above.

The first year process evaluations will provide recommendations to Empire, program implementers, and other program stakeholders on program design, delivery, and administration. The evaluation contractor will meet with Empire's program managers, review existing programs, and interview Empire staff and implementation contractors to identify and prioritize important management, policy, and process issues.

The evaluation contractor will develop individual program plans that identify project objectives, data resources and collection, key researchable issues, budget and timeline. Once the evaluation plans have been reviewed by Empire, the evaluation contractor will design the sample plan and data collection instruments, and collect and analyze the data. The evaluation contractor will synthesize the findings and present recommendations to Empire in draft and final evaluation reports.

7.2 Impact Evaluation Approach

Impact evaluations estimate gross and net demand, energy savings and the cost effectiveness of installed systems. They are used to verify measure installations, identify key energy assumptions and provide the research necessary to calculate defensible and accurate savings attributable to the program. Impact evaluations are typically conducted one year after the program is implemented because program results may not be accessible or apparent before then.

The evaluation contractor will adhere to the state evaluation protocols to obtain unbiased reliable estimates of program-level net energy and demand savings over the life of the expected net impact. Measurement and Verification (M&V) may be conducted at a higher level of rigor or with greater precision than the protocols (depending on resources), where more inputs measured or metered, but M&V may not use a lower level of rigor than is specified in the evaluation protocol.

7.3 Cross-Cutting Evaluation Activities

This section discusses the evaluation tasks that the evaluation contractor will perform each year at the overall portfolio level.

7.3.1 Project Initiation Meetings

The evaluation contractor will meet with Empire staff (and their contractors, if desired) annually in person or via teleconference to discuss evaluation objectives, a common set of expectations about what the evaluation will provide, and an agreement on the methods to be used to evaluate each program. The meeting will also provide an opportunity to review the data requirements for meeting the study

objectives, establish the schedule of deliverables, set up a communications protocol and develop a good working relationship.

7.3.2 Evaluation Plans

Program evaluation supports the need for public accountability, oversight, validation of program performance and cost-effective program improvements. An evaluation plan provides a roadmap for program evaluation activities, identifying evaluation objectives, the evaluation approach, data collection, sampling plans, and work schedule.

In addition to the program plan, the evaluation contractor will develop detailed evaluation plans for each program. The plans will support a comprehensive approach, designed to be revised and extended into future years. The evaluation plan will include study strategies and techniques, study objectives, key researchable issues, data collection and analysis approaches, sampling strategies, timelines, and deliverables by the programs to be evaluated that year.

7.3.3 Program Design and Delivery Review

A program design and delivery review will be completed as part of the Year 1 process evaluation. This will include staff interviews and a review of the tracking system.

Staff Interviews

The evaluation contractor will conduct in-depth interviews with Empire design and delivery staff. The interviews with program managers and staff will discuss the roles and responsibilities of staff and trade allies; program goals, successes, and challenges in meeting these goals; the effectiveness of the programs' operations relative to the defined program goals and objectives; reasons for variance in program performance by customer class or territory; and areas in need of improvement in program design and implementation. The evaluation contractor will complete an interim memo summarizing the results of the program design and delivery review.

Tracking System Review

Quality program tracking systems are integral for effective program planning, implementation and evaluation. The evaluation contractor will evaluate Empire's tracking system including initial data validation (application processing, measure and savings capture and validation, audit trail, and system location), security, and data granularity (types of data being captured, QA/QC processes, data thresholds and back-up data capture, refresh rate and automated validations).

7.3.4 Evaluation Management and Reporting

The evaluation contractor will complete three main activities for evaluation management and reporting through the two-year period. These are discussed below and include progress reporting, interim reporting and annual reporting.

Progress reporting

The evaluation contractor will meet with Empire in person or via teleconference to summarize tasks completed for the month, problems encountered and solutions implemented, schedule and budget issues and updates, and tasks planned in the next month. The evaluation contractor will have ad-hoc

meetings with Empire staff as needed to resolve issues as they arise and maintain ongoing communication.

Interim reporting

It is imperative that the evaluation provide and discuss preliminary findings at the end of each data collection and analysis activity. This type of regular reporting ensures that the findings from each activity can be used to modify the programs as needed to improve their performance. The evaluation contractor will provide Empire with interim evaluation memorandum reports that will summarize preliminary evaluation findings and potential recommendations stemming from those findings.

Annual reporting

The evaluation contractor will compile and synthesize the results of all evaluation activities each year into an annual comprehensive evaluation report that will identify key findings and recommendations at the cross-cutting and sector level (residential and commercial) as well as program level. The annual evaluation reports will be finalized by the end of each calendar year.

7.4 Program Level Work Scope

As discussed above, one comprehensive evaluation combining process and impact studies will be conducted once for each program, beginning at the end of the first program year. The bulk of the evaluation scope of work will be data collection and analysis tasks to provide input to the process and impact evaluation activities.

Impact evaluation activities will include a combination of engineering reviews, customer surveys, and select on-site visits and metering as appropriate and cost-effective at the program level to provide reliable estimates of energy savings resulting from program activities. Concentrated process evaluation efforts will include program staff interviews, customer surveys, trade ally interviews, and documentation and database review. In general, survey sample sizes will be determined in order to present results at a 90 percent confidence level +/- 10 percent.

7.4.1 Process Evaluation

Data Collection and Sampling Plan

The data collection plan will define the specific data collection requirements, along with the source of the information and the use to which that the data will be put, the timing of the data collection, in relation to the rest of the plan, to assure that it meets the overall needs of the study, and the scheduling method and plan or coordinating contacts.

The sampling plan will describe the sample design, interview methodology and stratification of each program. Interviews of the major personnel categories will include Empire staff, program managers, third party implementers, participating and non-participating customers, and participating and non-participating trade allies, in addition to others.

The sample size of each group will be calculated at a 90% confidence interval with an error margin of +/- 10%. The number of completed interviews will provide a sufficient sample to meet the confidence

interval requirements. The interview methodology will range depending on the market actor being interviewed, from on-site interviews, in-depth interviews or computer assisted telephone interviews.

Program Design and Delivery Staff Interviews

Interviews with program staff will be conducted in-person and will focus on the program history and design, identifying areas for program improvement and the overall effectiveness of the program. The third party implementer interviews will be conducted at the locations where program files are maintained. Particular attention will be paid to the contractor's perception of how the programs operate, what program data are tracked and captured, how the data are managed and maintained, and how program subcontractor(s) are managed, if applicable.

Questions will be based on both portfolio and program level activities and achievements. Answers to these questions will help identify process improvements that can make the program more efficient and consequently more cost-effective and will be summarized in a chapter of the process evaluation report.

Customer Data Collection

Surveys of participating customers will be conducted via telephone. Participating customers will be asked about their experiences with the program, including the effectiveness and satisfaction with the program, the contractor/trade ally, the equipment itself, and marketing outreach. Participants will also answer a series of questions regarding program awareness, attitudes of energy efficiency and energy conservation, overall satisfaction, and barriers to participation, spillover and areas of improvement. The findings from the customer surveys will be summarized in a chapter of the process evaluation and the data tables from these surveys will be provided in separate appendices.

Contractor Data Collection

Contractors will be asked about clarity of program rules, usefulness of support materials, marketing and coordination efforts and application processes. These responses will be instrumental in developing recommendations for improvement that will improve program effectiveness and customer satisfaction and remove barriers to participation. Interviews will also attempt to gather information that could be used to assess market effects or other program-related impacts such as free-ridership and spillover.

Nonparticipating Customer and Contractor Data Collection

Where appropriate, interviews with non-participating customers and contractors will be conducted to better understand the market, free ridership, spillover and how the program can increase participation and effects in the market. These interviews will also provide insights into removing barriers to participation and improved marketing methods and messages.

Document Review

In addition to stakeholder interviews, the evaluation contractor will collect program materials, including process flowcharts, and marketing and outreach materials such as point of purchase (POP) materials, print and radio advertising copy and any cooperative marketing materials developed. The evaluation contractor will also request information on actual activities, such as completed marketing campaigns. Marketing schedules and quantitative data, such as enrollments per month, will be overlaid to determine the impacts of these campaigns.

7.4.2 Impact Evaluation

Program level impact evaluations will be conducted to verify measure installations and identify key energy assumptions for equipment life, incremental equipment cost, program budget information, number of participants, free ridership and spillover. The evaluation will also provide the necessary research to calculate defensible and accurate savings attributable to the program.

The primary data collection methodologies for the impact evaluation will include:

- Strategies to measure and verify energy efficiency installation and determine energy impacts for each program, as appropriate, in kilowatt-hour or kilowatt reductions
    - Sample for field verification activities
    - Field verification activities and observations
    - Adjusted measure savings values based on field activities and data reviews
- Program-specific realization rates
- Energy savings based on four annual time periods (on-peak and off-peak)
- Billing analyses
- Applications and supporting documentation provided to Empire from customers, as appropriate
- Conclusions and recommendations for more accurately estimating energy savings for each program

Secondary data sources will be used for assumptions that do not require primary data collection.

The evaluation contractor will use inputs specific to Empire, including avoided costs and discounts rates to conduct cost-effectiveness analysis and program screening. The program evaluator will evaluate cost-effectiveness using the standard California tests including Total Resource Cost, Societal Cost Test, Participant Test, Utility Test and Rate Impact Measure Test. These tests consider the overall costs and benefits from various perspectives. All results will be provided with estimates of present value benefits, cost, net benefits and benefit-cost ratios. The analysis will include both a retrospective look at the program to date and a prospective analysis of the future of the program.

All work will be designed to meet the appropriate International Performance Measurement and Verification Protocol (IPMVP).

The Empire District Electric Company
DSM Program Inputs
MEEIA Filing February 2012

	Gross Savings			Net Savings			Units			Total kW			
	kW per Unit	kWh per Unit	NTG	kW per Unit	kWh per Unit	CF	Year 1	Year 2	Year 3	kW per Unit	Year 1	Year 2	Year 3
Total Program							**76,202**	**93,464**	**103,562**	**0.09**	**7,125**	**18,253**	**26,962**
Total Residential Program				**0.02**	**111**		**76,002**	**93,114**	**103,067**	**0.02**	**1,386**	**1,943**	**2,580**
Residential High Efficiency Lighting	0.057	62	65%	0.037	41	8%	65,000	72,500	80,000	0.00	193	215	237
ENERGY STAR Appliances				0.023	89	41%	950	1,875	2,950	0.02	22	40	56
ENERGY STAR Clothes Washer	0.367	144	80%	0.293	115	4%	50	100	150	0.01	0.6	1.2	1.8
ENERGY STAR Refrigerator	0.012	106	80%	0.010	85	100%	200	400	600	0.01	1.9	3.9	5.8
ENERGY STAR Dehumidifier	0.131	213	80%	0.105	170	100%	75	150	200	0.11	7.9	15.8	21.0
ENERGY STAR Room Air Conditioner	0.097	115	80%	0.078	92	75%	150	225	300	0.06	8.8	13.2	17.5
ENERGY STAR Freezer	0.006	52	80%	0.005	42	100%	100	150	200	0.00	0.5	0.7	1.0
Smart Power Strip (7-plug)	0.012	103	80%	0.010	82	80%	150	400	750	0.01	1.2	3.1	5.8
Energy Star Fixture	0.094	103	80%	0.075	82	8%	150	300	500	0.01	0.9	1.8	3.0
LED	0.063	69	65%	0.005	88	8%	75	150	250	0.00	0.0	0.1	0.1
Refrigerator Recycling	0.220	1,376	69%	0.152	949	100%	400	800	1,200	0.15	61	121	182
High Efficiency Cooling Rebate				**0.654**	**1,000**	**75%**	**1,282**	**1,849**	**2,577**	0.65	**839**	**1,218**	**1,686**
CAC SEER 15 ≤ 15.9	0.960	1,017	80%	0.768	814	75%	150	200	275	0.58	86	115	158
CAC SEER 16 ≤ 16.9	0.951	969	80%	0.761	775	75%	200	275	400	0.57	114	157	228
CAC SEER ≥17	1.113	1,248	80%	0.890	998	75%	45	80	125	0.67	30	53	83
HP SEER 15 ≤ 15.9	1.416	1,383	80%	1.133	1,106	75%	325	400	500	0.85	276	340	425
HP SEER 16 ≤ 16.9	1.350	1,635	80%	1.080	1,308	75%	100	175	250	0.81	81	142	203
HP SEER ≥17	1.317	1,755	80%	1.054	1,404	75%	50	100	145	0.79	40	79	115
Geothermal EER ≥17	1.317	1,755	80%	1.188	1,514	75%	15	45	85	0.89	13	40	76
Programmable Thermostat				0.50	948	75%	397	574	797	0.50	198	292	398
CAC SEER 15 to 15.9	*0.384*	*452*	*80%*	*0.307*	*362*	*75%*	*60*	*80*	*110*		*14*	*18*	*25*
CAC SEER 16 to 16.9	*0.360*	*424*	*80%*	*0.288*	*339*	*75%*	*100*	*138*	*200*		*22*	*30*	*43*
CAC SEER ≥17	*0.339*	*399*	*80%*	*0.271*	*319*	*75%*	*27*	*48*	*75*		*5*	*10*	*15*
HP SEER 15 to 15.9	*1.180*	*1,873*	*80%*	*0.944*	*1,499*	*75%*	*130*	*160*	*200*		*92*	*113*	*142*
HP SEER 16 to 16.9	*1.354*	*1,844*	*80%*	*1.083*	*1,475*	*75%*	*50*	*88*	*125*		*41*	*71*	*102*
HP SEER ≥17	*1.358*	*1,818*	*80%*	*1.086*	*1,454*	*75%*	*30*	*60*	*87*		*24*	*49*	*71*
Home Energy Comparison Reports				0.027	240	8%	7,500	15,000	15,000	0.00	16	33	33
Energy Star New Homes				0.349	3,061	100%	300	250	200	0.35	105	87	70
Home Performance with Energy Star				0.334	2,925	100%	175	325	500	0.33	58	109	167
Up to $1,200													
Low Income Weatherization				0.234	2,052	100%	350	475	600	0.23	82	111	141
Low Income New Homes				0.234	2,052	100%	45	40	40	0.23	11	9	9
Total Non-Residential Program				**28.70**	**13,836**	**79%**	**200**	**350**	**495**	**28.70**	**5,739**	**16,310**	**24,381**
C&I Custom Rebate				9	25,028	85%	50	100	150	7.40	370	740	1,110
C&I Prescriptive Rebate				3	11,903	85%	100	150	200	3.03	303	455	607
Fixtures (T12 to T8)	0.02	86	96%	0.02	82		500	750	1,000		8	13	17
Exit Sign	0.03	120	96%	0.03	115		300	450	600		7	11	14
HVAC (CAC)	1.01	2,489	94%	0.95	2,339		130	195	260		112	167	223
Motor	0.15	430	87%	0.13	374		80	120	160		8	13	17
VFD	5.80	35,533	87%	5.05	30,914		20	30	40		67	100	133
Air Cooled Chiller	12.00	17,268	94%	11.28	16,232		10	15	20		102	152	203
Building Operator Certificate				3.10	8,139	53%	40	70	100	1.64	66	115	164
Interruptible Service Rider				500		100%	10	30	45	500	5,000	15,000	22,500

	Year 1	Year 2	Year 3	Lifetime
Residential MWh Savings	8,424	12,666	14,969	356,424
# homes	576	866	1,024	24,372
2010 MWh/Residential Customer (EIA Source)	14.624			

The Empire District Electric Company
DSM Program Inputs
MEEIA Filing February 2012

	Total kWh			Incremental Costs ($/Unit)	Project Life (Yrs)	Incentive per Unit			Total Incentive		
	Year 1	Year 2	Year 3			Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Total Program	**11,191,173**	**17,523,747**	**21,917,675**						**$2,236,698**	**$2,467,375**	**$3,375,875**
Total Residential Program	**8,423,892**	**12,665,730**	**14,968,921**	**$10**		$20.13	$10.58	$1.97	**$1,529,598**	**$1,168,475**	**$1,500,175**
Residential High Efficiency Lighting	2,637,034	2,941,307	3,245,580	$0.0	7	$0	$0	$0	$0	$0	$0
ENERGY STAR Appliances	84,657	168,566	262,756	$58	12				$25,375	$47,125	$71,750
ENERGY STAR Clothes Washer	5,751	11,503	17,254	$240	14	$75	$50	$50	$3,750	$5,000	$7,500
ENERGY STAR Refrigerator	16,913	33,826	50,739	$93	18	$50	$50	$50	$10,000	$20,000	$30,000
ENERGY STAR Dehumidifier	12,771	25,542	34,056	$50	9	$25	$25	$25	$1,875	$3,750	$5,000
ENERGY STAR Room Air Conditioner	13,776	20,663	27,551	$50	12	$25	$25	$25	$3,750	$5,625	$7,500
ENERGY STAR Freezer	4,168	6,252	8,336	$33	11	$15	$15	$15	$1,500	$2,250	$3,000
Smart Power Strip (7-plug)	12,336	32,896	61,680	$26	4	$15	$15	$15	$2,250	$6,000	$11,250
Energy Star Fixture	12,352	24,703	41,172	$32	7	$10	$10	$10	$1,500	$3,000	$5,000
LED	6,590	13,181	21,968	$20	27	$10	$10	$10	$750	$1,500	$2,500
Refrigerator Recycling	379,776	759,552	1,139,328	$0	8	$50	$50	$50	$20,000	$40,000	$60,000
High Efficiency Cooling Rebate	**1,281,785**	**1,883,747**	**2,613,403**	**$543**	**14**	$257	$266	$271	$328,925	$491,350	$698,425
CAC SEER 15 ≤ 15.9	122,040	162,720	223,740	$556	14	$300	$300	$300	$45,000	$60,000	$82,500
CAC SEER 16 ≤ 16.9	155,040	213,180	310,080	$834	14	$400	$400	$400	$80,000	$110,000	$160,000
CAC SEER ≥17	44,928	79,872	124,800	$1,111	14	$500	$500	$500	$22,500	$40,000	$62,500
HP SEER 15 ≤ 15.9	359,580	442,560	553,200	$588	12	$300	$300	$300	$97,500	$120,000	$150,000
HP SEER 16 ≤ 16.9	130,800	228,900	327,000	$881	12	$400	$400	$400	$40,000	$70,000	$100,000
HP SEER ≥17	70,200	140,400	203,580	$1,175	12	$500	$500	$500	$25,000	$50,000	$72,500
Geothermal EER ≥17	22,716	68,148	128,724	$2,913	15	$600	$600	$600	$9,000	$27,000	$51,000
Programmable Thermostat	376,481	547,967	742,279	$35	15	$25	$25	$25	$9,925	$14,350	$19,925
CAC SEER 15 to 15.9	*21,713*	*28,951*	*39,807*								
CAC SEER 16 to 16.9	*33,926*	*46,818*	*67,853*								
CAC SEER ≥17	*8,621*	*15,327*	*23,948*								
HP SEER 15 to 15.9	*194,826*	*239,785*	*299,732*								
HP SEER 16 to 16.9	*73,760*	*129,817*	*184,399*								
HP SEER ≥17	*43,635*	*87,269*	*126,540*								
Home Energy Comparison Reports	1,800,000	4,140,000	4,320,000	$0	1	$0	$0	$0	$0	$0	$0
Energy Star New Homes	918,261	765,217	612,174	$3,272	25	$3,272	$1,200	$1,200	$981,548	$300,000	$240,000
Home Performance with Energy Star	511,840	950,560	1,462,400	$2,000	18	$800	$800	$800	$140,000	$260,000	$400,000
Up to $1,200											
Low Income Weatherization	718,200	974,700	1,231,200	$0	15	$0	$0	$0	$0	$0	$0
Low Income New Homes	92,340	82,080	82,080	$2,750	15	$750	$750	$750	$33,750	$30,000	$30,000
Total Non-Residential Program	**2,767,281**	**4,858,017**	**6,948,753**	**$7,843**	**15**	**$3,536**	**$3,711**	**$3,789**	**$707,100**	**$1,298,900**	**$1,875,700**
C&I Custom Rebate	1,251,411	2,502,822	3,754,233	$15,000	15	$7,500	$7,500	$7,500	$375,000	$750,000	$1,125,000
C&I Prescriptive Rebate	1,190,310	1,785,465	2,380,620	$7,832	15	$2,791	$2,791	$2,791	$279,100	$418,650	$558,200
Fixtures (T12 to T8)	41,124	61,686	82,248	$54	12	$25	$25	$25	$12,500	$18,750	$25,000
Exit Sign	34,544	51,816	69,088	$25	15	$10	$10	$10	$3,000	$4,500	$6,000
HVAC (CAC)	304,124	456,185	608,247	$4,479	15	$1,380	$1,380	$1,380	$179,400	$269,100	$358,800
Motor	29,927	44,890	59,853	$210	15	$115	$115	$115	$9,200	$13,800	$18,400
VFD	618,273	927,409	1,236,546	$3,328	15	$1,750	$1,750	$1,750	$35,000	$52,500	$70,000
Air Cooled Chiller	162,319	243,479	324,638	$8,307	20	$4,000	$4,000	$4,000	$40,000	$60,000	$80,000
Building Operator Certificate	325,560	569,730	813,900	$1,150	15	$575	$575	$575	$23,000	$40,250	$57,500
Interruptible Service Rider	-	-	-	$0	1	$3,000	$3,000	$3,000	$30,000	$90,000	$135,000

Residential MWh Savings
homes
2010 MWh/Residential Customer (EIA Source)

The Empire District Electric Company
DSM Program Inputs
MEEIA Filing February 2012

	Total AIM			Year 1				Year 2			
	Year 1	Year 2	Year 3	Delivery	Admin	Market	Eval	Delivery	Admin	Market	Eval
Total Program	**$1,716,262**	**$2,091,212**	**$2,645,285**	**$1,072,354**	**$238,174**	**$217,498**	**$188,236**	**$1,432,485**	**$240,464**	**$201,188**	**$217,076**
Total Residential Program	**$1,525,885**	**$1,738,131**	**$2,134,975**	**$985,102**	**$203,509**	**$191,775**	**$145,499**	**$1,269,417**	**$176,726**	**$153,578**	**$138,410**
Residential High Efficiency Lighting	$308,490	$344,085	$379,680	$260,000	$20,800	$13,000	$14,690	$290,000	$23,200	$14,500	$16,385
ENERGY STAR Appliances	$10,594	$16,211	$24,682	$3,045	$2,030	$3,806	$1,713	$5,655	$3,770	$3,770	$3,016
ENERGY STAR Clothes Washer											
ENERGY STAR Refrigerator											
ENERGY STAR Dehumidifier											
ENERGY STAR Room Air Conditioner											
ENERGY STAR Freezer											
Smart Power Strip (7-plug)											
Energy Star Fixture											
LED											
Refrigerator Recycling	$64,630	$126,320	$189,480	$56,000	$1,600	$3,000	$4,030	$112,000	$3,200	$3,200	$7,920
High Efficiency Cooling Rebate	$113,150	$169,024	$240,258	$39,471	$26,314	$26,314	$21,051.20	$58,962	$39,308	$39,308	$31,446
CAC SEER 15 ≤ 15.9											
CAC SEER 16 ≤ 16.9											
CAC SEER ≥17											
HP SEER 15 ≤ 15.9											
HP SEER 16 ≤ 16.9											
HP SEER ≥17											
Geothermal EER ≥17											
Programmable Thermostat											
CAC SEER 15 to 15.9											
CAC SEER 16 to 16.9											
CAC SEER ≥17											
HP SEER 15 to 15.9											
HP SEER 16 to 16.9											
HP SEER ≥17											
Home Energy Comparison Reports	$81,648	$187,790	$195,955	$72,000	$5,760	$0	$3,888	$165,600	$13,248	$0	$8,942
Energy Star New Homes	$378,877	$103,200	$82,560	$117,786	$98,155	$98,155	$64,782	$36,000	$24,000	$24,000	$19,200
Home Performance with Energy Star	$48,160	$89,440	$137,600	$16,800	$11,200	$11,200	$8,960	$31,200	$20,800	$20,800	$16,640
Up to $1,200											
Low Income Weatherization	$511,560	$694,260	$876,960	$420,000	$33,600	$33,600	$24,360	$570,000	$45,600	$45,600	$33,060.00
Low Income New Homes	$8,775	$7,800	$7,800	$0	$4,050	$2,700	$2,025	$0	$3,600	$2,400	$1,800
Total Non-Residential Program	**$190,377**	**$353,081**	**$510,310**	**$87,252**	**$34,665**	**$25,723**	**$42,737**	**$163,068**	**$63,738**	**$47,610**	**$78,666**
C&I Custom Rebate	$97,500	$195,000	$292,500	$45,000	$18,750	$11,250	$22,500	$90,000	$37,500	$22,500	$45,000
C&I Prescriptive Rebate	$72,566	$108,849	$145,132	$33,492	$13,955	$8,373	$16,746	$50,238	$20,933	$12,560	$25,119
Fixtures (T12 to T8)											
Exit Sign											
HVAC (CAC)											
Motor											
VFD											
Air Cooled Chiller											
Building Operator Certificate	$9,361	$16,382	$23,403	$2,760	$460	$4,600	$1,541	$4,830	$805	$8,050	$2,697
Interruptible Service Rider	$10,950	$32,850	$49,275	$6,000	$1,500	$1,500	$1,950	$18,000	$4,500	$4,500	$5,850

Residential MWh Savings
homes
2010 MWh/Residential Customer (EIA Source)

The Empire District Electric Company
DSM Program Inputs
MEEIA Filing February 2012

	Year 3				Total Budget			Total Resource Cost Test			
	Delivery	Admin	Market	Eval	Year 1	Year 2	Year 3	B/C	NPV Benefits	NPV Costs	NPV Total
Total Program	**$1,785,905**	**$310,298**	**$262,360**	**$286,722**	**$3,952,960**	**$4,558,587**	**$6,021,160**				
Total Residential Program	**$1,550,021**	**$218,238**	**$193,614**	**$173,102**	**$3,055,483**	**$2,906,606**	**$3,635,150**	**2.80**	**$21,051,118**	**$7,519,414**	**$13,531,705**
Residential High Efficiency Lighting	$320,000	$25,600	$16,000	$18,080	$308,490	$344,085	$379,680	4.97	$4,760,544	$958,485	$3,802,059
ENERGY STAR Appliances	$8,610	$5,740	$5,740	$4,592	$35,969	$63,336	$96,432	1.25	$440,831	$353,290	$87,542
ENERGY STAR Clothes Washer											
ENERGY STAR Refrigerator											
ENERGY STAR Dehumidifier											
ENERGY STAR Room Air Conditioner											
ENERGY STAR Freezer											
Smart Power Strip (7-plug)											
Energy Star Fixture											
LED											
Refrigerator Recycling	$168,000	$4,800	$4,800	$11,880	$84,630	$166,320	$249,480	4.53	$1,571,020	$346,723	$1,224,297
High Efficiency Cooling Rebate	$83,811	$55,874	$55,874	$44,699	$442,075	$660,374	$938,683	1.92	$6,365,593	$3,322,377	$3,043,216
CAC SEER 15 ≤ 15.9											
CAC SEER 16 ≤ 16.9											
CAC SEER ≥17											
HP SEER 15 ≤ 15.9											
HP SEER 16 ≤ 16.9											
HP SEER ≥17											
Geothermal EER ≥17											
Programmable Thermostat											
CAC SEER 15 to 15.9											
CAC SEER 16 to 16.9											
CAC SEER ≥17											
HP SEER 15 to 15.9											
HP SEER 16 to 16.9											
HP SEER ≥17											
Home Energy Comparison Reports	$172,800	$13,824	$0	$9,331	$81,648	$187,790	$195,955	1.61	$686,461	$426,621	$259,840
Energy Star New Homes	$28,800	$19,200	$19,200	$15,360	$1,360,425	$403,200	$322,560	1.01	$2,879,289	$2,857,981	$21,308
Home Performance with Energy Star	$48,000	$32,000	$32,000	$25,600	$188,160	$349,440	$537,600	1.42	$2,949,850	$2,074,128	$875,723
Up to $1,200											
Low Income Weatherization	$720,000	$57,600	$57,600	$41,760.00	$511,560	$694,260	$876,960	1.34	$2,564,794	$1,919,270	$645,524
Low Income New Homes	$0	$3,600	$2,400	$1,800	$42,525	$37,800	$37,800	0.66	$226,114	$344,481	-$118,366
Total Non-Residential Program	**$235,884**	**$92,060**	**$68,746**	**$113,620**	**$897,477**	**$1,651,981**	**$2,386,010**	**2.27**	**$19,180,077**	**$8,456,545**	**$10,723,532**
C&I Custom Rebate	$135,000	$56,250	$33,750	$67,500	$472,500	$945,000	$1,417,500	1.84	$8,537,759	$4,632,708	$3,905,051
C&I Prescriptive Rebate	$66,984	$27,910	$16,746	$33,492	$351,666	$527,499	$703,332	1.63	$5,772,099	$3,536,550	$2,235,549
Fixtures (T12 to T8)											
Exit Sign											
HVAC (CAC)											
Motor											
VFD											
Air Cooled Chiller											
Building Operator Certificate	$6,900	$1,150	$11,500	$3,852.50	$32,361	$56,632	$80,903	6.84	$1,818,452	$265,709	$1,552,744
Interruptible Service Rider	$27,000	$6,750	$6,750	$6,775	$40,950	$122,850	$184,275	36.20	$3,051,766	$84,309	$2,967,457

Residential MWh Savings
homes
2010 MWh/Residential Customer (EIA Source)

PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Residential High Efficiency Lighting
Measure: CFL

Sector / Building Type : Total Residential RSC
End Use : Lighting (Interior) LGT
RSCLGT

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$308,490	$344,085	$379,680
Escalation Rate = 0.00%	Incentive Costs =	$0	$0	$0
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ -	$ -	$ -
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	7	7	7
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.04	0.04	0.04
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	8%		
	Avg. kWh/Part. Saved =	41	41	41
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	65,000	72,500	80,000
	Existing Equipment: (N/A)			
	Remaining Useful Life (yrs)=	0		
	New Measure Cost (2010 $) =			
	Demand Savings (kW) =			
	Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$4.75	$4.75	$4.75
Coincident Peak Utility Demand Reduction, I	209	234	258
Annual Utility Energy Reduction, kWh	2,817,946	3,143,093	3,468,241

Total Utility Energy Reduction, lifetime kWh: 66,317,089

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$3,802,059	$4,010,989	$5,601,174	($2,625,977)	$3,802,058
B/C	4.97	5.18	#DIV/0!	0.64	4.97
Total Costs	$958,485	$958,485	$0	$7,386,521	$958,486
Total Benefits	$4,760,544	$4,969,474	$5,601,174	$4,760,544	$4,760,544

HIGHLY CONFIDENTIAL IN ITS ENTIRETY

HIGHLY CONFIDENTIAL IN ITS ENTIRETY

HIGHLY CONFIDENTIAL IN ITS ENTIRETY

HIGHLY CONFIDENTIAL IN ITS ENTIRETY

HIGHLY CONFIDENTIAL IN ITS ENTIRETY

PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Energy Star Appliances
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Refrigeration** REF
RSCREF

Input Data

			PY1	PY2	PY3
		Utility Project Costs			
Retail Rate ($/kWh) =	$0.1279	Administrative Costs =	$10,594	$16,211	$24,682
Escalation Rate =	0.00%	Incentive Costs =	$25,375	$47,125	$71,750
Variable O&M ($/kWh) =	$0.0025	Direct Participant Costs ($/Part.) =	$ 58	$ 58	$ 58
Escalation Rate =	3.00%				
		Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities =	$0.00350	Escalation Rate =	0.00%		
Escalation Rate =	3.00%				
			PY1	PY2	PY3
Participant Discount Rate =	7.35%	Project Life (Years) =	12	12	12
Utility Discount Rate =	7.35%	General Input Data Year =	2010		
Societal Discount Rate =	7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor =	0.00%	Avg. Demand Savings (kW/Part.) =	0.02	0.02	0.02
Demand Net-To-Gross Factor =	0.00%	Coincident Factor	41%		
		Avg. kWh/Part. Saved =	89	89	89
Line Losses (Energy) =	6.42%				
Line Losses (Peak) =	8.00%	Number of Participants =	950	1,875	2,950

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$37.86	$33.78	$32.69
Coincident Peak Utility Demand Reduction,	10	19	30
Annual Utility Energy Reduction, kWh	90,465	178,549	280,917

Total Utility Energy Reduction, lifetime kWh: 5,722,021

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$87,542	$103,502	($229,976)	($195,344)	$262,182
B/C	1.25	1.29	0.67	0.69	2.47
Total Costs	$353,290	$353,290	$697,260	$636,175	$178,649
Total Benefits	$440,831	$456,792	$467,284	$440,831	$440,831

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Refrigerator Recycling
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Refrigeration** REF
RSCREF

Input Data

		PY1	PY2	PY3
Retail Rate ($/kWh) =	$0.1279	Utility Project Costs		
Escalation Rate =	0.00%	Administrative Costs =	$64,630	$126,320	$189,480
		Incentive Costs =	$20,000	$40,000	$60,000
Variable O&M ($/kWh) =	$0.0025	Direct Participant Costs ($/Part.) =	$ -	$ -	$ -
Escalation Rate =	3.00%				
		Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities =	$0.00350	Escalation Rate =	0.00%		
Escalation Rate =	3.00%				
			PY1	PY2	PY3
Participant Discount Rate =	7.35%	Project Life (Years) =	8	8	8
Utility Discount Rate =	7.35%	General Input Data Year =	2010		
Societal Discount Rate =	7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor =	0.00%	Avg. Demand Savings (kW/Part.) =	0.15	0.15	0.15
Demand Net-To-Gross Factor =	0.00%	Coincident Factor	100%		
		Avg. kWh/Part. Saved =	949	949	949
Line Losses (Energy) =	6.42%				
Line Losses (Peak) =	8.00%	Number of Participants =	400	800	1,200
		Existing Equipment: (N/A)			
		Remaining Useful Life (yrs)=	0		
		New Measure Cost (2010 $) =			
		Demand Savings (kW) =			
		Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$211.58	$207.90	$207.90
Coincident Peak Utility Demand Reduction,	66	132	198
Annual Utility Energy Reduction, kWh	405,830	811,661	1,217,491

Total Utility Energy Reduction, lifetime kWh: 19,571,971

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$1,224,297	$1,284,097	$1,254,930	($687,180)	$1,114,970
B/C	4.53	4.70	#DIV/0!	0.70	3.44
Total Costs	$346,723	$346,723	$0	$2,258,200	$456,050
Total Benefits	$1,571,020	$1,630,820	$1,254,930	$1,571,020	$1,571,020

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: High Efficiency Cooling
Measure:

Sector / Building Type : Total Residential (RSC)
End Use : Central A/C (CAC)
(RSCCAC)

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$113,150	$169,024	$240,258
Escalation Rate = 0.00%	Incentive Costs =	$328,925	$491,350	$698,425
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ 543	$ 543	$ 543
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	14	14	14
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.65	0.65	0.65
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	75%		
	Avg. kWh/Part. Saved =	1,000	1,000	1,000
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	1,282	1,849	2,577
	Existing Equipment: (N/A)			
	Remaining Useful Life (yrs)=	0		
	New Measure Cost (2010 $) =			
	Demand Savings (kW) =			
	Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$344.83	$357.15	$364.25
Coincident Peak Utility Demand Reduction, k	684	986	1,374
Annual Utility Energy Reduction, kWh	1,369,721	1,975,517	2,753,331
Total Utility Energy Reduction, lifetime kWh	85,783,711		

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$3,043,216	$3,277,958	($2,430,691)	($2,119,135)	$4,493,812
B/C	1.92	1.99	0.72	0.75	3.40
Total Costs	$3,322,377	$3,322,377	$8,661,927	$8,484,728	$1,871,781
Total Benefits	$6,365,593	$6,600,335	$6,231,236	$6,365,593	$6,365,593

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Home Energy Comparison Reports
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Lighting (Interior)** LGT
RSCLGT

Input Data

		PY1	PY2	PY3
Retail Rate ($/kWh) =	$0.1279	Utility Project Costs		
Escalation Rate =	0.00%	Administrative Costs =	$81,648	$187,790	$195,955
		Incentive Costs =	$0	$0	$0
Variable O&M ($/kWh) =	$0.0025	Direct Participant Costs ($/Part.) =	$ -	$ -	$ -
Escalation Rate =	3.00%				
		Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities =	$0.00350	Escalation Rate =	0.00%		
Escalation Rate =	3.00%				
			PY1	PY2	PY3
Participant Discount Rate =	7.35%	Project Life (Years) =	1	1	1
Utility Discount Rate =	7.35%	General Input Data Year =	2010		
Societal Discount Rate =	7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor =	0.00%	Avg. Demand Savings (kW/Part.) =	0.03	0.03	0.03
Demand Net-To-Gross Factor =	0.00%	Coincident Factor	8%		
		Avg. kWh/Part. Saved =	240	240	240
Line Losses (Energy) =	6.42%				
Line Losses (Peak) =	8.00%	Number of Participants =	7,500	15,000	15,000
		Existing Equipment: (N/A)			
		Remaining Useful Life (yrs)=	0		
		New Measure Cost (2010 $) =			
		Demand Savings (kW) =			
		Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$10.89	$12.52	$13.06
Coincident Peak Utility Demand Reduction,	18	36	36
Annual Utility Energy Reduction, kWh	1,923,488	3,846,976	3,846,976

Total Utility Energy Reduction, lifetime kWh: 9,662,919

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$259,840	$293,999	$858,574	($876,379)	$259,839
B/C	1.61	1.69	#DIV/0!	0.44	1.61
Total Costs	$426,621	$426,621	$0	$1,562,840	$426,622
Total Benefits	$686,461	$720,620	$858,574	$686,461	$686,461

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Energy Star New Homes
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Ventilation** VEN
RSCVEN

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$378,877	$103,200	$82,560
Escalation Rate = 0.00%	Incentive Costs =	$981,548	$300,000	$240,000
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ 3,272	$ 3,272	$ 3,272
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	25	25	25
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.35	0.35	0.35
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	100%		
	Avg. kWh/Part. Saved =	3,061	3,061	3,061
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	300	250	200
	Existing Equipment: (N/A)			
	Remaining Useful Life (yrs)=	0		
	New Measure Cost (2010 $) =			
	Demand Savings (kW) =			
	Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$4,534.75	$1,612.80	$1,612.80
Coincident Peak Utility Demand Reduction,	114	95	76
Annual Utility Energy Reduction, kWh	981,258	817,715	654,172
Total Utility Energy Reduction, lifetime kWh	61,618,612		

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$21,308	$161,815	($6,990,482)	($2,735,600)	$863,366
B/C	1.01	1.06	0.43	0.51	1.43
Total Costs	$2,857,981	$2,857,981	$12,223,566	$5,614,889	$2,015,922
Total Benefits	$2,879,289	$3,019,796	$5,233,084	$2,879,289	$2,879,289

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Home Performance with Energy Star
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Ventilation** VEN
RSCVEN

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$48,160	$89,440	$137,600
Escalation Rate = 0.00%	Incentive Costs =	$140,000	$260,000	$400,000
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ 2,000	$ 2,000	$ 2,000
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	18	18	18
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.33	0.33	0.33
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	100%		
	Avg. kWh/Part. Saved =	2,925	2,925	2,925
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	175	325	500

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$1,075.20	$1,075.20	$1,075.20
Coincident Peak Utility Demand Reduction,	64	118	181
Annual Utility Energy Reduction, kWh	546,954	1,015,773	1,562,727

Total Utility Energy Reduction, lifetime kWh: 56,524,210

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$875,723	$1,018,823	($1,150,065)	($1,884,619)	$1,969,671
B/C	1.42	1.49	0.74	0.61	3.01
Total Costs	$2,074,128	$2,074,128	$4,358,675	$4,834,469	$980,179
Total Benefits	$2,949,850	$3,092,951	$3,208,610	$2,949,850	$2,949,850

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Low Income Weatherization
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Ventilation** VEN
RSCVEN

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$511,560	$694,260	$876,960
Escalation Rate = 0.00%	Incentive Costs =	$0	$0	$0
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ -	$ -	$ -
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	15	15	15
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.23	0.23	0.23
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	100%		
	Avg. kWh/Part. Saved =	2,052	2,052	2,052
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	350	475	600
	Existing Equipment: (N/A)			
	Remaining Useful Life (yrs)=	0		
	New Measure Cost (2010 $) =			
	Demand Savings (kW) =			
	Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$1,461.60	$1,461.60	$1,461.60
Coincident Peak Utility Demand Reduction,	89	121	153
Annual Utility Energy Reduction, kWh	767,472	1,041,569	1,315,666

Total Utility Energy Reduction, lifetime kWh 47,092,235

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$645,524	$772,281	$2,750,689	($2,892,236)	$645,523
B/C	1.34	1.40	#DIV/0!	0.47	1.34
Total Costs	$1,919,270	$1,919,270	$0	$5,457,030	$1,919,271
Total Benefits	$2,564,794	$2,691,551	$2,750,689	$2,564,794	$2,564,794

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Low Income New Homes
Measure:

Sector / Building Type : **Total Residential** RSC
End Use : **Ventilation** VEN
RSCVEN

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1279	Administrative Costs =	$8,775	$7,800	$7,800
Escalation Rate = 0.00%	Incentive Costs =	$33,750	$30,000	$30,000
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ 2,750	$ 2,750	$ 2,750
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				

	PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	15	15	15
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	0.23	0.23	0.23
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	100%		
	Avg. kWh/Part. Saved =	2,052	2,052	2,052
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	45	40	40

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$945.00	$945.00	$945.00
Coincident Peak Utility Demand Reduction,	11	10	10
Annual Utility Energy Reduction, kWh	98,675	87,711	87,711

Total Utility Energy Reduction, lifetime kWh: 4,130,898

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	($118,366)	($107,148)	($1,148,968)	($199,561)	$115,575
B/C	0.66	0.69	0.25	0.53	2.05
Total Costs	$344,481	$344,481	$1,541,103	$425,676	$110,539
Total Benefits	$226,114	$237,333	$392,135	$226,114	$226,114

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: C&I Custom Rebate
Measure:

Sector / Building Type : **Total Commercial** COM
End Use : **Misc. Eq** MSC
COMMSC

Input Data

Retail Rate ($/kWh) =	$0.1159
Escalation Rate =	0.00%
Variable O&M ($/kWh) =	$0.0025
Escalation Rate =	3.00%
Environmental Externalities =	$0.00350
Escalation Rate =	3.00%
Participant Discount Rate =	7.35%
Utility Discount Rate =	7.35%
Societal Discount Rate =	7.35%
Energy Net-To-Gross Factor =	0.00%
Demand Net-To-Gross Factor =	0.00%
Line Losses (Energy) =	6.42%
Line Losses (Peak) =	8.00%

	PY1	PY2	PY3
Utility Project Costs			
Administrative Costs =	$97,500	$195,000	$292,500
Incentive Costs =	$375,000	$750,000	$1,125,000
Direct Participant Costs ($/Part.) =	$ 15,000	$ 15,000	$ 15,000
Other Participant Costs (Annual $/Part.) =	$ -		
Escalation Rate =	0.00%		
	PY1	PY2	PY3
Project Life (Years) =	15	15	15
General Input Data Year =	2010		
Project Analysis Year 1	2012	2013	2014
Avg. Demand Savings (kW/Part.) =	8.73	8.73	8.73
Coincident Factor	85%		
Avg. kWh/Part. Saved =	25,028	25,028	25,028
Number of Participants =	50	100	150

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$9,450.00	$9,450.00	$9,450.00
Coincident Peak Utility Demand Reduction,	402	804	1,207
Annual Utility Energy Reduction, kWh	1,337,263	2,674,527	4,011,790

Total Utility Energy Reduction, lifetime kWh: 120,922,841

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$3,905,051	$4,228,396	($2,115,396)	($2,185,491)	$5,954,921
B/C	1.84	1.91	0.77	0.80	3.31
Total Costs	$4,632,708	$4,632,708	$9,340,018	$10,723,251	$2,582,838
Total Benefits	$8,537,759	$8,861,104	$7,224,622	$8,537,759	$8,537,759

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: C&I Prescriptive Rebate
Measure:

Sector / Building Type : **Total Commercial** COM
End Use : **Misc. Eq** MSC
COMMSC

Input Data

		PY1	PY2	PY3
	Utility Project Costs			
Retail Rate ($/kWh) = $0.1159	Administrative Costs =	$72,566	$108,849	$145,132
Escalation Rate = 0.00%	Incentive Costs =	$279,100	$418,650	$558,200
Variable O&M ($/kWh) = $0.0025	Direct Participant Costs ($/Part.) =	$ 7,832	$ 7,832	$ 7,832
Escalation Rate = 3.00%				
	Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities = $0.00350	Escalation Rate =	0.00%		
Escalation Rate = 3.00%				
		PY1	PY2	PY3
Participant Discount Rate = 7.35%	Project Life (Years) =	15	15	15
Utility Discount Rate = 7.35%	General Input Data Year =	2010		
Societal Discount Rate = 7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor = 0.00%	Avg. Demand Savings (kW/Part.) =	3.03	3.03	3.03
Demand Net-To-Gross Factor = 0.00%	Coincident Factor	85%		
	Avg. kWh/Part. Saved =	11,903	11,903	11,903
Line Losses (Energy) = 6.42%				
Line Losses (Peak) = 8.00%	Number of Participants =	100	150	200

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

Utility Cost per Participant =	$3,516.66	$3,516.66	$3,516.66
Coincident Peak Utility Demand Reduction,	280	419	559
Annual Utility Energy Reduction, kWh	1,271,970	1,907,956	2,543,941

Total Utility Energy Reduction, lifetime kWh: 86,264,005

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$2,235,549	$2,467,292	($4,291,911)	($1,535,312)	$4,318,731
B/C	1.63	1.70	0.56	0.79	3.97
Total Costs	$3,536,550	$3,536,550	$9,752,978	$7,307,411	$1,453,368
Total Benefits	$5,772,099	$6,003,841	$5,461,067	$5,772,099	$5,772,099

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Building Operator Certificate
Measure:

Sector / Building Type : **Total Commercial** COM
End Use : **Misc. Eq** MSC
COMMSC

Input Data

Retail Rate ($/kWh) =	$0.1159
Escalation Rate =	0.00%
Variable O&M ($/kWh) =	$0.0025
Escalation Rate =	3.00%
Environmental Externalities =	$0.00350
Escalation Rate =	3.00%
Participant Discount Rate =	7.35%
Utility Discount Rate =	7.35%
Societal Discount Rate =	7.35%
Energy Net-To-Gross Factor =	0.00%
Demand Net-To-Gross Factor =	0.00%
Line Losses (Energy) =	6.42%
Line Losses (Peak) =	8.00%

	PY1	PY2	PY3
Utility Project Costs			
Administrative Costs =	$9,361	$16,382	$23,403
Incentive Costs =	$23,000	$40,250	$57,500
Direct Participant Costs ($/Part.) =	$ 1,150	$ 1,150	$ 1,150
Other Participant Costs (Annual $/Part.) =	$ -		
Escalation Rate =	0.00%		

	PY1	PY2	PY3
Project Life (Years) =	15	15	15
General Input Data Year =	2010		
Project Analysis Year 1	2012	2013	2014
Avg. Demand Savings (kW/Part.) =	3.10	3.10	3.10
Coincident Factor	53%		
Avg. kWh/Part. Saved =	8,139	8,139	8,139
Number of Participants =	40	70	100

Existing Equipment: (N/A)

Remaining Useful Life (yrs)=	0
New Measure Cost (2010 $) =	
Demand Savings (kW) =	
Annual Energy Savings (kWh) =	

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$809.03	$809.03	$809.03
Coincident Peak Utility Demand Reduction,	71	125	179
Annual Utility Energy Reduction, kWh	347,895	608,816	869,737

Total Utility Energy Reduction, lifetime kWh: 27,526,274

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$1,552,744	$1,626,495	$799,736	($196,314)	$1,663,133
B/C	6.84	7.12	2.40	0.90	11.71
Total Costs	$265,709	$265,709	$572,854	$2,014,766	$155,320
Total Benefits	$1,818,452	$1,892,204	$1,372,591	$1,818,452	$1,818,452

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PROJECT SCREENING TOOL

BENEFIT COST TEST FOR CONSERVATION PROGRAMS -- Cost-Effectiveness Analysis

Program: Interruptible Service Rider
Measure:

Sector / Building Type : **Total Industrial** IND
End Use : **Interruptible** INT
INDINT

Input Data

			PY1	PY2	PY3
Retail Rate ($/kWh) =	$0.0930	Utility Project Costs			
Escalation Rate =	0.00%	Administrative Costs =	$10,950	$32,850	$49,275
		Incentive Costs =	$30,000	$90,000	$135,000
Variable O&M ($/kWh) =	$0.0025	Direct Participant Costs ($/Part.) =	$ -	$ -	$ -
Escalation Rate =	3.00%				
		Other Participant Costs (Annual $/Part.) =	$ -		
Environmental Externalities =	$0.00350	Escalation Rate =	0.00%		
Escalation Rate =	3.00%				
			PY1	PY2	PY3
Participant Discount Rate =	7.35%	Project Life (Years) =	1	1	1
Utility Discount Rate =	7.35%	General Input Data Year =	2010		
Societal Discount Rate =	7.35%	Project Analysis Year 1	2012	2013	2014
Energy Net-To-Gross Factor =	0.00%	Avg. Demand Savings (kW/Part.) =	500.00	500.00	500.00
Demand Net-To-Gross Factor =	0.00%	Coincident Factor	100%		
		Avg. kWh/Part. Saved =	0	0	0
Line Losses (Energy) =	6.42%				
Line Losses (Peak) =	8.00%	Number of Participants =	10	30	45
		Existing Equipment: (N/A)			
		Remaining Useful Life (yrs)=	0		
		New Measure Cost (2010 $) =			
		Demand Savings (kW) =			
		Annual Energy Savings (kWh) =			

Cost & Savings Summary

	PY1	PY2	PY3
Utility Cost per Participant =	$4,095.00	$4,095.00	$4,095.00
Coincident Peak Utility Demand Reduction,	5,435	16,304	24,457
Annual Utility Energy Reduction, kWh	0	0	0
Total Utility Energy Reduction, lifetime kWh	0		

Test Results

	TRC Test	Societal Test	Participant Test	RIM Test	Utility Cost Test
NPV	$2,967,457	$2,967,457	$230,986	$2,736,472	$2,736,471
B/C	36.20	36.20	#DIV/0!	9.68	9.68
Total Costs	$84,309	$84,309	$0	$315,294	$315,295
Total Benefits	$3,051,766	$3,051,766	$230,986	$3,051,766	$3,051,766

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