Progress Energy

ORIGINAL

JAMES A. MCGEE
ASSOCIATE GENERAL COUNSEL
PROGRESS ENERGY SERVICE COMPANY, LLC

May 28, 2004

VIA OVERNIGHT DELIVERY

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk
and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

DISTRIBUTION CENTER
04 MAY 28 AM 10:00

Re: Docket No. 040031-EG

Dear Ms. Bayó:

Enclosed for filing in the subject docket on behalf of Progress Energy Florida, Inc., are an original and seven copies of the direct testimony and exhibits of John A. Masiello.

Please acknowledge your receipt of the above filing on the enclosed copy of this letter and return to the undersigned. Also enclosed is a 3½ inch diskette containing the above-referenced documents in Word format, except for Mr. Masiello's voluminous Exhibit JAM-3. Thank you for your assistance in this matter.

Very truly yours,

James A. McGee

JAM/scc
Enclosures

cc: Parties of record

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100 Central Avenue (33701) • Post Office Box 14042 (33733) • St. Petersburg, Florida
Phone: 727.820.5184 • Fax: 727.820.5519 • Email: james.mcgee@pgnmail.com

PROGRESS ENERGY FLORIDA

DOCKET NO. 040031-EG

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the direct testimony and exhibits of John A. Masiello on behalf of Progress Energy Florida has been furnished to the following individuals by regular U.S. Mail this 28th day of May, 2004.

Adrienne Vining, Esquire
Office of the General Counsel
Economic Regulation Section
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Vicki Gordon Kaufman, Esquire
117 South Gadsden Street
Tallahassee, FL 32301

Richard A. Zambo, Esquire
598 S.W. Hidden River Avenue
Palm City, FL 34990

Attorney

ORIGINAL

PROGRESS ENERGY FLORIDA

DOCKET NO. 040031-EG

DIRECT TESTIMONY OF JOHN A. MASIELLO

Q. Please state your name and business address.

A. My name is John A. Masiello. My business address is 3300 Exchange Place, Lake Mary, Florida 32746

Q. By whom are you employed and in what capacity?

A. I am employed by Progress Energy Florida (Progress Energy or the Company) in the capacity of Manager, Program Development & Administration.

Q. Please describe the duties and responsibilities of your position with Progress Energy.

A. My responsibilities include the design, implementation and administration of the Company's Demand-Side Management (DSM) programs, including all training, budgeting, and accounting functions related to these programs.

Q. Please summarize your educational background and professional experience.

A. I have a Bachelor of Arts degree in Business Management from Warner Southern College. In addition, I have received the following energy-related certifications: Certified Energy Manager (CEM) from the Association of

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Energy Engineers, Certified Cogeneration Professional (CCP) from the Association of Energy Engineers, and an Energy Rater certificate from the State of Florida. Prior to joining Progress Energy in July 1991, I served for ten years as the managed an energy services company that was recognized by the Carter Administration as a model energy efficiency program.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to propose and support new conservation goals for Progress Energy. These proposed numeric goals are based upon the Company's most recent planning process of the total cost-effective kilowatt and kilowatt-hour conservation savings reasonably achievable in Progress Energy's service area over the ten-year period from 2005 to 2014. In addition, my testimony presents and describes Progress Energy's proposed DSM Plan that has been designed to achieve these conservation goals.

Q. Do you have any Exhibits to your testimony?

A. Yes, I will sponsor the following exhibits: Exhibit No. ___ (JAM-1), Progress Energy's Proposed Numeric Conservation Goals; Exhibit No. ___ (JAM-2), Progress Energy's Ten-Year Projections of DSM Savings; Exhibit No. ___ (JAM-3), Details of Conservation Measures Selected for Evaluation; and Exhibit No. ___ (JAM-4), Progress Energy's Proposed DSM Plan. Exhibits JAM-1 and JAM-2 are attached to my prepared testimony. Exhibits JAM-3 and JAM-4 are voluminous and have been separately bound.

PROPOSED CONSERVATION GOALS

Q. What are the conservation goals that you propose the Commission should establish for Progress Energy in this proceeding?

A. My Exhibit JAM-1 shows Progress Energy's proposed goals for both the residential and commercial/industrial market segments by year on an annual and cumulative basis for the ten-year planning period from 2005 through 2014. The following is a summary of the Company's proposed cumulative conservation goals through the end of 2014:

Residential Market Segment

- 366 MWs of winter peak demand reduction,
- 92 MWs of summer peak demand reduction, and
- 161 GWh of energy reduction

Commercial/Industrial Market Segment

- 34 MWs of winter peak demand reduction,
- 36 MWs of summer peak demand reduction, and
- 29 GWh of energy reduction.

Q. Would you briefly describe the process used to determine Progress Energy's proposed DSM goals?

A. Yes. Assessments were conducted of the residential and commercial market segments (both new and existing construction) and the major end-use categories through a series of Rate Impact Measure (RIM) evaluations. During the analysis, consideration was given to overlapping measures, rebound effects, free riders, interactions with building codes and appliance efficiency standards. Since changes in the energy code are anticipated to

impact DSM measures such as HVAC and commercial lighting during the planning period, the baseline was adjusted to reflect the changes in order to provide accurate results within these categories.

Progress Energy's System Planning and Generation Modeling & Analysis Departments developed a base supply-side plan that identified the supply-side-only resources required to meet customers' future load growth, assuming no new conservation, at the lowest cost. Next, all applicable conservation measures were evaluated against the base supply-side plan to determine the cost-effectiveness of each measure. Progress Energy performed this evaluation using each of the Commission's three prescribed tests for DSM cost-effectiveness; the Participant, RIM, and Total Resource Cost (TRC) tests. The seasonal MW demand and annual GWH energy savings associated with all cost-effective conservation measures were then summed by market segment to determine Progress Energy's proposed DSM goals.

Q. Did you produce ten-year projections of DSM savings as a result of this process?

A. Yes. We have made reasonable projections for the 10-year planning period recognizing the success and history of existing programs. Ten-year projections of the total amount of cost-effective savings reasonably achievable through DSM for the Progress Energy system are shown in my Exhibit JAM-2. These projections are identical to the sum of the residential and commercial/industrial (C/I) market segment DSM goals being proposed by Progress Energy.

Q. What considerations did Progress Energy use to determine conservation measures to be analyzed?

A. During the selection and analysis of the conservation measures, Progress Energy gave consideration to the issues and end-use categories specified in Commission Rule 25-17.0021(3), F.A.C. The conservation measures were evaluated separately for the residential and commercial/industrial market segments, and vintage (*i.e.*, existing construction and new construction). The residential space conditioning measures were also evaluated for each of the two major baseline technologies (*i.e.*, strip-heat and heat pumps).

Q. What conservation measures were analyzed by Progress Energy?

A. The Company's analysis included Code/Utility Evaluation (CUE) and Potential Utility Program (UP) Measures taken from the "List of Demand Side Management Measures and their Implementation Applicability" in the Commission's Fourth Order Establishing Procedure in the 1993 Goals proceeding (Docket No. 930549-EG). In addition, several promising measures, including "Cool Roofs" and energy recovery technologies such as the Membrane Energy Recovery Ventilator (MERV), were identified by Progress Energy and added to the list of measures to be evaluated.

Q. Would you please describe the market penetration analysis?

A. Yes. The market penetration analysis used to estimate the participation projections for each conservation measure involved a mix of approaches. Actual historical data and expert judgment from over twenty years of

implementing successful DSM programs by the Company provided the basis for projecting participation in many of the conservation measures included in Progress Energy's programs. Participation was determined based upon varying forces such as market growth, economic strength, weather conditions, and other related impacts.

Overall, the Home Energy Improvement Program is expected to increase and the Residential New Construction Program will begin to decline due to recent increases in the minimum qualifying standards for this program. Standards have risen to maintain the integrity of the program's cost-effectiveness as minimum building codes also increase.

Audit participation was projected based upon historical data and anticipated changes in consumer lifestyles patterns. Interest in online audits is expected to increase as the internet becomes the medium of choice for financial transactions and informational exchange.

Q. Would you please describe the process used to evaluate the conservation measures for cost-effectiveness?

A. Yes. Progress Energy used the DSView model, owned and licensed by New Energy Associates, to perform the conservation measure cost-effectiveness evaluations. Using DSView, each conservation measure was evaluated against a set of potentially avoidable supply-side capacity options.

The conservation measures were defined in the model in terms of their cost and energy and demand impacts. Thus, the primary data inputs for the conservation measures include the incremental equipment and installation

cost of the measure, any incremental recurring O&M costs, kW and kWh savings, utility administration costs, utility incentives to customers, and the participation projections.

The supply-side resources are primarily defined by the cost, type, and timing of planned future supply-side resources in the absence of any new DSM. A base supply-side plan was developed by the System Planning Department and the Generation and Modeling Analysis Departments using Progress Energy's most recent demand and energy forecast without including the impacts of any incremental new DSM. The base supply-side plan represents the most cost-effective approach to meet future load growth with only supply-side resources, and properly defines the set of potentially avoidable supply-side resources that DSView evaluates the conservation measures against.

The primary outputs produced by the DSView model for each conservation measure are the benefit/cost results from the Commission-approved Participant, RIM, and TRC cost-effectiveness tests. My Exhibit JAM-3 shows the results of these three tests for all measures with a benefit/cost ratio greater than 1.0 on each test, as well as the major input data associated with each conservation measure. This exhibit also contains six sheets of data supporting the savings included in Progress Energy's proposed goals from its residential and commercial audit programs.

Q. How does Progress Energy define cost-effective conservation?

A. In developing its DSM goals, Progress Energy adheres to past Commission precedent in considering a conservation program to be cost-effective only if it satisfies the Commission's Participant and RIM cost-effectiveness tests. In other words, a program that passes the Participant and TRC tests, but fails the RIM test, is not considered cost-effective for purposes of determining cost-effective DSM goals.

Q. How do Progress Energy's proposed residential DSM goals compare with the existing residential DSM goals currently in place?

A. The following table compares Progress Energy's proposed residential ten-year cumulative DSM goals with Progress Energy's currently existing residential ten-year DSM goals.

Residential Ten-Year Cumulative DSM Savings

	Peak MW Demand		
	Winter	**Summer**	**GWH Energy**
Existing Goals	389	125	185
Proposed Goals	366	92	161
Difference	-23	-33	-24

As can be seen from the table, the proposed ten-year goals for residential summer and winter peak demand and GWH savings is slightly lower than the existing ten-year demand and energy goals. This is in large part the result of scheduled changes in the Seasonal Energy Efficiency Rating or SEER standard for residential central air conditioners, which are expected to result initially in a decrease in participation levels for all HVAC measures. This change will apply to central air conditioners starting in January 2006

and will increase the standard applicable to today's models by 30 percent. In addition, participation in such measures as insulation and duct repair are expected to decrease in the latter years of the plan as the impact of more stringent energy codes and program saturation levels are realized.

Q. Are there any residential direct load control measures that were cost-effective?

A. Yes, Progress Energy identified a combination of two direct load control measures that were found to be cost-effective; central heating and water heating during the winter months only. These measures contribute about 96 MW to Progress Energy's proposed Winter Peak MW Demand goal over the ten-year period.

Q. What do these cost-effectiveness results for the direct load control measures mean to Progress Energy's Residential Energy Management Program?

A. Progress Energy will continue to offer its five-month "winter only" program, although declining participation in this program is expected to continue. This remains a cost-effective program, which provides direct load control of participating customers' electric water heating and central electric heating appliances during the winter months of November through March.

Q. How do Progress Energy's proposed Commercial/Industrial DSM goals compare with the existing goals for this market segment?

A. The proposed C/I goals are slightly lower than Progress Energy's existing goals for summer and winter peak demand, but slightly higher for GWh savings. The following table compares Progress Energy's proposed ten-year cumulative C/I DSM goals with the existing ten-year goals.

Commercial/Industrial Ten-Year Cumulative DSM Savings Goals

	Peak MW Demand		
	Winter	**Summer**	**GWH Energy**
Existing Goals	37	38	19
Proposed Goals	34	36	29
Difference	-3	-2	10

Q. Why is Progress Energy's proposed Commercial/Industrial GWH savings higher than the existing goals?

A. The savings in the Company's proposed C/I GWh goal increased due to the changing mix of HVAC measures. The proposed goal is more heavily weighted to HVAC measures that yield greater energy savings.

PROPOSED DSM PLAN

Q. Please describe Progress Energy's proposed DSM Plan for achieving the Company's proposed conservation goals?

A. The DSM programs that comprise Progress Energy's proposed DSM Plan are set forth and described in my Exhibit JAM-4. The DSM Plan includes a wide variety of end-use conservation measures that have been grouped and tailored to complement each other in 14 individual DSM programs, consisting of five residential programs, seven commercial-industrial

programs, a qualifying (cogeneration and small power production) facilities program, and a research and development program. These DSM programs are in large part the same as the Company's current DSM programs, with certain revisions and refinements to account for changes that have taken place since they were initially approved by the Commission in 2000. In combination, they are expected to achieve the proposed conservation goals described in the prior portion of my testimony. Like the current programs, the proposed DSM programs will provide Progress Energy's customers with comprehensive DSM services while resulting in electric rates that are lower than they would have been if these programs had not been implemented.

Q. Does this conclude your testimony?

A. Yes, it does.

Progress Energy Florida
Docket No. 040031-EG
Witness: Masiello
Exhibit No. ___ (JAM-1)

Proposed Residential Plan 2004 DSM Filing						
	Projected Summer Demand Savings (MW)		Projected Winter Demand Savings (MW)		Projected Annual Energy Savings (GWh)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2005	13	13	43	43	21	21
2006	8	21	33	75	14	35
2007	9	30	33	108	15	50
2008	8	38	33	142	15	65
2009	9	47	34	175	15	80
2010	8	55	35	210	15	95
2011	10	65	38	248	17	112
2012	9	74	38	287	17	128
2013	9	83	38	324	16	144
2014	9	92	42	366	16	161

Proposed Commercial Plan 2004 DSM Filing						
	Projected Summer Demand Savings (MW)		Projected Winter Demand Savings (MW)		Projected Annual Energy Savings (GWh)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2005	4	4	3	3	3	3
2006	3	7	4	7	3	6
2007	4	11	4	10	3	9
2008	4	14	3	14	3	12
2009	3	18	3	17	3	15
2010	3	21	3	20	3	18
2011	4	25	4	24	3	20
2012	3	29	3	28	3	23
2013	3	32	3	31	3	26
2014	4	36	3	34	3	29

Progress Energy Florida
Docket No. 040031-EG
Witness: Masiello
Exhibit No. ___ (JAM-2)

Proposed Ten-Year Projection of DSM Savings						
	Projected Summer Demand Savings (MW)		Projected Winter Demand Savings (MW)		Projected Annual Energy Savings (GWh)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2005	17	17	46	46	24	24
2006	11	28	36	82	17	41
2007	13	41	37	118	18	59
2008	12	52	36	156	18	77
2009	12	65	37	192	18	95
2010	11	76	38	230	18	113
2011	14	90	42	272	20	132
2012	12	103	41	315	20	151
2013	12	115	41	355	19	170
2014	13	128	45	400	19	190

Progress Energy Florida
Docket No. 040031-EG
Witness: Masiello
Exhibit No. ___ (JAM-3)

Exhibits to the Direct Testimony of John A. Masiello

DETAILS OF CONSERVATION MEASURES SELECTED FOR EVALUATION

Input Data

Measure Name: Business Internet Audit

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	
Utility Non-recurring Cost per Participant:	$10.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	200
Peak Winter KW Reduction:	0.1
Peak Summer KW Reduction:	0.1

Year	Cumulative Participation
2005	150
2006	300
2007	450
2008	600
2009	750
2010	950
2011	1,150
2012	1,350
2013	1,550
2014	1,750

Input Data

Measure Name: Business Walk Through Audit

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$325.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	300
Peak Winter KW Reduction:	0.14
Peak Summer KW Reduction:	0.14

Year	Cumulative Participation
2005	1,500
2006	3,000
2007	4,500
2008	6,000
2009	7,500
2010	9,100
2011	10,700
2012	12,300
2013	13,900
2014	15,500

Input Data

Measure Name: Internet Audits

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$10.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	83
Peak Winter KW Reduction:	0.025
Peak Summer KW Reduction:	0.025

Year	Cumulative Participation
2005	5,000
2006	10,000
2007	15,000
2008	20,000
2009	25,000
2010	30,000
2011	35,000
2012	40,500
2013	47,000
2014	54,000

Input Data

Measure Name: Mail In Audits

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$21.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	83
Peak Winter KW Reduction:	0.025
Peak Summer KW Reduction:	0.025

Year	Cumulative Participation
2005	4,000
2006	8,000
2007	12,000
2008	16,000
2009	20,000
2010	23,500
2011	27,000
2012	30,500
2013	34,000
2014	37,500

Input Data

Measure Name: Phone Assisted Audits

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	83
Peak Winter KW Reduction:	0.025
Peak Summer KW Reduction:	0.025

Year	Cumulative Participation
2005	10,500
2006	20,500
2007	30,500
2008	40,500
2009	50,500
2010	55,500
2011	60,500
2012	66,000
2013	72,000
2014	78,500

Input Data

Measure Name: Walk Through Audits

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	
Utility Non-recurring Cost per Participant:	$96.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	330
Peak Winter KW Reduction:	0.1
Peak Summer KW Reduction:	0.1

Year	Cumulative Participation
2005	8,000
2006	16,000
2007	24,000
2008	31,500
2009	38,500
2010	45,000
2011	51,500
2012	57,500
2013	63,000
2014	68,000

Input Data

Measure name: **Chiller .59 kW/ton Water**

Vintage: **Existing** Units: **1 participant = 20 tons**

		Year	Cumulative Participation
Incremental Participant Cost:	$1,500.00	2005	75
Incremental Annual O&M Cost:	$0.00	2006	150
Non-Recurring Incentive per Participant:	$73.18	2007	225
Utility Non-recurring Cost per Participant:	$20.00	2008	300
Utility Recurring Cost per Participant:	$0.00	2009	375
Annual kWh Reduction:	1,409	2010	450
Peak Winter KW Reduction:	0.044	2011	525
Peak Summer KW Reduction:	0.732	2012	600
		2013	675
		2014	750

Measure: Chiller .59 kW/ton Water

Existing **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	6	2	0	0	8	0	0	0	2	8	6	16	-7
2006	10	4	0	0	14	0	0	0	2	8	12	21	-7
2007	20	6	7	0	33	0	0	0	2	8	18	27	5
2008	27	8	10	0	44	0	0	0	2	8	24	34	10
2009	35	9	12	0	56	0	0	0	2	8	31	41	16
2010	30	11	24	0	66	0	0	0	2	8	38	48	18
2011	33	13	27	0	73	0	0	0	2	8	45	55	18
2012	40	15	33	0	89	0	0	0	2	8	53	63	26
2013	44	17	36	0	97	0	0	0	2	8	61	71	27
2014	51	19	33	0	103	0	0	0	2	8	69	79	25
2015	55	19	35	0	109	0	0	0	0	0	71	71	38
2016	50	19	35	0	104	0	0	0	0	0	73	73	31
2017	58	19	37	0	113	0	0	0	0	0	75	75	39
2018	58	19	36	0	113	0	0	0	0	0	77	77	37
2019	61	19	38	0	118	0	0	0	0	0	78	78	40
2020	61	19	38	0	118	0	0	0	0	0	80	80	37
2021	62	19	38	0	119	0	0	0	0	0	82	82	36
2022	62	19	40	0	120	0	0	0	0	0	85	85	36
2023	64	19	40	0	123	0	0	0	0	0	87	87	36
2024	66	19	41	0	126	0	0	0	0	0	89	89	38
2025	67	19	42	0	128	0	0	0	0	0	91	91	37
2026	68	19	44	0	130	0	0	0	0	0	93	93	37
2027	69	19	45	0	133	0	0	0	0	0	96	96	37
2028	71	19	46	0	135	0	0	0	0	0	98	98	37
2029	72	19	46	0	137	0	0	0	0	0	100	100	37
2030	73	19	48	0	140	0	0	0	0	0	103	103	37
2031	74	19	49	0	142	0	0	0	0	0	106	106	36
2032	77	19	51	0	146	0	0	0	0	0	108	108	38
2033	77	19	51	0	147	0	0	0	0	0	111	111	36
NOMINAL	1,538	464	982	0	2,984	0	0	0	15	80	2,061	2,155	829
NPV	448	143	275	0	867	0	0	0	10	53	576	639	228

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.36**

Measure: Chiller .59 kW/ton Water

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	6	2	0	0	8	60	0	0	0	2	62	-53
2006	10	4	0	0	14	60	0	0	0	2	62	-47
2007	20	6	7	0	33	60	0	0	0	2	62	-29
2008	27	8	10	0	44	60	0	0	0	2	62	-18
2009	35	9	12	0	56	60	0	0	0	2	62	-5
2010	30	11	24	0	66	60	0	0	0	2	62	4
2011	33	13	27	0	73	60	0	0	0	2	62	12
2012	40	15	33	0	89	60	0	0	0	2	62	27
2013	44	17	36	0	97	60	0	0	0	2	62	36
2014	51	19	33	0	103	60	0	0	0	2	62	42
2015	55	19	35	0	109	0	0	0	0	0	0	109
2016	50	19	35	0	104	0	0	0	0	0	0	104
2017	58	19	37	0	113	0	0	0	0	0	0	113
2018	58	19	36	0	113	0	0	0	0	0	0	113
2019	61	19	38	0	118	0	0	0	0	0	0	118
2020	61	19	38	0	118	0	0	0	0	0	0	118
2021	62	19	38	0	119	0	0	0	0	0	0	119
2022	62	19	40	0	120	0	0	0	0	0	0	120
2023	64	19	40	0	123	0	0	0	0	0	0	123
2024	66	19	41	0	126	0	0	0	0	0	0	126
2025	67	19	42	0	128	0	0	0	0	0	0	128
2026	68	19	44	0	130	0	0	0	0	0	0	130
2027	69	19	45	0	133	0	0	0	0	0	0	133
2028	71	19	46	0	135	0	0	0	0	0	0	135
2029	72	19	46	0	137	0	0	0	0	0	0	137
2030	73	19	48	0	140	0	0	0	0	0	0	140
2031	74	19	49	0	142	0	0	0	0	0	0	142
2032	77	19	51	0	146	0	0	0	0	0	0	146
2033	77	19	51	0	147	0	0	0	0	0	0	147
NOMINAL	1,538	464	982	0	2,984	600	0	0	0	15	615	2,369
NPV	448	143	275	0	867	400	0	0	0	10	410	457

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.12**

Measure: Chiller .59 kW/ton Water

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	6	8	0	14	60	0	60	-46
2006	12	8	0	20	60	0	60	-40
2007	18	8	0	26	60	0	60	-34
2008	24	8	0	32	60	0	60	-28
2009	31	8	0	39	60	0	60	-21
2010	38	8	0	46	60	0	60	-14
2011	45	8	0	53	60	0	60	-7
2012	53	8	0	61	60	0	60	1
2013	61	8	0	69	60	0	60	9
2014	69	8	0	77	60	0	60	17
2015	71	0	0	71	0	0	0	71
2016	73	0	0	73	0	0	0	73
2017	75	0	0	75	0	0	0	75
2018	77	0	0	77	0	0	0	77
2019	78	0	0	78	0	0	0	78
2020	80	0	0	80	0	0	0	80
2021	82	0	0	82	0	0	0	82
2022	85	0	0	85	0	0	0	85
2023	87	0	0	87	0	0	0	87
2024	89	0	0	89	0	0	0	89
2025	91	0	0	91	0	0	0	91
2026	93	0	0	93	0	0	0	93
2027	96	0	0	96	0	0	0	96
2028	98	0	0	98	0	0	0	98
2029	100	0	0	100	0	0	0	100
2030	103	0	0	103	0	0	0	103
2031	106	0	0	106	0	0	0	106
2032	108	0	0	108	0	0	0	108
2033	111	0	0	111	0	0	0	111
NOMINAL	1,950	80	0	2,029	600	0	600	1.429
NPV	576	53	0	629	400	0	400	229

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.57**

Input Data

Measure name: **Chiller .62 kW/ton--Water**

Vintage: **Existing** Units: **1 Participant = 20 tons**

		Year	Cumulative Participation
Incremental Participant Cost:	$1,500.00	2005	100
Incremental Annual O&M Cost:	$0.00	2006	200
Non-Recurring Incentive per Participant:	$111.00	2007	300
Utility Non-recurring Cost per Participant:	$20.00	2008	400
Utility Recurring Cost per Participant:	$0.00	2009	500
Annual kWh Reduction:	2,508	2010	600
Peak Winter KW Reduction:	0.1	2011	700
Peak Summer KW Reduction:	1.23	2012	800
		2013	900
		2014	1,000

Measure: Chiller .62 kW/ton--Water

Existing **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	12	3	0	0	15	0	0	0	2	13	12	27	-13
2006	19	6	0	0	25	0	0	0	2	13	24	38	-13
2007	37	9	11	0	58	0	0	0	2	13	36	51	7
2008	49	12	16	0	77	0	0	0	2	13	49	64	13
2009	64	15	20	0	99	0	0	0	2	13	62	77	21
2010	58	18	40	0	116	0	0	0	2	13	76	91	25
2011	63	21	45	0	130	0	0	0	2	13	91	106	23
2012	78	25	54	0	157	0	0	0	2	13	107	121	35
2013	86	28	60	0	173	0	0	0	2	13	123	137	36
2014	101	31	55	0	186	0	0	0	2	13	139	154	32
2015	106	31	57	0	194	0	0	0	0	0	143	143	51
2016	102	31	57	0	190	0	0	0	0	0	146	146	43
2017	111	31	60	0	202	0	0	0	0	0	150	150	52
2018	111	31	60	0	202	0	0	0	0	0	154	154	48
2019	117	31	62	0	210	0	0	0	0	0	157	157	52
2020	117	31	62	0	209	0	0	0	0	0	161	161	48
2021	119	31	63	0	213	0	0	0	0	0	165	165	47
2022	120	31	65	0	216	0	0	0	0	0	170	170	46
2023	124	31	67	0	221	0	0	0	0	0	174	174	47
2024	126	31	68	0	225	0	0	0	0	0	178	178	47
2025	129	31	70	0	230	0	0	0	0	0	183	183	47
2026	131	31	72	0	233	0	0	0	0	0	187	187	46
2027	134	31	74	0	238	0	0	0	0	0	192	192	46
2028	136	31	75	0	242	0	0	0	0	0	197	197	46
2029	138	31	77	0	245	0	0	0	0	0	202	202	44
2030	141	31	79	0	251	0	0	0	0	0	207	207	44
2031	143	31	80	0	254	0	0	0	0	0	212	212	43
2032	147	31	83	0	261	0	0	0	0	0	217	217	44
2033	150	31	85	0	265	0	0	0	0	0	222	222	42
NOMINAL	2,965	752	1,618	0	5,335	0	0	0	20	129	4,134	4,284	1,051
NPV	860	232	454	0	1,546	0	0	0	13	86	1,155	1,254	292

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.23**

Measure: Chiller .62 kW/ton--Water

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) TOTAL BENEFITS $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) TOTAL COSTS $(000)	(12) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	12	3	0	0	15	120	0	0	0	2	122	-107
2006	19	6	0	0	25	120	0	0	0	2	122	-97
2007	37	9	11	0	58	120	0	0	0	2	122	-64
2008	49	12	16	0	77	120	0	0	0	2	122	-45
2009	64	15	20	0	99	120	0	0	0	2	122	-23
2010	58	18	40	0	116	120	0	0	0	2	122	-6
2011	63	21	45	0	130	120	0	0	0	2	122	8
2012	78	25	54	0	157	120	0	0	0	2	122	35
2013	86	28	60	0	173	120	0	0	0	2	122	51
2014	101	31	55	0	186	120	0	0	0	2	122	64
2015	106	31	57	0	194	0	0	0	0	0	0	194
2016	102	31	57	0	190	0	0	0	0	0	0	190
2017	111	31	60	0	202	0	0	0	0	0	0	202
2018	111	31	60	0	202	0	0	0	0	0	0	202
2019	117	31	62	0	210	0	0	0	0	0	0	210
2020	117	31	62	0	209	0	0	0	0	0	0	209
2021	119	31	63	0	213	0	0	0	0	0	0	213
2022	120	31	65	0	216	0	0	0	0	0	0	216
2023	124	31	67	0	221	0	0	0	0	0	0	221
2024	126	31	68	0	225	0	0	0	0	0	0	225
2025	129	31	70	0	230	0	0	0	0	0	0	230
2026	131	31	72	0	233	0	0	0	0	0	0	233
2027	134	31	74	0	238	0	0	0	0	0	0	238
2028	136	31	75	0	242	0	0	0	0	0	0	242
2029	138	31	77	0	245	0	0	0	0	0	0	245
2030	141	31	79	0	251	0	0	0	0	0	0	251
2031	143	31	80	0	254	0	0	0	0	0	0	254
2032	147	31	83	0	261	0	0	0	0	0	0	261
2033	150	31	85	0	265	0	0	0	0	0	0	265
NOMINAL	2,965	752	1,618	0	5,335	1,200	0	0	0	20	1,220	4,115
NPV	860	232	454	0	1,546	799	0	0	0	13	813	733

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.90

Measure: Chiller .62 kW/ton--Water

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	12	13	0	25	120	0	120	-95
2006	24	13	0	36	120	0	120	-84
2007	36	13	0	49	120	0	120	-71
2008	49	13	0	62	120	0	120	-58
2009	62	13	0	75	120	0	120	-45
2010	76	13	0	89	120	0	120	-31
2011	91	13	0	104	120	0	120	-16
2012	107	13	0	119	120	0	120	-1
2013	123	13	0	135	120	0	120	15
2014	139	13	0	152	120	0	120	32
2015	143	0	0	143	0	0	0	143
2016	146	0	0	146	0	0	0	146
2017	150	0	0	150	0	0	0	150
2018	154	0	0	154	0	0	0	154
2019	157	0	0	157	0	0	0	157
2020	161	0	0	161	0	0	0	161
2021	165	0	0	165	0	0	0	165
2022	170	0	0	170	0	0	0	170
2023	174	0	0	174	0	0	0	174
2024	178	0	0	178	0	0	0	178
2025	183	0	0	183	0	0	0	183
2026	187	0	0	187	0	0	0	187
2027	192	0	0	192	0	0	0	192
2028	197	0	0	197	0	0	0	197
2029	202	0	0	202	0	0	0	202
2030	207	0	0	207	0	0	0	207
2031	212	0	0	212	0	0	0	212
2032	217	0	0	217	0	0	0	217
2033	222	0	0	222	0	0	0	222
NOMINAL	3,912	129	0	4,041	1,200	0	1,200	2,841
NPV	1,155	86	0	1,241	799	0	799	442

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.55**

Input Data

Measure name: **Chiller .70 kW/ton**

Vintage: **Existing** Units: **1 Participant = 20 units**

		Year	Cumulative Participation
Incremental Participant Cost:	$1,500.00	2005	25
Incremental Annual O&M Cost:	$0.00	2006	50
Non-Recurring Incentive per Participant:	$108.00	2007	75
Utility Non-recurring Cost per Participant:	$20.00	2008	100
Utility Recurring Cost per Participant:	$0.00	2009	125
Annual kWh Reduction:	2,107	2010	150
Peak Winter KW Reduction:	0.071	2011	175
Peak Summer KW Reduction:	1.08	2012	200
		2013	225
		2014	250

Measure: Chiller .70 kW/ton

Existing **Rate Impact Measure Test**

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	TOTAL BENEFITS $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	TOTAL COSTS $(000)	NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	3	0	0	12	0	0	0	0	11	10	22	-9
2006	16	5	0	0	21	0	0	0	2	11	20	33	-12
2007	32	8	10	0	50	0	0	0	2	11	30	44	6
2008	42	11	14	0	67	0	0	0	2	11	41	55	12
2009	54	13	17	0	85	0	0	0	2	11	53	66	19
2010	49	16	35	0	100	0	0	0	2	11	65	78	22
2011	54	19	39	0	112	0	0	0	2	11	77	91	22
2012	67	22	48	0	136	0	0	0	2	11	90	104	32
2013	73	24	52	0	149	0	0	0	2	11	104	117	32
2014	85	27	48	0	160	0	0	0	2	11	118	131	28
2015	90	27	50	0	167	0	0	0	0	0	121	121	47
2016	86	27	50	0	163	0	0	0	0	0	124	124	39
2017	95	27	53	0	174	0	0	0	0	0	127	127	48
2018	95	27	52	0	174	0	0	0	0	0	130	130	44
2019	100	27	55	0	181	0	0	0	0	0	133	133	48
2020	100	27	54	0	181	0	0	0	0	0	137	137	44
2021	101	27	55	0	184	0	0	0	0	0	140	140	44
2022	102	27	57	0	186	0	0	0	0	0	143	143	42
2023	105	27	58	0	190	0	0	0	0	0	147	147	43
2024	108	27	60	0	194	0	0	0	0	0	151	151	44
2025	109	27	61	0	197	0	0	0	0	0	154	154	43
2026	112	27	63	0	201	0	0	0	0	0	158	158	43
2027	113	27	64	0	204	0	0	0	0	0	162	162	42
2028	116	27	66	0	208	0	0	0	0	0	166	166	42
2029	117	27	67	0	211	0	0	0	0	0	171	171	40
2030	121	27	69	0	217	0	0	0	0	0	175	175	42
2031	122	27	70	0	219	0	0	0	0	0	179	179	40
2032	125	27	73	0	224	0	0	0	0	0	184	184	41
2033	127	27	74	0	228	0	0	0	0	0	188	188	40
NOMINAL	2,523	660	1,413	0	4,596	0	0	0	18	114	3,498	3,630	966
NPV	732	204	396	0	1,333	0	0	0	11	76	977	1,065	268

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.25

Measure: Chiller .70 kW/ton

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	3	0	0	12	0	0	0	0	0	0	12
2006	16	5	0	0	21	120	0	0	0	2	122	-101
2007	32	8	10	0	50	120	0	0	0	2	122	-72
2008	42	11	14	0	67	120	0	0	0	2	122	-55
2009	54	13	17	0	85	120	0	0	0	2	122	-37
2010	49	16	35	0	100	120	0	0	0	2	122	-22
2011	54	19	39	0	112	120	0	0	0	2	122	-10
2012	67	22	48	0	136	120	0	0	0	2	122	14
2013	73	24	52	0	149	120	0	0	0	2	122	27
2014	85	27	48	0	160	120	0	0	0	2	122	38
2015	90	27	50	0	167	0	0	0	0	0	0	167
2016	86	27	50	0	163	0	0	0	0	0	0	163
2017	95	27	53	0	174	0	0	0	0	0	0	174
2018	95	27	52	0	174	0	0	0	0	0	0	174
2019	100	27	55	0	181	0	0	0	0	0	0	181
2020	100	27	54	0	181	0	0	0	0	0	0	181
2021	101	27	55	0	184	0	0	0	0	0	0	184
2022	102	27	57	0	186	0	0	0	0	0	0	186
2023	105	27	58	0	190	0	0	0	0	0	0	190
2024	108	27	60	0	194	0	0	0	0	0	0	194
2025	109	27	61	0	197	0	0	0	0	0	0	197
2026	112	27	63	0	201	0	0	0	0	0	0	201
2027	113	27	64	0	204	0	0	0	0	0	0	204
2028	116	27	66	0	208	0	0	0	0	0	0	208
2029	117	27	67	0	211	0	0	0	0	0	0	211
2030	121	27	69	0	217	0	0	0	0	0	0	217
2031	122	27	70	0	219	0	0	0	0	0	0	219
2032	125	27	73	0	224	0	0	0	0	0	0	224
2033	127	27	74	0	228	0	0	0	0	0	0	228
NOMINAL	2,523	660	1,413	0	4,596	1,080	0	0	0	18	1,098	3,498
NPV	732	204	396	0	1,333	688	0	0	0	11	700	633

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.90**

Measure: Chiller .70 kW/ton

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	10	11	0	22	0	0	0	22
2006	20	11	0	31	120	0	120	-89
2007	30	11	0	42	120	0	120	-78
2008	41	11	0	53	120	0	120	-67
2009	53	11	0	64	120	0	120	-56
2010	65	11	0	76	120	0	120	-44
2011	77	11	0	89	120	0	120	-31
2012	90	11	0	102	120	0	120	-18
2013	104	11	0	115	120	0	120	-5
2014	118	11	0	129	120	0	120	9
2015	121	0	0	121	0	0	0	121
2016	124	0	0	124	0	0	0	124
2017	127	0	0	127	0	0	0	127
2018	130	0	0	130	0	0	0	130
2019	133	0	0	133	0	0	0	133
2020	137	0	0	137	0	0	0	137
2021	140	0	0	140	0	0	0	140
2022	143	0	0	143	0	0	0	143
2023	147	0	0	147	0	0	0	147
2024	151	0	0	151	0	0	0	151
2025	154	0	0	154	0	0	0	154
2026	158	0	0	158	0	0	0	158
2027	162	0	0	162	0	0	0	162
2028	166	0	0	166	0	0	0	166
2029	171	0	0	171	0	0	0	171
2030	175	0	0	175	0	0	0	175
2031	179	0	0	179	0	0	0	179
2032	184	0	0	184	0	0	0	184
2033	188	0	0	188	0	0	0	188
NOMINAL	3,310	114	0	3,424	1,080	0	1,080	2,344
NPV	977	76	0	1,053	688	0	688	365

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.53**

Input Data

Measure name: **Chiller 1.17 kW/ton--Air**

Vintage: **Existing** Units: **1 Participant = 20 tons**

		Year	Cumulative Participation
Incremental Participant Cost:	$1,500.00	2005	75
Incremental Annual O&M Cost:	$0.00	2006	150
Non-Recurring Incentive per Participant:	$156.94	2007	225
Utility Non-recurring Cost per Participant:	$20.00	2008	300
Utility Recurring Cost per Participant:	$0.00	2009	375
Annual kWh Reduction:	2,595	2010	450
Peak Winter KW Reduction:	0.48	2011	525
Peak Summer KW Reduction:	1.57	2012	600
		2013	675
		2014	750

Measure: Chiller 1.17 kW/ton--Air

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) TOTAL BENEFITS $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) TOTAL COSTS $(000)	(12) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	9	3	0	0	12	90	0	0	0	2	92	-80
2006	16	6	0	0	21	90	0	0	0	2	92	-70
2007	31	9	10	0	50	90	0	0	0	2	92	-41
2008	41	12	14	0	67	90	0	0	0	2	92	-24
2009	53	15	18	0	85	90	0	0	0	2	92	-6
2010	46	18	36	0	100	90	0	0	0	2	92	9
2011	50	20	41	0	112	90	0	0	0	2	92	20
2012	62	23	50	0	135	90	0	0	0	2	92	44
2013	68	26	54	0	148	90	0	0	0	2	92	57
2014	80	29	50	0	159	90	0	0	0	2	92	68
2015	85	29	52	0	167	0	0	0	0	0	0	167
2016	81	29	52	0	162	0	0	0	0	0	0	162
2017	89	29	55	0	174	0	0	0	0	0	0	174
2018	90	29	54	0	173	0	0	0	0	0	0	173
2019	95	29	57	0	181	0	0	0	0	0	0	181
2020	94	29	56	0	180	0	0	0	0	0	0	180
2021	96	29	58	0	182	0	0	0	0	0	0	182
2022	97	29	59	0	185	0	0	0	0	0	0	185
2023	100	29	61	0	189	0	0	0	0	0	0	189
2024	102	29	62	0	194	0	0	0	0	0	0	194
2025	104	29	64	0	197	0	0	0	0	0	0	197
2026	105	29	65	0	200	0	0	0	0	0	0	200
2027	107	29	67	0	203	0	0	0	0	0	0	203
2028	110	29	69	0	208	0	0	0	0	0	0	208
2029	107	29	91	0	227	0	0	0	0	0	0	227
2030	113	29	72	0	215	0	0	0	0	0	0	215
2031	110	29	96	0	235	0	0	0	0	0	0	235
2032	117	29	76	0	222	0	0	0	0	0	0	222
2033	115	29	100	0	245	0	0	0	0	0	0	245
NOMINAL	2,370	717	1,540	0	4,628	900	0	0	0	15	915	3,713
NPV	691	222	421	0	1,334	600	0	0	0	10	610	725

Utility Discount Rate: 8.16

Benefit Cost Ratio: 2.19

Measure: Chiller 1.17 kW/ton--Air

Existing

Rate Impact Measure Test

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	**TOTAL BENEFITS**	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	9	3	0	0	12	0	0	0	2	12	10	23	-12
2006	16	6	0	0	21	0	0	0	2	12	18	32	-11
2007	31	9	10	0	50	0	0	0	2	12	28	42	8
2008	41	12	14	0	67	0	0	0	2	12	38	52	15
2009	53	15	18	0	85	0	0	0	2	12	49	63	22
2010	46	18	36	0	100	0	0	0	2	12	60	74	26
2011	50	20	41	0	112	0	0	0	2	12	72	85	26
2012	62	23	50	0	135	0	0	0	2	12	83	97	38
2013	68	26	54	0	148	0	0	0	2	12	96	110	39
2014	80	29	50	0	159	0	0	0	2	12	109	123	36
2015	85	29	52	0	167	0	0	0	0	0	112	112	55
2016	81	29	52	0	162	0	0	0	0	0	115	115	47
2017	89	29	55	0	174	0	0	0	0	0	117	117	56
2018	90	29	54	0	173	0	0	0	0	0	120	120	53
2019	95	29	57	0	181	0	0	0	0	0	123	123	57
2020	94	29	56	0	180	0	0	0	0	0	126	126	53
2021	96	29	58	0	182	0	0	0	0	0	130	130	53
2022	97	29	59	0	185	0	0	0	0	0	133	133	52
2023	100	29	61	0	189	0	0	0	0	0	136	136	53
2024	102	29	62	0	194	0	0	0	0	0	140	140	54
2025	104	29	64	0	197	0	0	0	0	0	143	143	53
2026	105	29	65	0	200	0	0	0	0	0	147	147	53
2027	107	29	67	0	203	0	0	0	0	0	150	150	53
2028	110	29	69	0	208	0	0	0	0	0	154	154	54
2029	107	29	91	0	227	0	0	0	0	0	158	158	69
2030	113	29	72	0	215	0	0	0	0	0	162	162	53
2031	110	29	96	0	235	0	0	0	0	0	166	166	69
2032	117	29	76	0	222	0	0	0	0	0	170	170	52
2033	115	29	100	0	245	0	0	0	0	0	174	174	70
NOMINAL	2,370	717	1,540	0	4,628	0	0	0	15	124	3,240	3,379	1,249
NPV	691	222	421	0	1,334	0	0	0	10	83	905	998	336

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.34**

Measure: **Chiller 1.17 kW/ton--Air**

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANTS BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANTS BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANTS COST $(000)	(6) PARTICIPANTS BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	10	12	0	22	90	0	90	-68
2006	18	12	0	31	90	0	90	-59
2007	28	12	0	41	90	0	90	-49
2008	38	12	0	51	90	0	90	-39
2009	49	12	0	61	90	0	90	-29
2010	60	12	0	72	90	0	90	-18
2011	72	12	0	84	90	0	90	-6
2012	83	12	0	96	90	0	90	6
2013	96	12	0	108	90	0	90	18
2014	109	12	0	121	90	0	90	31
2015	112	0	0	112	0	0	0	112
2016	115	0	0	115	0	0	0	115
2017	117	0	0	117	0	0	0	117
2018	120	0	0	120	0	0	0	120
2019	123	0	0	123	0	0	0	123
2020	126	0	0	126	0	0	0	126
2021	130	0	0	130	0	0	0	130
2022	133	0	0	133	0	0	0	133
2023	136	0	0	136	0	0	0	136
2024	140	0	0	140	0	0	0	140
2025	143	0	0	143	0	0	0	143
2026	147	0	0	147	0	0	0	147
2027	150	0	0	150	0	0	0	150
2028	154	0	0	154	0	0	0	154
2029	158	0	0	158	0	0	0	158
2030	162	0	0	162	0	0	0	162
2031	166	0	0	166	0	0	0	166
2032	170	0	0	170	0	0	0	170
2033	174	0	0	174	0	0	0	174
NOMINAL	3,066	124	0	3,190	900	0	900	2,290
NPV	905	83	0	988	600	0	600	388

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.65**

Input Data

Measure name: **Cool Roof**

Vintage: **Existing** Units: **1 participant = 5,000 SF**

		Year	Cumulative Participation
Incremental Participant Cost:	$2,500.00	2005	25
Incremental Annual O&M Cost:	$0.00	2006	50
Non-Recurring Incentive per Participant:	$225.00	2007	75
Utility Non-recurring Cost per Participant:	$20.00	2008	100
Utility Recurring Cost per Participant:	$0.00	2009	125
Annual kWh Reduction:	1,710	2010	150
Peak Winter KW Reduction:	2.18	2011	175
Peak Summer KW Reduction:	0.9	2012	200
Life of Measure (years):	10	2013	225
		2014	250

Measure: Cool Roof

Existing

Rate Impact Measure Test

YEAR	BENEFITS (1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	COSTS (6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	1	0	0	5	0	0	0	0	9	3	12	-8
2006	5	3	0	0	8	0	0	0	0	9	6	15	-7
2007	10	4	3	0	17	0	0	0	0	9	9	19	-2
2008	13	6	4	0	22	0	0	0	0	9	13	22	0
2009	17	7	5	0	28	0	0	0	0	9	16	25	3
2010	15	8	10	0	33	0	0	0	0	9	20	29	4
2011	17	10	11	0	38	0	0	0	0	9	24	33	5
2012	20	11	14	0	45	0	0	0	0	9	28	37	8
2013	22	12	15	0	49	0	0	0	0	9	32	41	8
2014	26	14	13	0	53	0	0	0	0	9	36	45	8
2015	27	14	15	0	56	0	0	0	0	0	37	37	18
2016	28	14	15	0	56	0	0	0	0	0	38	38	18
2017	28	14	16	0	58	0	0	0	0	0	39	39	19
2018	29	14	15	0	58	0	0	0	0	0	40	40	18
2019	30	14	17	0	61	0	0	0	0	0	41	41	20
2020	30	14	16	0	60	0	0	0	0	0	42	42	18
2021	31	14	17	0	61	0	0	0	0	0	43	43	18
2022	32	14	17	0	62	0	0	0	0	0	44	44	18
2023	31	14	18	0	63	0	0	0	0	0	45	45	17
2024	33	14	18	0	65	0	0	0	0	0	46	46	18
2025	33	14	18	0	65	0	0	0	0	0	48	48	18
2026	33	14	19	0	66	0	0	0	0	0	49	49	17
2027	34	14	19	0	67	0	0	0	0	0	50	50	17
2028	35	14	20	0	69	0	0	0	0	0	51	51	18
2029	36	14	20	0	69	0	0	0	0	0	53	53	17
2030	36	14	21	0	71	0	0	0	0	0	54	54	17
2031	37	14	21	0	72	0	0	0	0	0	55	55	17
2032	39	14	22	0	75	0	0	0	0	0	57	57	18
2033	40	14	22	0	76	0	0	0	0	0	58	58	17
NOMINAL	769	338	419	0	1,526	0	0	0	4	87	1,079	1,170	356
NPV	223	105	116	0	444	0	0	0	3	58	302	362	82

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.23

Measure: Cool Roof

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	1	0	0	5	44	0	0	0	0	44	-40
2006	5	3	0	0	8	44	0	0	0	0	44	-37
2007	10	4	3	0	17	44	0	0	0	0	44	-28
2008	13	6	4	0	22	44	0	0	0	0	44	-22
2009	17	7	5	0	28	44	0	0	0	0	44	-16
2010	15	8	10	0	33	44	0	0	0	0	44	-12
2011	17	10	11	0	38	44	0	0	0	0	44	-7
2012	20	11	14	0	45	44	0	0	0	0	44	0
2013	22	12	15	0	49	44	0	0	0	0	44	5
2014	26	14	13	0	53	44	0	0	0	0	44	9
2015	27	14	15	0	56	0	0	0	0	0	0	56
2016	28	14	15	0	56	0	0	0	0	0	0	56
2017	28	14	16	0	58	0	0	0	0	0	0	58
2018	29	14	15	0	58	0	0	0	0	0	0	58
2019	30	14	17	0	61	0	0	0	0	0	0	61
2020	30	14	16	0	60	0	0	0	0	0	0	60
2021	31	14	17	0	61	0	0	0	0	0	0	61
2022	32	14	17	0	62	0	0	0	0	0	0	62
2023	31	14	18	0	63	0	0	0	0	0	0	63
2024	33	14	18	0	65	0	0	0	0	0	0	65
2025	33	14	18	0	65	0	0	0	0	0	0	65
2026	33	14	19	0	66	0	0	0	0	0	0	66
2027	34	14	19	0	67	0	0	0	0	0	0	67
2028	35	14	20	0	69	0	0	0	0	0	0	69
2029	36	14	20	0	69	0	0	0	0	0	0	69
2030	36	14	21	0	71	0	0	0	0	0	0	71
2031	37	14	21	0	72	0	0	0	0	0	0	72
2032	39	14	22	0	75	0	0	0	0	0	0	75
2033	40	14	22	0	76	0	0	0	0	0	0	76
NOMINAL	769	338	419	0	1,526	440	0	0	0	4	444	1,082
NPV	223	105	116	0	444	293	0	0	0	3	296	148

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.50**

Input Data

Measure name: **DX RTU 10 to 11.5 EER**

Vintage: **Existing** Units: **1 Participant = 20 units**

		Year	Cumulative Participation
Incremental Participant Cost:	$2,000.00	2005	25
Incremental Annual O&M Cost:	$0.00	2006	50
Non-Recurring Incentive per Participant:	$189.00	2007	75
Utility Non-recurring Cost per Participant:	$30.00	2008	100
Utility Recurring Cost per Participant:	$0.00	2009	125
Annual kWh Reduction:	2,759	2010	150
Peak Winter KW Reduction:	0.005	2011	175
Peak Summer KW Reduction:	1.89	2012	200
		2013	225
		2014	250

Measure: Cool Roof

Existing **Participant Test**

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SAVINGS IN PARTICIPANT'S BILL	INCENTIVE PAYMENTS	OTHER PARTICIPANT'S BENEFITS	**TOTAL BENEFITS**	PARTICIPANT'S COST	PARTICIPANT'S BILL INCREASE	**TOTAL COSTS**	**NET BENEFITS TO PARTICIPANTS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0
2005	3	9	0	12	44	0	44	-32
2006	6	9	0	15	44	0	44	-29
2007	9	9	0	18	44	0	44	-26
2008	13	9	0	21	44	0	44	-23
2009	16	9	0	25	44	0	44	-19
2010	20	9	0	29	44	0	44	-15
2011	24	9	0	33	44	0	44	-11
2012	28	9	0	37	44	0	44	-7
2013	32	9	0	41	44	0	44	-3
2014	36	9	0	45	44	0	44	1
2015	37	0	0	37	0	0	0	37
2016	38	0	0	38	0	0	0	38
2017	39	0	0	39	0	0	0	39
2018	40	0	0	40	0	0	0	40
2019	41	0	0	41	0	0	0	41
2020	42	0	0	42	0	0	0	42
2021	43	0	0	43	0	0	0	43
2022	44	0	0	44	0	0	0	44
2023	45	0	0	45	0	0	0	45
2024	46	0	0	46	0	0	0	46
2025	48	0	0	48	0	0	0	48
2026	49	0	0	49	0	0	0	49
2027	50	0	0	50	0	0	0	50
2028	51	0	0	51	0	0	0	51
2029	53	0	0	53	0	0	0	53
2030	54	0	0	54	0	0	0	54
2031	55	0	0	55	0	0	0	55
2032	57	0	0	57	0	0	0	57
2033	58	0	0	58	0	0	0	58
NOMINAL	1,021	87	0	1,108	440	0	440	668
NPV	302	58	0	359	293	0	293	66

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.23**

Measure: DX RTU 10-11.5

Existing **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	0	0	0	1	5	3	9	-4
2006	4	2	0	0	6	0	0	0	0	2	5	8	-2
2007	7	2	2	0	12	0	0	0	0	2	7	9	3
2008	9	3	3	0	15	0	0	0	0	2	8	11	4
2009	11	4	4	0	18	0	0	0	0	2	10	13	5
2010	10	4	7	0	21	0	0	0	0	2	12	15	6
2011	11	5	8	0	23	0	0	0	0	2	14	17	6
2012	12	5	10	0	27	0	0	0	0	2	17	19	8
2013	13	6	11	0	29	0	0	0	0	2	19	22	7
2014	16	6	10	0	32	0	0	0	0	2	21	24	8
2015	16	6	10	0	33	0	0	0	0	0	22	22	11
2016	12	6	10	0	29	0	0	0	0	0	22	22	6
2017	17	6	11	0	34	0	0	0	0	0	23	23	11
2018	17	6	10	0	34	0	0	0	0	0	23	23	10
2019	19	6	11	0	36	0	0	0	0	0	24	24	12
2020	18	6	11	0	36	0	0	0	0	0	25	25	11
2021	19	6	11	0	36	0	0	0	0	0	25	25	11
2022	20	6	11	0	37	0	0	0	0	0	26	26	12
2023	19	6	12	0	37	0	0	0	0	0	26	26	11
2024	20	6	12	0	38	0	0	0	0	0	27	27	11
2025	20	6	12	0	39	0	0	0	0	0	28	28	11
2026	21	6	13	0	40	0	0	0	0	0	28	28	11
2027	21	6	13	0	40	0	0	0	0	0	29	29	11
2028	21	6	13	0	40	0	0	0	0	0	30	30	11
2029	21	6	13	0	41	0	0	0	0	0	31	31	10
2030	22	6	14	0	42	0	0	0	0	0	31	31	11
2031	23	6	14	0	43	0	0	0	0	0	32	32	11
2032	23	6	15	0	44	0	0	0	0	0	33	33	11
2033	24	6	15	0	45	0	0	0	0	0	34	34	11
NOMINAL	468	161	286	0	914	0	0	0	4	27	637	668	246
NPV	139	51	81	0	271	0	0	0	3	19	182	203	68

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.33

Measure: DX RTU 10-11.5

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	OTHER PARTICIPANT BENEFITS	**TOTAL BENEFITS**	PARTICIPANT'S COST	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	40	0	0	0	1	41	-36
2006	4	2	0	0	6	20	0	0	0	0	20	-14
2007	7	2	2	0	12	20	0	0	0	0	20	-8
2008	9	3	3	0	15	20	0	0	0	0	20	-5
2009	11	4	4	0	18	20	0	0	0	0	20	-2
2010	10	4	7	0	21	20	0	0	0	0	20	1
2011	11	5	8	0	23	20	0	0	0	0	20	3
2012	12	5	10	0	27	20	0	0	0	0	20	7
2013	13	6	11	0	29	20	0	0	0	0	20	9
2014	16	6	10	0	32	20	0	0	0	0	20	12
2015	16	6	10	0	33	0	0	0	0	0	0	33
2016	12	6	10	0	29	0	0	0	0	0	0	29
2017	17	6	11	0	34	0	0	0	0	0	0	34
2018	17	6	10	0	34	0	0	0	0	0	0	34
2019	19	6	11	0	36	0	0	0	0	0	0	36
2020	18	6	11	0	36	0	0	0	0	0	0	36
2021	19	6	11	0	36	0	0	0	0	0	0	36
2022	20	6	11	0	37	0	0	0	0	0	0	37
2023	19	6	12	0	37	0	0	0	0	0	0	37
2024	20	6	12	0	38	0	0	0	0	0	0	38
2025	20	6	12	0	39	0	0	0	0	0	0	39
2026	21	6	13	0	40	0	0	0	0	0	0	40
2027	21	6	13	0	40	0	0	0	0	0	0	40
2028	21	6	13	0	40	0	0	0	0	0	0	40
2029	21	6	13	0	41	0	0	0	0	0	0	41
2030	22	6	14	0	42	0	0	0	0	0	0	42
2031	23	6	14	0	43	0	0	0	0	0	0	43
2032	23	6	15	0	44	0	0	0	0	0	0	44
2033	24	6	15	0	45	0	0	0	0	0	0	45
NOMINAL	468	161	286	0	914	220	0	0	0	4	224	690
NPV	139	51	81	0	271	152	0	0	0	3	155	116

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.75**

Measure: DX RTU 10-11.5

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	3	5	0	8	40	0	40	-32
2006	5	2	0	7	20	0	20	-13
2007	7	2	0	9	20	0	20	-11
2008	8	2	0	11	20	0	20	-9
2009	10	2	0	13	20	0	20	-7
2010	12	2	0	15	20	0	20	-5
2011	14	2	0	17	20	0	20	-3
2012	17	2	0	19	20	0	20	-1
2013	19	2	0	21	20	0	20	1
2014	21	2	0	24	20	0	20	4
2015	22	0	0	22	0	0	0	22
2016	22	0	0	22	0	0	0	22
2017	23	0	0	23	0	0	0	23
2018	23	0	0	23	0	0	0	23
2019	24	0	0	24	0	0	0	24
2020	25	0	0	25	0	0	0	25
2021	25	0	0	25	0	0	0	25
2022	26	0	0	26	0	0	0	26
2023	26	0	0	26	0	0	0	26
2024	27	0	0	27	0	0	0	27
2025	28	0	0	28	0	0	0	28
2026	28	0	0	28	0	0	0	28
2027	29	0	0	29	0	0	0	29
2028	30	0	0	30	0	0	0	30
2029	31	0	0	31	0	0	0	31
2030	31	0	0	31	0	0	0	31
2031	32	0	0	32	0	0	0	32
2032	33	0	0	33	0	0	0	33
2033	34	0	0	34	0	0	0	34
NOMINAL	603	27	0	630	220	0	220	410
NPV	182	19	0	200	152	0	152	49

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.32**

Input Data

Measure name: **Fixed Plate ERV**

Vintage: **Existing** Units: **1 Participant = 450 cfm**

		Year	Cumulative Participation
Incremental Participant Cost:	$2,500.00	2005	50
Incremental Annual O&M Cost:	$0.00	2006	100
Non-Recurring Incentive per Participant:	$344.00	2007	150
Utility Non-recurring Cost per Participant:	$20.00	2008	200
Utility Recurring Cost per Participant:	$0.00	2009	250
Annual kWh Reduction:	861	2010	300
Peak Winter KW Reduction:	3.44	2011	350
Peak Summer KW Reduction:	1.053	2012	400
		2013	450
		2014	500

Measure: Fixed Plate ERV

Existing

Rate Impact Measure Test

YEAR	BENEFITS (1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	COSTS (6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	3	0	0	6	0	0	0	1	17	2	20	-14
2006	4	7	0	0	10	0	0	0	1	17	3	21	-11
2007	8	10	3	0	21	0	0	0	1	17	5	23	-2
2008	11	14	5	0	29	0	0	0	1	17	7	25	4
2009	13	17	5	0	35	0	0	0	1	17	9	27	8
2010	10	21	10	0	41	0	0	0	1	17	11	29	12
2011	11	24	11	0	46	0	0	0	1	17	13	31	15
2012	13	27	14	0	55	0	0	0	1	17	15	33	22
2013	14	31	16	0	60	0	0	0	1	17	18	36	25
2014	17	34	14	0	66	0	0	0	1	17	20	38	28
2015	18	34	16	0	69	0	0	0	0	0	21	21	48
2016	18	34	16	0	68	0	0	0	0	0	21	21	47
2017	19	34	17	0	71	0	0	0	0	0	22	22	49
2018	19	34	17	0	70	0	0	0	0	0	22	22	48
2019	21	34	19	0	74	0	0	0	0	0	23	23	51
2020	21	34	18	0	73	0	0	0	0	0	23	23	50
2021	20	34	19	0	73	0	0	0	0	0	24	24	49
2022	21	34	19	0	75	0	0	0	0	0	25	25	50
2023	21	34	20	0	75	0	0	0	0	0	25	25	50
2024	22	34	20	0	77	0	0	0	0	0	26	26	51
2025	22	34	21	0	76	0	0	0	0	0	26	26	50
2026	22	34	21	0	77	0	0	0	0	0	27	27	50
2027	23	34	22	0	79	0	0	0	0	0	28	28	51
2028	23	34	22	0	79	0	0	0	0	0	28	28	51
2029	23	34	23	0	79	0	0	0	0	0	29	29	50
2030	23	34	23	0	81	0	0	0	0	0	30	30	51
2031	23	34	24	0	81	0	0	0	0	0	31	31	50
2032	25	34	25	0	84	0	0	0	0	0	31	31	52
2033	25	34	25	0	84	0	0	0	0	0	32	32	52
NOMINAL	509	841	464	0	1,814	0	0	0	10	169	599	778	1,036
NPV	151	260	127	0	539	0	0	0	7	113	167	287	252

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.88

Measure: Fixed Plate ERV

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	3	0	0	6	88	0	0	0	1	89	-83
2006	4	7	0	0	10	88	0	0	0	1	89	-78
2007	8	10	3	0	21	88	0	0	0	1	89	-67
2008	11	14	5	0	29	88	0	0	0	1	89	-59
2009	13	17	5	0	35	88	0	0	0	1	89	-53
2010	10	21	10	0	41	88	0	0	0	1	89	-48
2011	11	24	11	0	46	88	0	0	0	1	89	-42
2012	13	27	14	0	55	88	0	0	0	1	89	-33
2013	14	31	16	0	60	88	0	0	0	1	89	-28
2014	17	34	14	0	66	88	0	0	0	1	89	-23
2015	18	34	16	0	69	0	0	0	0	0	0	69
2016	18	34	16	0	68	0	0	0	0	0	0	68
2017	19	34	17	0	71	0	0	0	0	0	0	71
2018	19	34	17	0	70	0	0	0	0	0	0	70
2019	21	34	19	0	74	0	0	0	0	0	0	74
2020	21	34	18	0	73	0	0	0	0	0	0	73
2021	20	34	19	0	73	0	0	0	0	0	0	73
2022	21	34	19	0	75	0	0	0	0	0	0	75
2023	21	34	20	0	75	0	0	0	0	0	0	75
2024	22	34	20	0	77	0	0	0	0	0	0	77
2025	22	34	21	0	76	0	0	0	0	0	0	76
2026	22	34	21	0	77	0	0	0	0	0	0	77
2027	23	34	22	0	79	0	0	0	0	0	0	79
2028	23	34	22	0	79	0	0	0	0	0	0	79
2029	23	34	23	0	79	0	0	0	0	0	0	79
2030	23	34	23	0	81	0	0	0	0	0	0	81
2031	23	34	24	0	81	0	0	0	0	0	0	81
2032	25	34	25	0	84	0	0	0	0	0	0	84
2033	25	34	25	0	84	0	0	0	0	0	0	84
NOMINAL	509	841	464	0	1,814	875	0	0	0	10	885	929
NPV	151	260	127	0	539	583	0	0	0	7	590	-51

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **0.91**

Measure: Fixed Plate ERV

Existing **Participant Test**

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	2	17	0	19	88	0	88	-69
2006	3	17	0	20	88	0	88	-67
2007	5	17	0	22	88	0	88	-65
2008	7	17	0	24	88	0	88	-64
2009	9	17	0	26	88	0	88	-62
2010	11	17	0	28	88	0	88	-60
2011	13	17	0	30	88	0	88	-57
2012	15	17	0	32	88	0	88	-55
2013	18	17	0	35	88	0	88	-53
2014	20	17	0	37	88	0	88	-50
2015	21	0	0	21	0	0	0	21
2016	21	0	0	21	0	0	0	21
2017	22	0	0	22	0	0	0	22
2018	22	0	0	22	0	0	0	22
2019	23	0	0	23	0	0	0	23
2020	23	0	0	23	0	0	0	23
2021	24	0	0	24	0	0	0	24
2022	25	0	0	25	0	0	0	25
2023	25	0	0	25	0	0	0	25
2024	26	0	0	26	0	0	0	26
2025	26	0	0	26	0	0	0	26
2026	27	0	0	27	0	0	0	27
2027	28	0	0	28	0	0	0	28
2028	28	0	0	28	0	0	0	28
2029	29	0	0	29	0	0	0	29
2030	30	0	0	30	0	0	0	30
2031	31	0	0	31	0	0	0	31
2032	31	0	0	31	0	0	0	31
2033	32	0	0	32	0	0	0	32
NOMINAL	567	169	0	736	875	0	875	-139
NPV	167	113	0	280	583	0	583	-303

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **0.48**

Input Data

Measure name: **Packaged Terminal Heat Pump 10.8 - 12**

Vintage: **Existing** Units: **1 Participant = 20 units**

		Year	Cumulative Participation
Incremental Participant Cost:	$2,000.00	2005	25
Incremental Annual O&M Cost:	$0.00	2006	50
Non-Recurring Incentive per Participant:	$910.00	2007	75
Utility Non-recurring Cost per Participant:	$20.00	2008	100
Utility Recurring Cost per Participant:	$0.00	2009	125
Annual kWh Reduction:	5,194	2010	150
Peak Winter KW Reduction:	9.09	2011	175
Peak Summer KW Reduction:	1.72	2012	200
		2013	225
		2014	250

Measure: PTHP 10.8 - 12

Existing

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	6	3	0	0	8	0	0	0	1	24	6	31	-22
2006	7	4	0	0	11	0	0	0	0	12	9	21	-10
2007	11	5	3	0	20	0	0	0	0	12	13	25	-5
2008	15	7	4	0	25	0	0	0	0	12	16	28	-3
2009	18	8	4	0	30	0	0	0	0	12	20	32	-2
2010	17	9	8	0	34	0	0	0	0	12	23	35	-2
2011	19	10	9	0	38	0	0	0	0	12	27	39	-1
2012	22	12	11	0	44	0	0	0	0	12	31	43	1
2013	24	13	12	0	48	0	0	0	0	12	35	48	1
2014	28	14	11	0	53	0	0	0	0	12	40	52	1
2015	28	14	12	0	54	0	0	0	0	0	41	41	14
2016	28	14	12	0	54	0	0	0	0	0	42	42	12
2017	30	14	13	0	56	0	0	0	0	0	43	43	13
2018	30	14	12	0	56	0	0	0	0	0	44	44	12
2019	31	14	13	0	59	0	0	0	0	0	45	45	14
2020	31	14	13	0	59	0	0	0	0	0	46	46	12
2021	32	14	13	0	60	0	0	0	0	0	47	47	12
2022	34	14	14	0	62	0	0	0	0	0	49	49	13
2023	33	14	14	0	61	0	0	0	0	0	50	50	12
2024	34	14	14	0	63	0	0	0	0	0	51	51	12
2025	35	14	15	0	64	0	0	0	0	0	52	52	11
2026	35	14	15	0	64	0	0	0	0	0	54	54	11
2027	36	14	16	0	66	0	0	0	0	0	55	55	11
2028	36	14	16	0	67	0	0	0	0	0	56	56	10
2029	38	14	16	0	68	0	0	0	0	0	58	58	10
2030	38	14	17	0	69	0	0	0	0	0	59	59	10
2031	39	14	17	0	71	0	0	0	0	0	61	61	10
2032	39	14	18	0	71	0	0	0	0	0	62	62	9
2033	42	14	18	0	74	0	0	0	0	0	64	64	10
NOMINAL	813	357	339	0	1,508	0	0	0	3	132	1,199	1,334	175
NPV	241	113	95	0	449	0	0	0	2	91	342	435	14

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.03**

Measure: PTHP 10.8 - 12

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	6	3	0	0	8	40	0	0	0	1	41	-32
2006	7	4	0	0	11	20	0	0	0	0	20	-9
2007	11	5	3	0	20	20	0	0	0	0	20	-1
2008	15	7	4	0	25	20	0	0	0	0	20	5
2009	18	8	4	0	30	20	0	0	0	0	20	10
2010	17	9	8	0	34	20	0	0	0	0	20	13
2011	19	10	9	0	38	20	0	0	0	0	20	18
2012	22	12	11	0	44	20	0	0	0	0	20	24
2013	24	13	12	0	48	20	0	0	0	0	20	28
2014	28	14	11	0	53	20	0	0	0	0	20	32
2015	28	14	12	0	54	0	0	0	0	0	0	54
2016	28	14	12	0	54	0	0	0	0	0	0	54
2017	30	14	13	0	56	0	0	0	0	0	0	56
2018	30	14	12	0	56	0	0	0	0	0	0	56
2019	31	14	13	0	59	0	0	0	0	0	0	59
2020	31	14	13	0	59	0	0	0	0	0	0	59
2021	32	14	13	0	60	0	0	0	0	0	0	60
2022	34	14	14	0	62	0	0	0	0	0	0	62
2023	33	14	14	0	61	0	0	0	0	0	0	61
2024	34	14	14	0	63	0	0	0	0	0	0	63
2025	35	14	15	0	64	0	0	0	0	0	0	64
2026	35	14	15	0	64	0	0	0	0	0	0	64
2027	36	14	16	0	66	0	0	0	0	0	0	66
2028	36	14	16	0	67	0	0	0	0	0	0	67
2029	38	14	16	0	68	0	0	0	0	0	0	68
2030	38	14	17	0	69	0	0	0	0	0	0	69
2031	39	14	17	0	71	0	0	0	0	0	0	71
2032	39	14	18	0	71	0	0	0	0	0	0	71
2033	42	14	18	0	74	0	0	0	0	0	0	74
NOMINAL	813	357	339	0	1,508	220	0	0	0	3	223	1,286
NPV	241	113	95	0	449	152	0	0	0	2	154	295

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **2.92**

Measure: PTHP 10.8 - 12

Existing **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	6	24	0	30	40	0	40	-10
2006	9	12	0	21	20	0	20	1
2007	13	12	0	24	20	0	20	4
2008	16	12	0	28	20	0	20	8
2009	20	12	0	31	20	0	20	11
2010	23	12	0	35	20	0	20	15
2011	27	12	0	39	20	0	20	19
2012	31	12	0	43	20	0	20	23
2013	35	12	0	47	20	0	20	27
2014	40	12	0	52	20	0	20	32
2015	41	0	0	41	0	0	0	41
2016	42	0	0	42	0	0	0	42
2017	43	0	0	43	0	0	0	43
2018	44	0	0	44	0	0	0	44
2019	45	0	0	45	0	0	0	45
2020	46	0	0	46	0	0	0	46
2021	47	0	0	47	0	0	0	47
2022	49	0	0	49	0	0	0	49
2023	50	0	0	50	0	0	0	50
2024	51	0	0	51	0	0	0	51
2025	52	0	0	52	0	0	0	52
2026	54	0	0	54	0	0	0	54
2027	55	0	0	55	0	0	0	55
2028	56	0	0	56	0	0	0	56
2029	58	0	0	58	0	0	0	58
2030	59	0	0	59	0	0	0	59
2031	61	0	0	61	0	0	0	61
2032	62	0	0	62	0	0	0	62
2033	64	0	0	64	0	0	0	64
NOMINAL	1,136	132	0	1,267	220	0	220	1,047
NPV	342	91	0	433	152	0	152	281

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **2.85**

Input Data

Measure name: **Chiller .59 kW/ton--Water**

Vintage: **New** Units: **1 Participant = 20 tons**

		Year	Cumulative Participation
Incremental Participant Cost:	$1,500.00	2005	50
Incremental Annual O&M Cost:	$0.00	2006	100
Non-Recurring Incentive per Participant:	$73.00	2007	150
Utility Non-recurring Cost per Participant:	$20.00	2008	200
Utility Recurring Cost per Participant:	$0.00	2009	250
Annual kWh Reduction:	1,409	2010	300
Peak Winter KW Reduction:	0.044	2011	350
Peak Summer KW Reduction:	0.732	2012	400
		2013	450
		2014	500

Measure: Chiller .59 kW/ton--Water

New

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	0	0	0	0	4	3	7	-3
2006	6	2	0	0	7	0	0	0	1	4	7	11	-4
2007	11	3	3	0	17	0	0	0	1	4	10	15	2
2008	14	4	5	0	22	0	0	0	1	4	14	19	4
2009	18	5	6	0	29	0	0	0	1	4	18	22	6
2010	17	5	12	0	34	0	0	0	1	4	22	26	7
2011	18	6	13	0	38	0	0	0	1	4	26	31	7
2012	22	7	16	0	46	0	0	0	1	4	30	35	11
2013	24	8	18	0	50	0	0	0	1	4	35	39	11
2014	29	9	16	0	54	0	0	0	1	4	39	44	10
2015	30	9	17	0	56	0	0	0	0	0	40	40	16
2016	25	9	17	0	51	0	0	0	0	0	41	41	10
2017	32	9	18	0	58	0	0	0	0	0	42	42	16
2018	32	9	18	0	59	0	0	0	0	0	43	43	15
2019	34	9	18	0	61	0	0	0	0	0	44	44	17
2020	34	9	18	0	61	0	0	0	0	0	45	45	15
2021	34	9	19	0	62	0	0	0	0	0	47	47	15
2022	35	9	19	0	63	0	0	0	0	0	48	48	15
2023	34	9	20	0	63	0	0	0	0	0	49	49	14
2024	36	9	20	0	65	0	0	0	0	0	50	50	15
2025	37	9	21	0	66	0	0	0	0	0	51	51	15
2026	37	9	21	0	67	0	0	0	0	0	53	53	14
2027	38	9	22	0	68	0	0	0	0	0	54	54	14
2028	38	9	22	0	69	0	0	0	0	0	55	55	14
2029	39	9	23	0	70	0	0	0	0	0	57	57	14
2030	40	9	23	0	72	0	0	0	0	0	58	58	14
2031	41	9	24	0	73	0	0	0	0	0	60	60	14
2032	42	9	25	0	76	0	0	0	0	0	61	61	15
2033	42	9	25	0	76	0	0	0	0	0	63	63	14
NOMINAL	840	222	476	0	1,539	0	0	0	9	39	1,165	1,213	326
NPV	244	69	134	0	446	0	0	0	6	26	326	357	90

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.25

Measure: Chiller .59 kW/ton--Water

New **Total Resource Cost Test**

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	0	0	0	0	0	0	5
2006	6	2	0	0	7	60	0	0	0	1	61	-54
2007	11	3	3	0	17	60	0	0	0	1	61	-44
2008	14	4	5	0	22	60	0	0	0	1	61	-39
2009	18	5	6	0	29	60	0	0	0	1	61	-32
2010	17	5	12	0	34	60	0	0	0	1	61	-27
2011	18	6	13	0	38	60	0	0	0	1	61	-23
2012	22	7	16	0	46	60	0	0	0	1	61	-15
2013	24	8	18	0	50	60	0	0	0	1	61	-11
2014	29	9	16	0	54	60	0	0	0	1	61	-7
2015	30	9	17	0	56	0	0	0	0	0	0	56
2016	25	9	17	0	51	0	0	0	0	0	0	51
2017	32	9	18	0	58	0	0	0	0	0	0	58
2018	32	9	18	0	59	0	0	0	0	0	0	59
2019	34	9	18	0	61	0	0	0	0	0	0	61
2020	34	9	18	0	61	0	0	0	0	0	0	61
2021	34	9	19	0	62	0	0	0	0	0	0	62
2022	35	9	19	0	63	0	0	0	0	0	0	63
2023	34	9	20	0	63	0	0	0	0	0	0	63
2024	36	9	20	0	65	0	0	0	0	0	0	65
2025	37	9	21	0	66	0	0	0	0	0	0	66
2026	37	9	21	0	67	0	0	0	0	0	0	67
2027	38	9	22	0	68	0	0	0	0	0	0	68
2028	38	9	22	0	69	0	0	0	0	0	0	69
2029	39	9	23	0	70	0	0	0	0	0	0	70
2030	40	9	23	0	72	0	0	0	0	0	0	72
2031	41	9	24	0	73	0	0	0	0	0	0	73
2032	42	9	25	0	76	0	0	0	0	0	0	76
2033	42	9	25	0	76	0	0	0	0	0	0	76
NOMINAL	840	222	476	0	1,539	540	0	0	0	9	549	990
NPV	244	69	134	0	446	344	0	0	0	6	350	97

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.28**

Measure: Chiller .59 kW/ton--Water

New **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	3	4	0	7	0	0	0	7
2006	7	4	0	10	60	0	60	-50
2007	10	4	0	14	60	0	60	-46
2008	14	4	0	18	60	0	60	-42
2009	18	4	0	21	60	0	60	-39
2010	22	4	0	25	60	0	60	-35
2011	26	4	0	30	60	0	60	-30
2012	30	4	0	34	60	0	60	-26
2013	35	4	0	38	60	0	60	-22
2014	39	4	0	43	60	0	60	-17
2015	40	0	0	40	0	0	0	40
2016	41	0	0	41	0	0	0	41
2017	42	0	0	42	0	0	0	42
2018	43	0	0	43	0	0	0	43
2019	44	0	0	44	0	0	0	44
2020	45	0	0	45	0	0	0	45
2021	47	0	0	47	0	0	0	47
2022	48	0	0	48	0	0	0	48
2023	49	0	0	49	0	0	0	49
2024	50	0	0	50	0	0	0	50
2025	51	0	0	51	0	0	0	51
2026	53	0	0	53	0	0	0	53
2027	54	0	0	54	0	0	0	54
2028	55	0	0	55	0	0	0	55
2029	57	0	0	57	0	0	0	57
2030	58	0	0	58	0	0	0	58
2031	60	0	0	60	0	0	0	60
2032	61	0	0	61	0	0	0	61
2033	63	0	0	63	0	0	0	63
NOMINAL	1,103	39	0	1,141	540	0	540	601
NPV	326	26	0	351	344	0	344	7

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.02**

Input Data

Measure name: **Chiller .62 kW/ton--Water**

Vintage: **New** Units: **1 Participant = 20 tons**

Incremental Participant Cost:	$1,500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$123.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	2,500
Peak Winter KW Reduction:	0.097
Peak Summer KW Reduction:	1.23

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure: **Chiller .62 kW/ton--Water**

New **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	12	3	0	0	15	0	0	0	0	13	12	25	-11
2006	19	6	0	0	25	0	0	0	2	13	24	38	-13
2007	37	9	11	0	58	0	0	0	2	13	36	51	7
2008	49	12	16	0	77	0	0	0	2	13	49	64	13
2009	64	15	20	0	99	0	0	0	2	13	62	77	21
2010	58	18	40	0	116	0	0	0	2	13	76	91	25
2011	63	21	45	0	130	0	0	0	2	13	91	106	23
2012	78	25	54	0	157	0	0	0	2	13	107	121	35
2013	86	28	60	0	173	0	0	0	2	13	123	137	36
2014	101	31	55	0	186	0	0	0	2	13	139	154	32
2015	106	31	57	0	194	0	0	0	0	0	143	143	51
2016	102	31	57	0	189	0	0	0	0	0	146	146	43
2017	111	31	60	0	202	0	0	0	0	0	150	150	52
2018	111	31	60	0	202	0	0	0	0	0	154	154	48
2019	117	31	62	0	210	0	0	0	0	0	157	157	52
2020	117	31	62	0	209	0	0	0	0	0	161	161	48
2021	119	31	63	0	213	0	0	0	0	0	165	165	47
2022	120	31	65	0	216	0	0	0	0	0	170	170	46
2023	124	31	67	0	221	0	0	0	0	0	174	174	47
2024	126	31	68	0	225	0	0	0	0	0	178	178	47
2025	129	31	70	0	230	0	0	0	0	0	183	183	47
2026	131	31	72	0	233	0	0	0	0	0	187	187	46
2027	134	31	74	0	238	0	0	0	0	0	192	192	46
2028	136	31	75	0	242	0	0	0	0	0	197	197	46
2029	138	31	77	0	245	0	0	0	0	0	202	202	44
2030	141	31	79	0	251	0	0	0	0	0	207	207	44
2031	143	31	80	0	254	0	0	0	0	0	212	212	43
2032	147	31	83	0	261	0	0	0	0	0	217	217	44
2033	150	31	85	0	265	0	0	0	0	0	222	222	42
NOMINAL	2,964	752	1,618	0	5,334	0	0	0	18	129	4,134	4,282	1,053
NPV	860	232	454	0	1,546	0	0	0	11	86	1,155	1,253	293

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.23**

Measure: Chiller .62 kW/ton--Water

New

Total Resource Cost Test

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	OTHER PARTICIPANT BENEFITS	TOTAL BENEFITS	PARTICIPANT'S COST	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	TOTAL COSTS	NET BENEFITS
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	12	3	0	0	15	0	0	0	0	0	0	15
2006	19	6	0	0	25	120	0	0	0	2	122	-97
2007	37	9	11	0	58	120	0	0	0	2	122	-64
2008	49	12	16	0	77	120	0	0	0	2	122	-45
2009	64	15	20	0	99	120	0	0	0	2	122	-23
2010	58	18	40	0	116	120	0	0	0	2	122	-6
2011	63	21	45	0	130	120	0	0	0	2	122	8
2012	78	25	54	0	157	120	0	0	0	2	122	35
2013	86	28	60	0	173	120	0	0	0	2	122	51
2014	101	31	55	0	186	120	0	0	0	2	122	64
2015	106	31	57	0	194	0	0	0	0	0	0	194
2016	102	31	57	0	189	0	0	0	0	0	0	189
2017	111	31	60	0	202	0	0	0	0	0	0	202
2018	111	31	60	0	202	0	0	0	0	0	0	202
2019	117	31	62	0	210	0	0	0	0	0	0	210
2020	117	31	62	0	209	0	0	0	0	0	0	209
2021	119	31	63	0	213	0	0	0	0	0	0	213
2022	120	31	65	0	216	0	0	0	0	0	0	216
2023	124	31	67	0	221	0	0	0	0	0	0	221
2024	126	31	68	0	225	0	0	0	0	0	0	225
2025	129	31	70	0	230	0	0	0	0	0	0	230
2026	131	31	72	0	233	0	0	0	0	0	0	233
2027	134	31	74	0	238	0	0	0	0	0	0	238
2028	136	31	75	0	242	0	0	0	0	0	0	242
2029	138	31	77	0	245	0	0	0	0	0	0	245
2030	141	31	79	0	251	0	0	0	0	0	0	251
2031	143	31	80	0	254	0	0	0	0	0	0	254
2032	147	31	83	0	261	0	0	0	0	0	0	261
2033	150	31	85	0	265	0	0	0	0	0	0	265
NOMINAL	2,964	752	1,618	0	5,334	1,080	0	0	0	18	1,098	4,236
NPV	860	232	454	0	1,546	688	0	0	0	11	700	846

Utility Discount Rate: 8.16

Benefit Cost Ratio: 2.21

Measure: Chiller .62 kW/ton--Water

New **Participant Test**

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SAVINGS IN PARTICIPANT'S BILL	INCENTIVE PAYMENTS	OTHER PARTICIPANT'S BENEFITS	**TOTAL BENEFITS**	PARTICIPANT'S COST	PARTICIPANT'S BILL INCREASE	**TOTAL COSTS**	**NET BENEFITS TO PARTICIPANTS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0
2005	12	13	0	25	0	0	0	25
2006	24	13	0	36	120	0	120	-84
2007	36	13	0	49	120	0	120	-71
2008	49	13	0	62	120	0	120	-58
2009	62	13	0	75	120	0	120	-45
2010	76	13	0	89	120	0	120	-31
2011	91	13	0	104	120	0	120	-16
2012	107	13	0	119	120	0	120	-1
2013	123	13	0	135	120	0	120	15
2014	139	13	0	152	120	0	120	32
2015	143	0	0	143	0	0	0	143
2016	146	0	0	146	0	0	0	146
2017	150	0	0	150	0	0	0	150
2018	154	0	0	154	0	0	0	154
2019	157	0	0	157	0	0	0	157
2020	161	0	0	161	0	0	0	161
2021	165	0	0	165	0	0	0	165
2022	170	0	0	170	0	0	0	170
2023	174	0	0	174	0	0	0	174
2024	178	0	0	178	0	0	0	178
2025	183	0	0	183	0	0	0	183
2026	187	0	0	187	0	0	0	187
2027	192	0	0	192	0	0	0	192
2028	197	0	0	197	0	0	0	197
2029	202	0	0	202	0	0	0	202
2030	207	0	0	207	0	0	0	207
2031	212	0	0	212	0	0	0	212
2032	217	0	0	217	0	0	0	217
2033	222	0	0	222	0	0	0	222
NOMINAL	3,912	129	0	4,041	1,080	0	1,080	2,961
NPV	1,155	86	0	1,241	688	0	688	553

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.80**

Input Data

Measure name: **Chiller .70 kW/ton--Water**

Vintage: **New** Units: **1 Participant = 20 tons**

Incremental Participant Cost:	$1,500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$108.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	2,107
Peak Winter KW Reduction:	0.071
Peak Summer KW Reduction:	1.08

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure: Chiller .70 kW/ton--Water

New

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	3	0	0	12	0	0	0	0	11	10	22	-9
2006	16	5	0	0	21	0	0	0	2	11	20	33	-12
2007	32	8	10	0	50	0	0	0	2	11	30	44	6
2008	42	11	14	0	67	0	0	0	2	11	41	55	12
2009	54	13	17	0	85	0	0	0	2	11	53	66	19
2010	49	16	35	0	100	0	0	0	2	11	65	78	22
2011	54	19	39.	0	112	0	0	0	2	11	77	91	22
2012	67	22	48	0	136	0	0	0	2	11	90	104	32
2013	73	24	52	0	149	0	0	0	2	11	104	117	32
2014	85	27	48	0	160	0	0	0	2	11	118	131	28
2015	90	27	50	0	167	0	0	0	0	0	121	121	47
2016	86	27	50	0	163	0	0	0	0	0	124	124	39
2017	95	27	53	0	174	0	0	0	0	0	127	127	48
2018	95	27	52	0	174	0	0	0	0	0	130	130	44
2019	100	27	55	0	181	0	0	0	0	0	133	133	48
2020	100	27	54	0	181	0	0	0	0	0	137	137	44
2021	101	27	55	0	184	0	0	0	0	0	140	140	44
2022	102	27	57	0	186	0	0	0	0	0	143	143	42
2023	105	27	58	0	190	0	0	0	0	0	147	147	43
2024	108	27	60	0	194	0	0	0	0	0	151	151	44
2025	109	27	61	0	197	0	0	0	0	0	154	154	43
2026	112	27	63	0	201	0	0	0	0	0	158	158	43
2027	113	27	64	0	204	0	0	0	0	0	162	162	42
2028	116	27	66	0	208	0	0	0	0	0	166	166	42
2029	117	27	67	0	211	0	0	0	0	0	171	171	40
2030	121	27	69	0	217	0	0	0	0	0	175	175	42
2031	122	27	70	0	219	0	0	0	0	0	179	179	40
2032	125	27	73	0	224	0	0	0	0	0	184	184	41
2033	127	27	74	0	228	0	0	0	0	0	188	188	40
NOMINAL	2,523	660	1,413	0	4,596	0	0	0	18	114	3,498	3,630	966
NPV	732	204	396	0	1,333	0	0	0	11	76	977	1,065	268

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.25**

Measure: Chiller .70 kW/ton--Water

New

Total Resource Cost Test

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	OTHER PARTICIPANT BENEFITS	**TOTAL BENEFITS**	PARTICIPANT'S COST	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	3	0	0	12	0	0	0	0	0	0	12
2006	16	5	0	0	21	120	0	0	0	2	122	-101
2007	32	8	10	0	50	120	0	0	0	2	122	-72
2008	42	11	14	0	67	120	0	0	0	2	122	-55
2009	54	13	17	0	85	120	0	0	0	2	122	-37
2010	49	16	35	0	100	120	0	0	0	2	122	-22
2011	54	19	39	0	112	120	0	0	0	2	122	-10
2012	67	22	48	0	136	120	0	0	0	2	122	14
2013	73	24	52	0	149	120	0	0	0	2	122	27
2014	85	27	48	0	160	120	0	0	0	2	122	38
2015	90	27	50	0	167	0	0	0	0	0	0	167
2016	86	27	50	0	163	0	0	0	0	0	0	163
2017	95	27	53	0	174	0	0	0	0	0	0	174
2018	95	27	52	0	174	0	0	0	0	0	0	174
2019	100	27	55	0	181	0	0	0	0	0	0	181
2020	100	27	54	0	181	0	0	0	0	0	0	181
2021	101	27	55	0	184	0	0	0	0	0	0	184
2022	102	27	57	0	186	0	0	0	0	0	0	186
2023	105	27	58	0	190	0	0	0	0	0	0	190
2024	108	27	60	0	194	0	0	0	0	0	0	194
2025	109	27	61	0	197	0	0	0	0	0	0	197
2026	112	27	63	0	201	0	0	0	0	0	0	201
2027	113	27	64	0	204	0	0	0	0	0	0	204
2028	116	27	66	0	208	0	0	0	0	0	0	208
2029	117	27	67	0	211	0	0	0	0	0	0	211
2030	121	27	69	0	217	0	0	0	0	0	0	217
2031	122	27	70	0	219	0	0	0	0	0	0	219
2032	125	27	73	0	224	0	0	0	0	0	0	224
2033	127	27	74	0	228	0	0	0	0	0	0	228
NOMINAL	2,523	660	1,413	0	4,596	1,080	0	0	0	18	1,098	3,498
NPV	732	204	396	0	1,333	688	0	0	0	11	700	633

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.90**

Measure: Chiller .70 kW/ton--Water

New **Participant Test**

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	10	11	0	22	0	0	0	22
2006	20	11	0	31	120	0	120	-89
2007	30	11	0	42	120	0	120	-78
2008	41	11	0	53	120	0	120	-67
2009	53	11	0	64	120	0	120	-56
2010	65	11	0	76	120	0	120	-44
2011	77	11	0	89	120	0	120	-31
2012	90	11	0	102	120	0	120	-18
2013	104	11	0	115	120	0	120	-5
2014	118	11	0	129	120	0	120	9
2015	121	0	0	121	0	0	0	121
2016	124	0	0	124	0	0	0	124
2017	127	0	0	127	0	0	0	127
2018	130	0	0	130	0	0	0	130
2019	133	0	0	133	0	0	0	133
2020	137	0	0	137	0	0	0	137
2021	140	0	0	140	0	0	0	140
2022	143	0	0	143	0	0	0	143
2023	147	0	0	147	0	0	0	147
2024	151	0	0	151	0	0	0	151
2025	154	0	0	154	0	0	0	154
2026	158	0	0	158	0	0	0	158
2027	162	0	0	162	0	0	0	162
2028	166	0	0	166	0	0	0	166
2029	171	0	0	171	0	0	0	171
2030	175	0	0	175	0	0	0	175
2031	179	0	0	179	0	0	0	179
2032	184	0	0	184	0	0	0	184
2033	188	0	0	188	0	0	0	188
NOMINAL	3,310	114	0	3,424	1,080	0	1,080	2,344
NPV	977	76	0	1,053	688	0	688	365

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.53**

Input Data

Measure name: **Chiller 1.17 kW/ton--Air**

Vintage: **New** Units: **1 Participant = 20 tons**

Incremental Participant Cost:	$1,500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$157.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	2,595
Peak Winter KW Reduction:	0.048
Peak Summer KW Reduction:	1.57

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure: **Chiller 1.17 kW/ton--Air**

New **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	5	1	0	0	6	0	0	0	0	6	4	10	-4
2006	7	3	0	0	10	0	0	0	1	6	9	15	-5
2007	15	4	5	0	23	0	0	0	1	6	13	20	4
2008	19	5	7	0	32	0	0	0	1	6	18	24	7
2009	25	7	8	0	40	0	0	0	1	6	23	29	10
2010	22	8	17	0	47	0	0	0	1	6	28	34	13
2011	24	10	19	0	52	0	0	0	1	6	33	40	12
2012	29	11	23	0	63	0	0	0	1	6	39	45	18
2013	32	12	25	0	69	0	0	0	1	6	45	51	18
2014	38	14	23	0	74	0	0	0	1	6	51	57	17
2015	40	14	24	0	78	0	0	0	0	0	52	52	26
2016	35	14	24	0	73	0	0	0	0	0	53	53	19
2017	42	14	26	0	81	0	0	0	0	0	55	55	26
2018	42	14	25	0	81	0	0	0	0	0	56	56	25
2019	45	14	27	0	85	0	0	0	0	0	58	58	27
2020	44	14	26	0	84	0	0	0	0	0	59	59	25
2021	44	14	27	0	85	0	0	0	0	0	60	60	24
2022	46	14	28	0	87	0	0	0	0	0	62	62	25
2023	45	14	28	0	87	0	0	0	0	0	64	64	24
2024	48	14	29	0	90	0	0	0	0	0	65	65	25
2025	48	14	30	0	91	0	0	0	0	0	67	67	24
2026	49	14	30	0	93	0	0	0	0	0	68	68	24
2027	47	14	52	0	112	0	0	0	0	0	70	70	42
2028	50	14	32	0	96	0	0	0	0	0	72	72	24
2029	51	14	33	0	97	0	0	0	0	0	74	74	23
2030	53	14	33	0	100	0	0	0	0	0	76	76	24
2031	53	14	34	0	101	0	0	0	0	0	77	77	23
2032	55	14	35	0	104	0	0	0	0	0	79	79	25
2033	56	14	36	0	105	0	0	0	0	0	81	81	24
NOMINAL	1,105	335	707	0	2,147	0	0	0	6	58	1,512	1,576	571
NPV	322	103	196	0	622	0	0	0	4	39	422	465	157

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.34**

Measure: Chiller 1.17 kW/ton--Air

New

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	5	1	0	0	6	0	0	0	0	0	0	6
2006	7	3	0	0	10	42	0	0	0	1	43	-33
2007	15	4	5	0	23	42	0	0	0	1	43	-19
2008	19	5	7	0	32	42	0	0	0	1	43	-11
2009	25	7	8	0	40	42	0	0	0	1	43	-3
2010	22	8	17	0	47	42	0	0	0	1	43	4
2011	24	10	19	0	52	42	0	0	0	1	43	9
2012	29	11	23	0	63	42	0	0	0	1	43	21
2013	32	12	25	0	69	42	0	0	0	1	43	27
2014	38	14	23	0	74	42	0	0	0	1	43	32
2015	40	14	24	0	78	0	0	0	0	0	0	78
2016	35	14	24	0	73	0	0	0	0	0	0	73
2017	42	14	26	0	81	0	0	0	0	0	0	81
2018	42	14	25	0	81	0	0	0	0	0	0	81
2019	45	14	27	0	85	0	0	0	0	0	0	85
2020	44	14	26	0	84	0	0	0	0	0	0	84
2021	44	14	27	0	85	0	0	0	0	0	0	85
2022	46	14	28	0	87	0	0	0	0	0	0	87
2023	45	14	28	0	87	0	0	0	0	0	0	87
2024	48	14	29	0	90	0	0	0	0	0	0	90
2025	48	14	30	0	91	0	0	0	0	0	0	91
2026	49	14	30	0	93	0	0	0	0	0	0	93
2027	47	14	52	0	112	0	0	0	0	0	0	112
2028	50	14	32	0	96	0	0	0	0	0	0	96
2029	51	14	33	0	97	0	0	0	0	0	0	97
2030	53	14	33	0	100	0	0	0	0	0	0	100
2031	53	14	34	0	101	0	0	0	0	0	0	101
2032	55	14	35	0	104	0	0	0	0	0	0	104
2033	56	14	36	0	105	0	0	0	0	0	0	105
NOMINAL	1,105	335	707	0	2,147	378	0	0	0	6	384	1,762
NPV	322	103	196	0	622	241	0	0	0	4	245	377

Utility Discount Rate: 8.16

Benefit Cost Ratio: 2.54

Measure: Chiller 1.17 kW/ton--Air

New **Participant Test**

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	4	6	0	10	0	0	0	10
2006	9	6	0	14	42	0	42	-28
2007	13	6	0	19	42	0	42	-23
2008	18	6	0	24	42	0	42	-18
2009	23	6	0	29	42	0	42	-13
2010	28	6	0	34	42	0	42	-8
2011	33	6	0	39	42	0	42	-3
2012	39	6	0	45	42	0	42	3
2013	45	6	0	51	42	0	42	9
2014	51	6	0	57	42	0	42	15
2015	52	0	0	52	0	0	0	52
2016	53	0	0	53	0	0	0	53
2017	55	0	0	55	0	0	0	55
2018	56	0	0	56	0	0	0	56
2019	58	0	0	58	0	0	0	58
2020	59	0	0	59	0	0	0	59
2021	60	0	0	60	0	0	0	60
2022	62	0	0	62	0	0	0	62
2023	64	0	0	64	0	0	0	64
2024	65	0	0	65	0	0	0	65
2025	67	0	0	67	0	0	0	67
2026	68	0	0	68	0	0	0	68
2027	70	0	0	70	0	0	0	70
2028	72	0	0	72	0	0	0	72
2029	74	0	0	74	0	0	0	74
2030	76	0	0	76	0	0	0	76
2031	77	0	0	77	0	0	0	77
2032	79	0	0	79	0	0	0	79
2033	81	0	0	81	0	0	0	81
NOMINAL	1,431	58	0	1,489	378	0	378	1,111
NPV	422	39	0	461	241	0	241	220

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.91**

Input Data

Measure name: **Cool Roof**

Vintage: **New** Units: **1 participant = 5,000 SF**

		Year	Cumulative Participation
Incremental Participant Cost:	$2,500.00	2005	25
Incremental Annual O&M Cost:	$0.00	2006	50
Non-Recurring Incentive per Participant:	$225.00	2007	75
Utility Non-recurring Cost per Participant:	$20.00	2008	100
Utility Recurring Cost per Participant:	$0.00	2009	125
Annual kWh Reduction:	1,710	2010	150
Peak Winter KW Reduction:	2.18	2011	175
Peak Summer KW Reduction:	0.9	2012	200
Life of Measure (years):	10	2013	225
		2014	250

Measure: Cool Roof

New

Rate Impact Measure Test

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	1	0	0	5	0	0	0	0	9	3	12	-8
2006	5	3	0	0	8	0	0	0	0	9	6	15	-7
2007	10	4	3	0	17	0	0	0	0	9	9	19	-2
2008	13	6	4	0	22	0	0	0	0	9	13	22	0
2009	17	7	5	0	28	0	0	0	0	9	16	25	3
2010	15	8	10	0	33	0	0	0	0	9	20	29	4
2011	17	10	11	0	38	0	0	0	0	9	24	33	5
2012	20	11	14	0	45	0	0	0	0	9	28	37	8
2013	22	12	15	0	49	0	0	0	0	9	32	41	8
2014	26	14	13	0	53	0	0	0	0	9	36	45	8
2015	27	14	15	0	56	0	0	0	0	0	37	37	18
2016	28	14	15	0	56	0	0	0	0	0	38	38	18
2017	28	14	16	0	58	0	0	0	0	0	39	39	19
2018	29	14	15	0	58	0	0	0	0	0	40	40	18
2019	30	14	17	0	61	0	0	0	0	0	41	41	20
2020	30	14	16	0	60	0	0	0	0	0	42	42	18
2021	31	14	17	0	61	0	0	0	0	0	43	43	18
2022	32	14	17	0	62	0	0	0	0	0	44	44	18
2023	31	14	18	0	63	0	0	0	0	0	45	45	17
2024	33	14	18	0	65	0	0	0	0	0	46	46	18
2025	33	14	18	0	65	0	0	0	0	0	48	48	18
2026	33	14	19	0	66	0	0	0	0	0	49	49	17
2027	34	14	19	0	67	0	0	0	0	0	50	50	17
2028	35	14	20	0	69	0	0	0	0	0	51	51	18
2029	36	14	20	0	69	0	0	0	0	0	53	53	17
2030	36	14	21	0	71	0	0	0	0	0	54	54	17
2031	37	14	21	0	72	0	0	0	0	0	55	55	17
2032	39	14	22	0	75	0	0	0	0	0	57	57	18
2033	40	14	22	0	76	0	0	0	0	0	58	58	17
NOMINAL	769	338	419	0	1,526	0	0	0	4	87	1,079	1,170	356
NPV	223	105	116	0	444	0	0	0	3	58	302	362	82

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.23

Measure: Cool Roof

New

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	1	0	0	5	44	0	0	0	0	44	-40
2006	5	3	0	0	8	44	0	0	0	0	44	-37
2007	10	4	3	0	17	44	0	0	0	0	44	-28
2008	13	6	4	0	22	44	0	0	0	0	44	-22
2009	17	7	5	0	28	44	0	0	0	0	44	-16
2010	15	8	10	0	33	44	0	0	0	0	44	-12
2011	17	10	11	0	38	44	0	0	0	0	44	-7
2012	20	11	14	0	45	44	0	0	0	0	44	0
2013	22	12	15	0	49	44	0	0	0	0	44	5
2014	26	14	13	0	53	44	0	0	0	0	44	9
2015	27	14	15	0	56	0	0	0	0	0	0	56
2016	28	14	15	0	56	0	0	0	0	0	0	56
2017	28	14	16	0	58	0	0	0	0	0	0	58
2018	29	14	15	0	58	0	0	0	0	0	0	58
2019	30	14	17	0	61	0	0	0	0	0	0	61
2020	30	14	16	0	60	0	0	0	0	0	0	60
2021	31	14	17	0	61	0	0	0	0	0	0	61
2022	32	14	17	0	62	0	0	0	0	0	0	62
2023	31	14	18	0	63	0	0	0	0	0	0	63
2024	33	14	18	0	65	0	0	0	0	0	0	65
2025	33	14	18	0	65	0	0	0	0	0	0	65
2026	33	14	19	0	66	0	0	0	0	0	0	66
2027	34	14	19	0	67	0	0	0	0	0	0	67
2028	35	14	20	0	69	0	0	0	0	0	0	69
2029	36	14	20	0	69	0	0	0	0	0	0	69
2030	36	14	21	0	71	0	0	0	0	0	0	71
2031	37	14	21	0	72	0	0	0	0	0	0	72
2032	39	14	22	0	75	0	0	0	0	0	0	75
2033	40	14	22	0	76	0	0	0	0	0	0	76
NOMINAL	769	338	419	0	1,526	440	0	0	0	4	444	1,082
NPV	223	105	116	0	444	293	0	0	0	3	296	148

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.50

Measure: Cool Roof

New **Participant Test**

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	3	9	0	12	44	0	44	-32
2006	6	9	0	15	44	0	44	-29
2007	9	9	0	18	44	0	44	-26
2008	13	9	0	21	44	0	44	-23
2009	16	9	0	25	44	0	44	-19
2010	20	9	0	29	44	0	44	-15
2011	24	9	0	33	44	0	44	-11
2012	28	9	0	37	44	0	44	-7
2013	32	9	0	41	44	0	44	-3
2014	36	9	0	45	44	0	44	1
2015	37	0	0	37	0	0	0	37
2016	38	0	0	38	0	0	0	38
2017	39	0	0	39	0	0	0	39
2018	40	0	0	40	0	0	0	40
2019	41	0	0	41	0	0	0	41
2020	42	0	0	42	0	0	0	42
2021	43	0	0	43	0	0	0	43
2022	44	0	0	44	0	0	0	44
2023	45	0	0	45	0	0	0	45
2024	46	0	0	46	0	0	0	46
2025	48	0	0	48	0	0	0	48
2026	49	0	0	49	0	0	0	49
2027	50	0	0	50	0	0	0	50
2028	51	0	0	51	0	0	0	51
2029	53	0	0	53	0	0	0	53
2030	54	0	0	54	0	0	0	54
2031	55	0	0	55	0	0	0	55
2032	57	0	0	57	0	0	0	57
2033	58	0	0	58	0	0	0	58
NOMINAL	1,021	87	0	1,108	440	0	440	668
NPV	302	58	0	359	293	0	293	66

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.23**

Input Data

Measure name: **DX RTU 13**

Vintage: **New** Units: **1 Participant = 20 tons**

Incremental Participant Cost:	$1,500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$193.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	3,085
Peak Winter KW Reduction:	0.039
Peak Summer KW Reduction:	1.93

Year	Cumulative Participation
2005	25
2006	50
2007	75
2008	100
2009	125
2010	150
2011	175
2012	200
2013	225
2014	250

Measure: DX RTU 13

New

Rate Impact Measure Test

YEAR	BENEFITS (1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	COSTS (6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	0	0	0	1	5	4	10	-4
2006	7	2	0	0	9	0	0	0	1	5	8	13	-4
2007	13	4	4	0	21	0	0	0	1	5	12	17	3
2008	17	5	6	0	28	0	0	0	1	5	16	22	6
2009	22	6	8	0	35	0	0	0	1	5	20	26	9
2010	19	7	15	0	42	0	0	0	1	5	25	31	11
2011	21	8	17	0	46	0	0	0	1	5	30	35	11
2012	26	10	20	0	56	0	0	0	1	5	35	40	16
2013	28	11	22	0	61	0	0	0	1	5	40	46	16
2014	34	12	20	0	66	0	0	0	1	5	45	51	15
2015	35	12	22	0	69	0	0	0	0	0	47	47	22
2016	31	12	21	0	64	0	0	0	0	0	48	48	16
2017	37	12	23	0	72	0	0	0	0	0	49	49	23
2018	38	12	22	0	72	0	0	0	0	0	50	50	22
2019	40	12	24	0	75	0	0	0	0	0	51	51	24
2020	39	12	23	0	74	0	0	0	0	0	53	53	22
2021	39	12	24	0	75	0	0	0	0	0	54	54	21
2022	40	12	24	0	76	0	0	0	0	0	55	55	21
2023	40	12	25	0	77	0	0	0	0	0	57	57	20
2024	42	12	26	0	80	0	0	0	0	0	58	58	21
2025	43	12	26	0	81	0	0	0	0	0	60	60	21
2026	43	12	27	0	82	0	0	0	0	0	61	61	21
2027	44	12	28	0	83	0	0	0	0	0	63	63	21
2028	46	12	28	0	86	0	0	0	0	0	64	64	22
2029	45	12	29	0	86	0	0	0	0	0	66	66	20
2030	47	12	30	0	88	0	0	0	0	0	67	67	21
2031	47	12	30	0	89	0	0	0	0	0	69	69	20
2032	49	12	31	0	92	0	0	0	0	0	71	71	21
2033	49	12	32	0	93	0	0	0	0	0	73	73	20
NOMINAL	981	293	608	0	1,882	0	0	0	5	51	1,349	1,405	476
NPV	286	91	170	0	547	0	0	0	3	34	377	414	133

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.32

Measure: DX RTU 13

New

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) TOTAL BENEFITS $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) TOTAL COSTS $(000)	(12) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	4	1	0	0	5	30	0	0	0	1	31	-25
2006	7	2	0	0	9	30	0	0	0	1	31	-22
2007	13	4	4	0	21	30	0	0	0	1	31	-10
2008	17	5	6	0	28	30	0	0	0	1	31	-3
2009	22	6	8	0	35	30	0	0	0	1	31	5
2010	19	7	15	0	42	30	0	0	0	1	31	11
2011	21	8	17	0	46	30	0	0	0	1	31	16
2012	26	10	20	0	56	30	0	0	0	1	31	26
2013	28	11	22	0	61	30	0	0	0	1	31	31
2014	34	12	20	0	66	30	0	0	0	1	31	35
2015	35	12	22	0	69	0	0	0	0	0	0	69
2016	31	12	21	0	64	0	0	0	0	0	0	64
2017	37	12	23	0	72	0	0	0	0	0	0	72
2018	38	12	22	0	72	0	0	0	0	0	0	72
2019	40	12	24	0	75	0	0	0	0	0	0	75
2020	39	12	23	0	74	0	0	0	0	0	0	74
2021	39	12	24	0	75	0	0	0	0	0	0	75
2022	40	12	24	0	76	0	0	0	0	0	0	76
2023	40	12	25	0	77	0	0	0	0	0	0	77
2024	42	12	26	0	80	0	0	0	0	0	0	80
2025	43	12	26	0	81	0	0	0	0	0	0	81
2026	43	12	27	0	82	0	0	0	0	0	0	82
2027	44	12	28	0	83	0	0	0	0	0	0	83
2028	46	12	28	0	86	0	0	0	0	0	0	86
2029	45	12	29	0	86	0	0	0	0	0	0	86
2030	47	12	30	0	88	0	0	0	0	0	0	88
2031	47	12	30	0	89	0	0	0	0	0	0	89
2032	49	12	31	0	92	0	0	0	0	0	0	92
2033	49	12	32	0	93	0	0	0	0	0	0	93
NOMINAL	981	293	608	0	1,882	300	0	0	0	5	305	1,577
NPV	286	91	170	0	547	200	0	0	0	3	203	344

Utility Discount Rate: 8.16

Benefit Cost Ratio: 2.69

Measure: DX RTU 13

New **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	4	5	0	9	30	0	30	-21
2006	8	5	0	13	30	0	30	-17
2007	12	5	0	17	30	0	30	-13
2008	16	5	0	21	30	0	30	-9
2009	20	5	0	25	30	0	30	-5
2010	25	5	0	30	30	0	30	0
2011	30	5	0	35	30	0	30	5
2012	35	5	0	40	30	0	30	10
2013	40	5	0	45	30	0	30	15
2014	45	5	0	51	30	0	30	21
2015	47	0	0	47	0	0	0	47
2016	48	0	0	48	0	0	0	48
2017	49	0	0	49	0	0	0	49
2018	50	0	0	50	0	0	0	50
2019	51	0	0	51	0	0	0	51
2020	53	0	0	53	0	0	0	53
2021	54	0	0	54	0	0	0	54
2022	55	0	0	55	0	0	0	55
2023	57	0	0	57	0	0	0	57
2024	58	0	0	58	0	0	0	58
2025	60	0	0	60	0	0	0	60
2026	61	0	0	61	0	0	0	61
2027	63	0	0	63	0	0	0	63
2028	64	0	0	64	0	0	0	64
2029	66	0	0	66	0	0	0	66
2030	67	0	0	67	0	0	0	67
2031	69	0	0	69	0	0	0	69
2032	71	0	0	71	0	0	0	71
2033	73	0	0	73	0	0	0	73
NOMINAL	1,277	51	0	1,328	300	0	300	1,028
NPV	377	34	0	411	200	0	200	211

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **2.06**

Input Data

Measure name: **Fixed Plate ERV**

Vintage: **New** Units: **1 Participant = 450 cfm**

Incremental Participant Cost:	$1,000.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$344.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	512
Peak Winter KW Reduction:	3.44
Peak Summer KW Reduction:	0.735

Year	Cumulative Participation
2005	50
2006	100
2007	150
2008	200
2009	250
2010	300
2011	350
2012	400
2013	450
2014	500

Measure: Fixed Plate ERV

New

Rate Impact Measure Test

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	3	0	0	5	0	0	0	1	17	1	19	-14
2006	2	7	0	0	9	0	0	0	1	17	2	20	-11
2007	5	10	3	0	18	0	0	0	1	17	3	21	-3
2008	8	14	4	0	25	0	0	0	1	17	4	22	3
2009	9	17	4	0	30	0	0	0	1	17	5	23	7
2010	7	21	7	0	34	0	0	0	1	17	7	25	10
2011	7	24	8	0	39	0	0	0	1	17	8	26	13
2012	8	27	10	0	46	0	0	0	1	17	9	27	19
2013	8	31	11	0	50	0	0	0	1	17	11	28	22
2014	11	34	10	0	56	0	0	0	1	17	12	30	26
2015	12	34	12	0	58	0	0	0	0	0	12	12	46
2016	12	34	12	0	57	0	0	0	0	0	13	13	45
2017	13	34	13	0	60	0	0	0	0	0	13	13	47
2018	12	34	12	0	59	0	0	0	0	0	13	13	46
2019	14	34	14	0	63	0	0	0	0	0	14	14	49
2020	13	34	14	0	61	0	0	0	0	0	14	14	47
2021	13	34	14	0	61	0	0	0	0	0	14	14	47
2022	14	34	15	0	62	0	0	0	0	0	15	15	48
2023	14	34	15	0	63	0	0	0	0	0	15	15	48
2024	15	34	15	0	64	0	0	0	0	0	15	15	49
2025	13	34	16	0	63	0	0	0	0	0	16	16	47
2026	13	34	16	0	63	0	0	0	0	0	16	16	47
2027	14	34	16	0	65	0	0	0	0	0	17	17	48
2028	14	34	17	0	65	0	0	0	0	0	17	17	48
2029	14	34	17	0	65	0	0	0	0	0	17	17	48
2030	14	34	18	0	66	0	0	0	0	0	18	18	48
2031	15	34	18	0	67	0	0	0	0	0	18	18	48
2032	16	34	19	0	69	0	0	0	0	0	19	19	50
2033	15	34	19	0	68	0	0	0	0	0	19	19	49
NOMINAL	324	841	348	0	1,513	0	0	0	10	169	358	537	976
NPV	98	260	95	0	452	0	0	0	7	113	100	219	233

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **2.06**

Measure: Fixed Plate ERV

New

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	3	0	0	5	35	0	0	0	1	36	-31
2006	2	7	0	0	9	35	0	0	0	1	36	-27
2007	5	10	3	0	18	35	0	0	0	1	36	-18
2008	8	14	4	0	25	35	0	0	0	1	36	-11
2009	9	17	4	0	30	35	0	0	0	1	36	-6
2010	7	21	7	0	34	35	0	0	0	1	36	-2
2011	7	24	8	0	39	35	0	0	0	1	36	3
2012	8	27	10	0	46	35	0	0	0	1	36	10
2013	8	31	11	0	50	35	0	0	0	1	36	14
2014	11	34	10	0	56	35	0	0	0	1	36	20
2015	12	34	12	0	58	0	0	0	0	0	0	58
2016	12	34	12	0	57	0	0	0	0	0	0	57
2017	13	34	13	0	60	0	0	0	0	0	0	60
2018	12	34	12	0	59	0	0	0	0	0	0	59
2019	14	34	14	0	63	0	0	0	0	0	0	63
2020	13	34	14	0	61	0	0	0	0	0	0	61
2021	13	34	14	0	61	0	0	0	0	0	0	61
2022	14	34	15	0	62	0	0	0	0	0	0	62
2023	14	34	15	0	63	0	0	0	0	0	0	63
2024	15	34	15	0	64	0	0	0	0	0	0	64
2025	13	34	16	0	63	0	0	0	0	0	0	63
2026	13	34	16	0	63	0	0	0	0	0	0	63
2027	14	34	16	0	65	0	0	0	0	0	0	65
2028	14	34	17	0	65	0	0	0	0	0	0	65
2029	14	34	17	0	65	0	0	0	0	0	0	65
2030	14	34	18	0	66	0	0	0	0	0	0	66
2031	15	34	18	0	67	0	0	0	0	0	0	67
2032	16	34	19	0	69	0	0	0	0	0	0	69
2033	15	34	19	0	68	0	0	0	0	0	0	68
NOMINAL	324	841	348	0	1,513	350	0	0	0	10	360	1,153
NPV	98	260	95	0	452	233	0	0	0	7	240	212

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.89

Measure: Fixed Plate ERV

New **Participant Test**

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	1	17	0	18	35	0	35	-17
2006	2	17	0	19	35	0	35	-16
2007	3	17	0	20	35	0	35	-15
2008	4	17	0	21	35	0	35	-14
2009	5	17	0	22	35	0	35	-13
2010	7	17	0	24	35	0	35	-11
2011	8	17	0	25	35	0	35	-10
2012	9	17	0	26	35	0	35	-9
2013	11	17	0	27	35	0	35	-8
2014	12	17	0	29	35	0	35	-6
2015	12	0	0	12	0	0	0	12
2016	13	0	0	13	0	0	0	13
2017	13	0	0	13	0	0	0	13
2018	13	0	0	13	0	0	0	13
2019	14	0	0	14	0	0	0	14
2020	14	0	0	14	0	0	0	14
2021	14	0	0	14	0	0	0	14
2022	15	0	0	15	0	0	0	15
2023	15	0	0	15	0	0	0	15
2024	15	0	0	15	0	0	0	15
2025	16	0	0	16	0	0	0	16
2026	16	0	0	16	0	0	0	16
2027	17	0	0	17	0	0	0	17
2028	17	0	0	17	0	0	0	17
2029	17	0	0	17	0	0	0	17
2030	18	0	0	18	0	0	0	18
2031	18	0	0	18	0	0	0	18
2032	19	0	0	19	0	0	0	19
2033	19	0	0	19	0	0	0	19
NOMINAL	338	169	0	507	350	0	350	157
NPV	100	113	0	212	233	0	233	-21

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **0.91**

Input Data

Measure name: **Strip-PTHP 13.5**

Vintage: **New** Units: **1 Participant = 20 tons**

Incremental Participant Cost:	$2,000.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$909.00
Utility Non-recurring Cost per Participant:	$20.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	5,194
Peak Winter KW Reduction:	9.094
Peak Summer KW Reduction:	1.72

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure: **Strip-PTHP 13.5**

New **Rate Impact Measure Test**

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	11	5	0	0	15	0	0	0	0	38	12	50	-35
2006	17	9	0	0	26	0	0	0	1	38	23	62	-36
2007	32	14	8	0	54	0	0	0	1	38	35	74	-21
2008	42	19	11	0	72	0	0	0	1	38	48	87	-15
2009	55	23	13	0	91	0	0	0	1	38	61	100	-9
2010	48	28	25	0	101	0	0	0	1	38	75	114	-13
2011	60	33	28	0	121	0	0	0	1	38	89	129	-7
2012	70	38	37	0	145	0	0	0	1	38	104	144	1
2013	80	42	38	0	161	0	0	0	1	38	120	159	1
2014	93	47	35	0	175	0	0	0	1	38	136	175	-1
2015	96	47	38	0	182	0	0	0	0	0	140	140	42
2016	97	47	38	0	182	0	0	0	0	0	143	143	39
2017	101	47	41	0	188	0	0	0	0	0	147	147	42
2018	102	47	40	0	189	0	0	0	0	0	150	150	38
2019	106	47	44	0	196	0	0	0	0	0	154	154	42
2020	106	47	43	0	196	0	0	0	0	0	158	158	38
2021	108	47	44	0	199	0	0	0	0	0	162	162	37
2022	109	47	45	0	200	0	0	0	0	0	166	166	34
2023	113	47	46	0	206	0	0	0	0	0	170	170	36
2024	116	47	47	0	210	0	0	0	0	0	174	174	35
2025	117	47	48	0	212	0	0	0	0	0	179	179	34
2026	119	47	50	0	215	0	0	0	0	0	183	183	32
2027	122	47	51	0	220	0	0	0	0	0	188	188	32
2028	125	47	52	0	224	0	0	0	0	0	192	192	31
2029	127	47	53	0	227	0	0	0	0	0	197	197	30
2030	130	47	55	0	231	0	0	0	0	0	202	202	29
2031	132	47	56	0	234	0	0	0	0	0	207	207	27
2032	136	47	58	0	240	0	0	0	0	0	212	212	28
2033	138	47	59	0	244	0	0	0	0	0	218	218	26
NOMINAL	2,704	1,149	1,102	0	4,955	0	0	0	7	384	4,047	4,439	517
NPV	779	355	305	0	1,440	0	0	0	5	256	1,131	1,391	49

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.04**

Measure: Strip-PTHP 13.5

New **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	11	5	0	0	15	0	0	0	0	0	0	15
2006	17	9	0	0	26	72	0	0	0	1	73	-46
2007	32	14	8	0	54	72	0	0	0	1	73	-19
2008	42	19	11	0	72	72	0	0	0	1	73	-1
2009	55	23	13	0	91	72	0	0	0	1	73	18
2010	48	28	25	0	101	72	0	0	0	1	73	28
2011	60	33	28	0	121	72	0	0	0	1	73	48
2012	70	38	37	0	145	72	0	0	0	1	73	72
2013	80	42	38	0	161	72	0	0	0	1	73	88
2014	93	47	35	0	175	72	0	0	0	1	73	102
2015	96	47	38	0	182	0	0	0	0	0	0	182
2016	97	47	38	0	182	0	0	0	0	0	0	182
2017	101	47	41	0	188	0	0	0	0	0	0	188
2018	102	47	40	0	189	0	0	0	0	0	0	189
2019	106	47	44	0	196	0	0	0	0	0	0	196
2020	106	47	43	0	196	0	0	0	0	0	0	196
2021	108	47	44	0	199	0	0	0	0	0	0	199
2022	109	47	45	0	200	0	0	0	0	0	0	200
2023	113	47	46	0	206	0	0	0	0	0	0	206
2024	116	47	47	0	210	0	0	0	0	0	0	210
2025	117	47	48	0	212	0	0	0	0	0	0	212
2026	119	47	50	0	215	0	0	0	0	0	0	215
2027	122	47	51	0	220	0	0	0	0	0	0	220
2028	125	47	52	0	224	0	0	0	0	0	0	224
2029	127	47	53	0	227	0	0	0	0	0	0	227
2030	130	47	55	0	231	0	0	0	0	0	0	231
2031	132	47	56	0	234	0	0	0	0	0	0	234
2032	136	47	58	0	240	0	0	0	0	0	0	240
2033	138	47	59	0	244	0	0	0	0	0	0	244
NOMINAL	2,704	1,149	1,102	0	4,955	648	0	0	0	7	655	4,300
NPV	779	355	305	0	1,440	413	0	0	0	5	418	1,022

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **3.45**

Measure: Strip-PTHP 13.5

New **Participant Test**

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	12	38	0	50	0	0	0	50
2006	23	38	0	61	72	0	72	-11
2007	35	38	0	74	72	0	72	2
2008	48	38	0	86	72	0	72	14
2009	61	38	0	100	72	0	72	28
2010	75	38	0	113	72	0	72	41
2011	89	38	0	128	72	0	72	56
2012	104	38	0	143	72	0	72	71
2013	120	38	0	158	72	0	72	86
2014	136	38	0	175	72	0	72	103
2015	140	0	0	140	0	0	0	140
2016	143	0	0	143	0	0	0	143
2017	147	0	0	147	0	0	0	147
2018	150	0	0	150	0	0	0	150
2019	154	0	0	154	0	0	0	154
2020	158	0	0	158	0	0	0	158
2021	162	0	0	162	0	0	0	162
2022	166	0	0	166	0	0	0	166
2023	170	0	0	170	0	0	0	170
2024	174	0	0	174	0	0	0	174
2025	179	0	0	179	0	0	0	179
2026	183	0	0	183	0	0	0	183
2027	188	0	0	188	0	0	0	188
2028	192	0	0	192	0	0	0	192
2029	197	0	0	197	0	0	0	197
2030	202	0	0	202	0	0	0	202
2031	207	0	0	207	0	0	0	207
2032	212	0	0	212	0	0	0	212
2033	218	0	0	218	0	0	0	218
NOMINAL	3,830	384	0	4,214	648	0	648	3,566
NPV	1,131	256	0	1,387	413	0	413	973

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **3.36**

Input Data

Measure name: Commercial Dispatchable-Interruptible

Vintage: Existing

		Year	Cumulative Participation
Incremental Participant Cost:	$0.00	2005	1
Incremental Annual O&M Cost:	$15.00	2006	1
Recurring Incentive per Participant:	$4,320.00	2007	1
Utility Non-recurring Cost per Participant:	$100.00	2008	2
Utility Recurring Cost per Participant:	$0.00	2009	2
Annual kWh Reduction:	4250	2010	2
Peak Winter KW Reduction:	500	2011	3
Peak Summer KW Reduction:	440	2012	3
		2013	3
		2014	4

Measure name: Commercial Dispatchable-Curtailable
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	TOTAL BENEFITS	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	TOTAL COSTS	NET BENEFITS
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	15	0	0	15	-15
2005	1	0	0	0	1	0	0	0	15	4	0	20	-19
2006	1	0	0	0	1	0	0	0	15	4	0	20	-19
2007	8	0	10	0	18	0	0	0	15	4	0	20	-2
2008	17	0	22	0	39	0	0	0	15	9	1	24	14
2009	15	0	20	0	35	0	0	0	15	9	1	24	11
2010	0	0	31	0	31	1	0	0	15	9	1	25	6
2011	0	0	36	0	36	8	0	0	15	13	1	37	-1
2012	0	0	49	0	49	2	0	0	15	13	2	32	17
2013	0	0	49	0	49	12	0	0	15	13	1	41	8
2014	0	0	53	0	53	11	0	0	15	17	1	45	9
2015	7	0	72	0	79	0	0	0	15	17	2	34	45
2016	0	0	55	0	55	21	0	0	15	17	1	55	0
2017	0	0	56	0	56	0	0	0	15	17	2	34	22
2018	0	0	53	0	53	2	0	0	15	17	2	36	17
2019	8	0	59	0	66	0	0	0	15	17	2	34	32
2020	0	0	57	0	57	1	0	0	15	17	2	35	22
2021	2	0	58	0	60	0	0	0	15	17	2	34	26
2022	2	0	56	0	58	0	0	0	15	17	2	34	24
2023	0	0	59	0	59	2	0	0	15	17	2	36	24
2024	0	0	67	0	67	8	0	0	15	17	2	42	24
2025	0	0	64	0	64	3	0	0	15	17	2	37	27
2026	0	0	73	0	73	5	0	0	15	17	2	39	35
2027	0	0	72	0	72	39	0	0	15	17	2	73	-2
2028	0	0	69	0	69	4	0	0	15	17	2	38	30
2029	0	0	78	0	78	9	0	0	15	17	3	43	35
2030	0	0	72	0	72	7	0	0	15	17	2	42	31
2031	0	0	83	0	83	12	0	0	15	17	3	46	36
2032	0	0	85	0	85	9	0	0	15	17	3	44	41
2033	0	0	95	0	95	6	0	0	15	17	3	41	54
NOMINAL	59	0	1,553	0	1,612	161	0	0	450	423	45	1,080	531
NPV	36	0	430	0	466	42	0	0	180	132	13	367	98

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.27

Measure name: Commercial Dispatchable-Curtailable
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	15	15	-15
2005	1	0	0	0	1	0	0	0	0	15	15	-14
2006	1	0	0	0	1	0	0	0	0	15	15	-14
2007	8	0	10	0	18	0	0	0	0	15	15	3
2008	17	0	22	0	39	0	0	0	0	15	15	24
2009	15	0	20	0	35	0	0	0	0	15	15	20
2010	0	0	31	0	31	0	1	0	0	15	16	16
2011	0	0	36	0	36	0	8	0	0	15	23	13
2012	0	0	49	0	49	0	2	0	0	15	17	31
2013	0	0	49	0	49	0	12	0	0	15	27	22
2014	0	0	53	0	53	0	11	0	0	15	26	27
2015	7	0	72	0	79	0	0	0	0	15	15	64
2016	0	0	55	0	55	0	21	0	0	15	36	18
2017	0	0	56	0	56	0	0	0	0	15	15	41
2018	0	0	53	0	53	0	2	0	0	15	17	36
2019	8	0	59	0	66	0	0	0	0	15	15	51
2020	0	0	57	0	57	0	1	0	0	15	16	41
2021	2	0	58	0	60	0	0	0	0	15	15	45
2022	2	0	56	0	58	0	0	0	0	15	15	43
2023	0	0	59	0	59	0	2	0	0	15	17	43
2024	0	0	67	0	67	0	8	0	0	15	23	43
2025	0	0	64	0	64	0	3	0	0	15	18	46
2026	0	0	73	0	73	0	5	0	0	15	20	54
2027	0	0	72	0	72	0	39	0	0	15	54	18
2028	0	0	69	0	69	0	4	0	0	15	19	50
2029	0	0	78	0	78	0	9	0	0	15	24	55
2030	0	0	72	0	72	0	7	0	0	15	22	50
2031	0	0	83	0	83	0	12	0	0	15	27	56
2032	0	0	85	0	85	0	9	0	0	15	24	61
2033	0	0	95	0	95	0	6	0	0	15	21	74
NOMINAL	59	0	1,553	0	1,612	0	161	0	0	450	612	1,000
NPV	36	0	430	0	466	0	42	0	0	180	222	243

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.09**

Measure name: Commercial Dispatchable-Curtailable
Vintage: Existing

	BENEFITS				PARTICIPANT TEST COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	4	0	5	0	0	0	5
2006	0	4	0	5	0	0	0	5
2007	0	4	0	5	0	0	0	5
2008	1	9	0	9	0	0	0	9
2009	1	9	0	9	0	0	0	9
2010	1	9	0	9	0	0	0	9
2011	1	13	0	14	0	0	0	14
2012	2	13	0	15	0	0	0	15
2013	1	13	0	14	0	0	0	14
2014	1	17	0	19	0	0	0	19
2015	2	17	0	19	0	0	0	19
2016	1	17	0	19	0	0	0	19
2017	2	17	0	19	0	0	0	19
2018	2	17	0	19	0	0	0	19
2019	2	17	0	19	0	0	0	19
2020	2	17	0	19	0	0	0	19
2021	2	17	0	19	0	0	0	19
2022	2	17	0	19	0	0	0	19
2023	2	17	0	19	0	0	0	19
2024	2	17	0	19	0	0	0	19
2025	2	17	0	19	0	0	0	19
2026	2	17	0	19	0	0	0	19
2027	2	17	0	19	0	0	0	19
2028	2	17	0	19	0	0	0	19
2029	3	17	0	20	0	0	0	20
2030	2	17	0	19	0	0	0	19
2031	3	17	0	20	0	0	0	20
2032	3	17	0	20	0	0	0	20
2033	3	17	0	20	0	0	0	20
NOMINAL	43	406	0	449	0	0	0	449
NPV	13	132	0	145	0	0	0	145

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure name: Commercial Dispatchable-Interruptible

Vintage: Existing

		Year	Cumulative Participation
Incremental Participant Cost:	$0.00	2005	1
Incremental Annual O&M Cost:	$15.00	2006	1
Recurring Incentive per Participant:	$4,320.00	2007	1
Utility Non-recurring Cost per Participant:	$100.00	2008	2
Utility Recurring Cost per Participant:	$0.00	2009	2
Annual kWh Reduction:	4250	2010	2
Peak Winter KW Reduction:	500	2011	3
Peak Summer KW Reduction:	440	2012	3
		2013	3
		2014	4

Measure name: Commercial Dispatchable-Interruptible
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	5	0	0	5	-5
2006	0	0	0	0	0	0	0	0	5	0	0	5	-5
2007	8	0	10	0	19	0	0	0	6	10	0	17	2
2008	8	0	11	0	19	0	0	0	5	10	0	16	3
2009	8	0	11	0	18	0	0	0	5	10	0	16	3
2010	0	0	16	0	16	1	0	0	5	10	0	16	-1
2011	0	0	21	0	21	4	0	0	6	21	1	31	-10
2012	0	0	34	0	34	2	0	0	5	21	1	28	6
2013	0	0	33	0	33	8	0	0	5	21	1	34	-1
2014	0	0	27	0	27	5	0	0	5	21	1	32	-5
2015	0	0	30	0	30	0	0	0	5	21	1	27	3
2016	0	0	36	0	36	3	0	0	5	21	1	30	6
2017	0	0	28	0	28	3	0	0	5	21	1	29	-1
2018	0	0	25	0	25	0	0	0	5	21	1	27	-2
2019	3	0	33	0	36	0	0	0	5	21	1	27	9
2020	1	0	27	0	28	0	0	0	5	21	1	27	1
2021	4	0	27	0	31	0	0	0	5	21	2	27	4
2022	1	0	27	0	28	0	0	0	5	21	2	27	1
2023	0	0	27	0	27	1	0	0	5	21	2	28	-1
2024	0	0	37	0	37	0	0	0	5	21	2	27	9
2025	0	0	30	0	30	1	0	0	5	21	2	28	2
2026	0	0	38	0	38	2	0	0	5	21	2	30	9
2027	0	0	47	0	47	4	0	0	5	21	2	31	16
2028	0	0	40	0	40	2	0	0	5	21	2	29	11
2029	0	0	40	0	40	5	0	0	5	21	1	32	7
2030	0	0	32	0	32	3	0	0	5	21	1	30	2
2031	0	0	42	0	42	5	0	0	5	21	2	33	9
2032	0	0	33	0	33	4	0	0	5	21	1	30	3
2033	0	0	52	0	52	0	0	0	5	21	1	27	25
NOMINAL	33	0	813	0	846	51	0	0	147	515	34	747	99
NPV	20	0	233	0	253	15	0	0	56	161	9	242	11

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.04

Measure name: Commercial Dispatchable-Interruptible
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST **$(000)**	(7) TOTAL FUEL & O&M INCREASE **$(000)**	(8) INCREASED T&D CAP. COSTS **$(000)**	(9) INCREASED GEN. CAP. COSTS **$(000)**	(10) UTILITY PROGRAM COSTS **$(000)**	(11) **TOTAL COSTS $(000)**	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	5	5	-5
2006	0	0	0	0	0	0	0	0	0	5	5	-5
2007	8	0	10	0	19	0	0	0	0	6	6	13
2008	8	0	11	0	19	0	0	0	0	5	5	14
2009	8	0	11	0	18	0	0	0	0	5	5	13
2010	0	0	16	0	16	0	1	0	0	5	6	10
2011	0	0	21	0	21	0	4	0	0	6	10	12
2012	0	0	34	0	34	0	2	0	0	5	7	28
2013	0	0	33	0	33	0	8	0	0	5	13	20
2014	0	0	27	0	27	0	5	0	0	5	10	17
2015	0	0	30	0	30	0	0	0	0	5	5	25
2016	0	0	36	0	36	0	3	0	0	5	8	28
2017	0	0	28	0	28	0	3	0	0	5	8	21
2018	0	0	25	0	25	0	0	0	0	5	5	20
2019	3	0	33	0	36	0	0	0	0	5	5	31
2020	1	0	27	0	28	0	0	0	0	5	5	23
2021	4	0	27	0	31	0	0	0	0	5	5	26
2022	1	0	27	0	28	0	0	0	0	5	5	23
2023	0	0	27	0	27	0	1	0	0	5	6	21
2024	0	0	37	0	37	0	0	0	0	5	5	31
2025	0	0	30	0	30	0	1	0	0	5	6	24
2026	0	0	38	0	38	0	2	0	0	5	7	31
2027	0	0	47	0	47	0	4	0	0	5	9	39
2028	0	0	40	0	40	0	2	0	0	5	7	34
2029	0	0	40	0	40	0	5	0	0	5	10	29
2030	0	0	32	0	32	0	3	0	0	5	8	24
2031	0	0	42	0	42	0	5	0	0	5	10	31
2032	0	0	33	0	33	0	4	0	0	5	9	25
2033	0	0	52	0	52	0	0	0	0	5	5	47
NOMINAL	33	0	813	0	846	0	51	0	0	147	198	648
NPV	20	0	233	0	253	0	15	0	0	56	72	181

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.52**

Measure name: Commercial Dispatchable-Interruptible
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	10	0	11	0	0	0	11
2008	0	10	0	11	0	0	0	11
2009	0	10	0	11	0	0	0	11
2010	0	10	0	11	0	0	0	11
2011	1	21	0	22	0	0	0	22
2012	1	21	0	22	0	0	0	22
2013	1	21	0	22	0	0	0	22
2014	1	21	0	21	0	0	0	21
2015	1	21	0	22	0	0	0	22
2016	1	21	0	22	0	0	0	22
2017	1	21	0	22	0	0	0	22
2018	1	21	0	22	0	0	0	22
2019	1	21	0	22	0	0	0	22
2020	1	21	0	22	0	0	0	22
2021	2	21	0	22	0	0	0	22
2022	2	21	0	22	0	0	0	22
2023	2	21	0	22	0	0	0	22
2024	2	21	0	22	0	0	0	22
2025	2	21	0	22	0	0	0	22
2026	2	21	0	22	0	0	0	22
2027	2	21	0	22	0	0	0	22
2028	2	21	0	22	0	0	0	22
2029	1	21	0	22	0	0	0	22
2030	1	21	0	22	0	0	0	22
2031	2	21	0	22	0	0	0	22
2032	1	21	0	22	0	0	0	22
2033		21		22	0	0	0	22
NOMINAL	32	494		526	0	0	0	526
NPV	9	161	0	170	0	0	0	170

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure name: STANDBY

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual OHM Cost:	$10,000.00
Recurring Incentive per Participant:	$11,726.00
Utility Non-recurring Cost per Participant:	$0.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	6260
Peak Winter KW Reduction:	444
Peak Summer KW Reduction:	465

Year	Cumulative Participation
2005	5
2006	10
2007	15
2008	20
2009	25
2010	30
2011	35
2012	40
2013	45
2014	50

Measure: Standby
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	7	0	0	0	7	0	0	0	10	59	4	72	-65
2006	11	0	0	0	11	0	0	0	10	117	7	134	-123
2007	133	0	163	0	296	0	0	0	10	176	10	196	100
2008	184	0	231	0	415	0	0	0	10	235	14	259	156
2009	218	0	272	0	489	0	0	0	10	293	18	321	168
2010	0	0	494	0	494	29	0	0	10	352	21	412	82
2011	0	0	595	0	595	138	0	0	10	410	27	585	11
2012	0	0	692	0	692	75	0	0	10	469	31	585	106
2013	0	0	840	0	840	164	0	0	10	528	36	737	103
2014	0	0	744	0	744	98	0	0	10	586	41	735	10
2015	72	0	795	0	867	0	0	0	10	586	43	640	227
2016	0	0	756	0	756	76	0	0	10	586	43	715	41
2017	90	0	780	0	870	0	0	0	10	586	42	638	232
2018	0	0	788	0	788	63	0	0	10	586	45	704	84
2019	115	0	814	0	929	0	0	0	10	586	44	640	289
2020	0	0	828	0	828	31	0	0	10	586	47	674	153
2021	0	0	848	0	848	56	0	0	10	586	46	698	150
2022	0	0	869	0	869	45	0	0	10	586	47	688	182
2023	0	0	891	0	891	48	0	0	10	586	48	692	199
2024	0	0	921	0	921	103	0	0	10	586	49	749	172
2025	0	0	936	0	936	118	0	0	10	586	51	765	171
2026	0	0	967	0	967	99	0	0	10	586	52	747	221
2027	0	0	992	0	992	175	0	0	10	586	53	824	167
2028	0	0	1,008	0	1,008	91	0	0	10	586	54	741	267
2029	0	0	1,097	0	1,097	86	0	0	10	586	58	740	357
2030	0	0	1,098	0	1,098	78	0	0	10	586	56	731	367
2031	0	0	1,158	0	1,158	109	0	0	10	586	61	766	392
2032	0	0	1,113	0	1,113	120	0	0	10	586	59	775	338
2033	0	0	1,227	0	1,227	123	0	0	10	586	64	783	444
NOMINAL	830	0	21,916	0	22,746	1,922	0	0	290	14,364	1,170	17,746	5,000
NPV	501	0	6,101	0	6,602	524	0	0	110	4,438	330	5,403	1,200

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.22**

Measure: Standby
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST **$(000)**	(7) TOTAL FUEL & O&M INCREASE **$(000)**	(8) INCREASED T&D CAP. COSTS **$(000)**	(9) INCREASED GEN. CAP. COSTS **$(000)**	(10) UTILITY PROGRAM COSTS **$(000)**	(11) **TOTAL COSTS $(000)**	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	7	0	0	0	7	0	0	0	0	10	10	-3
2006	11	0	0	0	11	0	0	0	0	10	10	1
2007	133	0	163	0	296	0	0	0	0	10	10	286
2008	184	0	231	0	415	0	0	0	0	10	10	405
2009	218	0	272	0	489	0	0	0	0	10	10	479
2010	0	0	494	0	494	0	29	0	0	10	39	455
2011	0	0	595	0	595	0	138	0	0	10	148	448
2012	0	0	692	0	692	0	75	0	0	10	85	606
2013	0	0	840	0	840	0	164	0	0	10	174	667
2014	0	0	744	0	744	0	98	0	0	10	108	636
2015	72	0	795	0	867	0	0	0	0	10	10	857
2016	0	0	756	0	756	0	76	0	0	10	86	670
2017	90	0	780	0	870	0	0	0	0	10	10	860
2018	0	0	788	0	788	0	63	0	0	10	73	715
2019	115	0	814	0	929	0	0	0	0	10	10	919
2020	0	0	828	0	828	0	31	0	0	10	41	786
2021	0	0	848	0	848	0	56	0	0	10	66	782
2022	0	0	869	0	869	0	45	0	0	10	55	815
2023	0	0	891	0	891	0	48	0	0	10	58	833
2024	0	0	921	0	921	0	103	0	0	10	113	808
2025	0	0	936	0	936	0	118	0	0	10	128	808
2026	0	0	967	0	967	0	99	0	0	10	109	859
2027	0	0	992	0	992	0	175	0	0	10	185	807
2028	0	0	1,008	0	1,008	0	91	0	0	10	101	907
2029	0	0	1,097	0	1,097	0	86	0	0	10	96	1,001
2030	0	0	1,098	0	1,098	0	78	0	0	10	88	1,010
2031	0	0	1,158	0	1,158	0	109	0	0	10	119	1,040
2032	0	0	1,113	0	1,113	0	120	0	0	10	130	983
2033	0	0	1,227	0	1,227	0	123	0	0	10	133	1,094
NOMINAL	830	0	21,916	0	22,746	0	1,922	0	0	290	2,212	20,534
NPV	501	0	6,101	0	6,602	0	524	0	0	110	634	5,968

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **10.41**

Measure: Standby
Vintage: Existing

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST **$(000)**	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	4	59	0	62	0	0	0	62
2006	7	117	0	124	0	0	0	124
2007	10	176	0	186	0	0	0	186
2008	14	235	0	249	0	0	0	249
2009	18	293	0	311	0	0	0	311
2010	21	352	0	373	0	0	0	373
2011	27	410	0	437	0	0	0	437
2012	31	469	0	500	0	0	0	500
2013	36	528	0	563	0	0	0	563
2014	41	586	0	627	0	0	0	627
2015	43	586	0	630	0	0	0	630
2016	43	586	0	629	0	0	0	629
2017	42	586	0	628	0	0	0	628
2018	45	586	0	631	0	0	0	631
2019	44	586	0	630	0	0	0	630
2020	47	586	0	633	0	0	0	633
2021	46	586	0	632	0	0	0	632
2022	47	586	0	633	0	0	0	633
2023	48	586	0	634	0	0	0	634
2024	49	586	0	636	0	0	0	636
2025	51	586	0	637	0	0	0	637
2026	52	586	0	638	0	0	0	638
2027	53	586	0	639	0	0	0	639
2028	54	586	0	640	0	0	0	640
2029	58	586	0	644	0	0	0	644
2030	56	586	0	643	0	0	0	643
2031	61	586	0	647	0	0	0	647
2032	59	586	0	646	0	0	0	646
2033	64	586	0	650				650
NOMINAL	1,106	13,778	0	14,884	0	0	0	14,884
NPV	330	4,438	0	4,768	0	0	0	4,768

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure name: Residential Energy Management - Winter Only DLC

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$145,000.00
Recurring Incentive per Participant:	$24.80
Utility Non-recurring Cost per Participant:	$132.56
Utility Recurring Cost per Participant:	$4.56
Annual kWh Reduction:	0
Peak Winter KW Reduction:	2.14
Peak Summer KW Reduction:	0

Year	Cumulative Participation
2005	5,000
2006	10,000
2007	15,000
2008	20,000
2009	25,000
2010	30,000
2011	35,000
2012	40,000
2013	45,000
2014	50,000

Residential Energy Management - Winter Only DLC
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	0	0	0	8	0	0	0	500	124	4	627	-620
2006	15	0	0	0	15	0	0	0	523	248	9	780	-765
2007	617	0	822	0	1,439	0	0	0	548	372	29	949	490
2008	722	0	1,009	0	1,731	0	0	0	574	496	23	1,092	638
2009	1,013	0	1,369	0	2,382	0	0	0	600	620	123	1,342	1,040
2010	0	0	2,350	74	2,424	253	0	0	627	744	0	1,624	800
2011	0	0	2,825	0	2,825	866	0	0	655	868	72	2,461	364
2012	0	0	3,292	111	3,403	534	0	0	684	992	0	2,210	1,194
2013	0	0	3,923	0	3,923	1,068	0	0	714	1,116	98	2,996	927
2014	0	0	3,519	0	3,519	777	0	0	745	1,240	117	2,879	640
2015	10	0	3,510	0	3,520	0	0	0	569	1,240	229	2,039	1,481
2016	0	0	3,617	0	3,617	455	0	0	580	1,240	74	2,348	1,268
2017	189	0	3,885	0	4,075	0	0	0	591	1,240	240	2,072	2,003
2018	0	0	3,773	87	3,860	481	0	0	603	1,240	0	2,324	1,537
2019	333	0	4,091	0	4,424	0	0	0	615	1,240	217	2,072	2,352
2020	0	0	3,964	134	4,098	513	0	0	628	1,240	0	2,381	1,718
2021	0	0	4,063	143	4,207	584	0	0	641	1,240	0	2,465	1,741
2022	0	0	4,165	144	4,309	558	0	0	655	1,240	0	2,453	1,856
2023	0	0	4,269	146	4,415	604	0	0	669	1,240	0	2,513	1,903
2024	0	0	4,383	161	4,544	639	0	0	684	1,240	0	2,563	1,981
2025	0	0	4,485	132	4,617	706	0	0	699	1,240	0	2,646	1,972
2026	0	0	4,605	70	4,676	634	0	0	715	1,240	0	2,589	2,087
2027	0	0	4,720	61	4,782	758	0	0	732	1,240	0	2,730	2,052
2028	0	0	4,830	0	4,830	652	0	0	750	1,240	9	2,651	2,179
2029	0	0	5,173	0	5,173	738	0	0	770	1,240	172	2,919	2,254
2030	0	0	5,195	0	5,195	679	0	0	790	1,240	128	2,837	2,358
2031	0	0	5,409	0	5,409	877	0	0	811	1,240	182	3,110	2,300
2032	0	0	5,508	0	5,508	781	0	0	833	1,240	168	3,022	2,487
2033	0	0	5,723	0	5,723	992	0	0	856	1,240	238	3,326	2,397
NOMINAL	2,906	0	104,479	1,263	108,649	14,146	0	0	19,362	30,380	2,130	66,018	42,631
NPV	1,894	0	29,066	360	31,320	3,827	0	0	6,852	9,387	662	20,728	10,591

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.51

Residential Energy Management - Winter Only DLC
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	0	0	0	8	0	0	0	0	500	500	-492
2006	15	0	0	0	15	0	0	0	0	523	523	-509
2007	617	0	822	0	1,439	0	0	0	0	548	548	891
2008	722	0	1,009	0	1,731	0	0	0	0	574	574	1,157
2009	1,013	0	1,369	0	2,382	0	0	0	0	600	600	1,782
2010	0	0	2,350	0	2,350	0	253	0	0	627	880	1,470
2011	0	0	2,825	0	2,825	0	866	0	0	655	1,521	1,303
2012	0	0	3,292	0	3,292	0	534	0	0	684	1,218	2,075
2013	0	0	3,923	0	3,923	0	1,068	0	0	714	1,782	2,141
2014	0	0	3,519	0	3,519	0	777	0	0	745	1,522	1,997
2015	10	0	3,510	0	3,520	0	0	0	0	569	569	2,951
2016	0	0	3,617	0	3,617	0	455	0	0	580	1,035	2,582
2017	189	0	3,885	0	4,075	0	0	0	0	591	591	3,483
2018	0	0	3,773	0	3,773	0	481	0	0	603	1,084	2,690
2019	333	0	4,091	0	4,424	0	0	0	0	615	615	3,809
2020	0	0	3,964	0	3,964	0	513	0	0	628	1,141	2,824
2021	0	0	4,063	0	4,063	0	584	0	0	641	1,225	2,838
2022	0	0	4,165	0	4,165	0	558	0	0	655	1,213	2,952
2023	0	0	4,269	0	4,269	0	604	0	0	669	1,273	2,997
2024	0	0	4,383	0	4,383	0	639	0	0	684	1,323	3,060
2025	0	0	4,485	0	4,485	0	706	0	0	699	1,406	3,080
2026	0	0	4,605	0	4,605	0	634	0	0	715	1,349	3,256
2027	0	0	4,720	0	4,720	0	758	0	0	732	1,490	3,231
2028	0	0	4,830	0	4,830	0	652	0	0	750	1,402	3,428
2029	0	0	5,173	0	5,173	0	738	0	0	770	1,507	3,665
2030	0	0	5,195	0	5,195	0	679	0	0	790	1,469	3,726
2031	0	0	5,409	0	5,409	0	877	0	0	811	1,687	3,722
2032	0	0	5,508	0	5,508	0	781	0	0	833	1,614	3,894
2033	0	0	5,723	0	5,723	0	992	0	0	856	1,847	3,875
NOMINAL	2,906	0	104,479	0	107,385	0	14,146	0	0	19,362	33,507	73,878
NPV	1,894	0	29,066	0	30,960	0	3,827	0	0	6,852	10,678	20,281

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.90**

Residential Energy Management - Winter Only DLC
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	4	124	0	128	0	0	0	128
2006	9	248	0	257	0	0	0	257
2007	29	372	0	401	0	0	0	401
2008	23	496	0	519	0	0	0	519
2009	123	620	0	743	0	0	0	743
2010	0	744	0	744	0	74	74	670
2011	72	868	0	940	0	0	0	940
2012	0	992	0	992	0	111	111	881
2013	98	1,116	0	1,214	0	0	0	1,214
2014	117	1,240	0	1,357	0	0	0	1,357
2015	229	1,240	0	1,469	0	0	0	1,469
2016	74	1,240	0	1,314	0	0	0	1,314
2017	240	1,240	0	1,480	0	0	0	1,480
2018	0	1,240	0	1,240	0	87	87	1,153
2019	217	1,240	0	1,457	0	0	0	1,457
2020	0	1,240	0	1,240	0	134	134	1,106
2021	0	1,240	0	1,240	0	143	143	1,097
2022	0	1,240	0	1,240	0	144	144	1,096
2023	0	1,240	0	1,240	0	146	146	1,094
2024	0	1,240	0	1,240	0	161	161	1,079
2025	0	1,240	0	1,240	0	132	132	1,108
2026	0	1,240	0	1,240	0	70	70	1,170
2027	0	1,240	0	1,240	0	61	61	1,179
2028	9	1,240	0	1,249	0	0	0	1,249
2029	172	1,240	0	1,412	0	0	0	1,412
2030	128	1,240	0	1,368	0	0	0	1,368
2031	182	1,240	0	1,422	0	0	0	1,422
2032	168	1,240	0	1,408	0	0	0	1,408
2033	238	1,240	0	1,478	0	0	0	1,478
NOMINAL	1,892	29,140	0	31,032	0	1,263	1,263	29,768
NPV	662	9,387	0	10,050	0	360	360	9,690

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **27.94**

Input Data

Measure Name: Heat Pump 10 to 13

Vintage: Existing Average

Incremental Participant Cost:	$400.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$150.00
Utility Non-recurring Cost per Participant:	$40.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1214
Peak Winter KW Reduction:	0.93
Peak Summer KW Reduction:	0.94

Year	Cumulative Participation
2005	515
2006	1,030
2007	1,545
2008	2,060
2009	2,575
2010	3,090
2011	3,605
2012	4,120
2013	4,635
2014	5,150

Measure Name: Heat Pump 10 to 13
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	61	17	0	0	78	0	0	0	44	161	75	280	-202
2006	94	34	0	0	129	0	0	0	44	161	141	346	-217
2007	197	52	80	0	328	0	0	0	44	161	214	420	-91
2008	262	69	112	0	443	0	0	0	44	161	290	495	-53
2009	327	86	136	0	550	0	0	0	44	161	360	565	-16
2010	268	103	270	0	641	0	0	0	44	161	437	642	-1
2011	284	121	303	0	708	0	0	0	44	161	535	741	-33
2012	372	138	340	0	850	0	0	0	44	161	625	830	19
2013	389	155	406	0	950	0	0	0	44	161	719	924	26
2014	466	172	372	0	1,010	0	0	0	44	161	816	1,022	-11
2015	504	172	398	0	1,075	0	0	0	0	0	837	837	238
2016	505	172	391	0	1,069	0	0	0	0	0	857	857	211
2017	536	172	420	0	1,129	0	0	0	0	0	879	879	250
2018	536	172	413	0	1,122	0	0	0	0	0	901	901	221
2019	570	172	440	0	1,182	0	0	0	0	0	923	923	258
2020	566	172	433	0	1,172	0	0	0	0	0	946	946	225
2021	573	172	444	0	1,189	0	0	0	0	0	970	970	219
2022	586	172	455	0	1,213	0	0	0	0	0	991	991	222
2023	597	172	466	0	1,235	0	0	0	0	0	1,019	1,019	216
2024	610	172	478	0	1,260	0	0	0	0	0	1,045	1,045	216
2025	616	172	490	0	1,278	0	0	0	0	0	1,071	1,071	207
2026	627	172	502	0	1,302	0	0	0	0	0	1,098	1,098	204
2027	637	172	494	0	1,303	0	0	0	0	0	1,125	1,125	178
2028	649	172	527	0	1,349	0	0	0	0	0	1,153	1,153	196
2029	649	172	556	0	1,377	0	0	0	0	0	1,182	1,182	196
2030	670	172	554	0	1,396	0	0	0	0	0	1,212	1,212	185
2031	669	172	584	0	1,426	0	0	0	0	0	1,241	1,241	185
2032	694	172	582	0	1,448	0	0	0	0	0	1,273	1,273	175
2033	693	172	614	0	1,479	0	0	0	0	0	1,305	1,305	174
NOMINAL	14,205	4,225	11,258	0	29,689	0	0	0	441	1,614	24,236	26,292	3,397
NPV	4,154	1,306	3,127	0	8,587	0	0	0	294	1,075	6,770	8,140	447

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.05

Measure Name: Heat Pump 10 to 13
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	61	17	0	0	78	678	0	0	0	44	722	-644
2006	94	34	0	0	129	678	0	0	0	44	722	-593
2007	197	52	80	0	328	678	0	0	0	44	722	-394
2008	262	69	112	0	443	678	0	0	0	44	722	-279
2009	327	86	136	0	550	678	0	0	0	44	722	-172
2010	268	103	270	0	641	678	0	0	0	44	722	-81
2011	284	121	303	0	708	678	0	0	0	44	722	-14
2012	372	138	340	0	850	678	0	0	0	44	722	128
2013	389	155	406	0	950	678	0	0	0	44	722	228
2014	466	172	372	0	1,010	678	0	0	0	44	722	288
2015	504	172	398	0	1,075	0	0	0	0	0	0	1,075
2016	505	172	391	0	1,069	0	0	0	0	0	0	1,069
2017	536	172	420	0	1,129	0	0	0	0	0	0	1,129
2018	536	172	413	0	1,122	0	0	0	0	0	0	1,122
2019	570	172	440	0	1,182	0	0	0	0	0	0	1,182
2020	566	172	433	0	1,172	0	0	0	0	0	0	1,172
2021	573	172	444	0	1,189	0	0	0	0	0	0	1,189
2022	586	172	455	0	1,213	0	0	0	0	0	0	1,213
2023	597	172	466	0	1,235	0	0	0	0	0	0	1,235
2024	610	172	478	0	1,260	0	0	0	0	0	0	1,260
2025	616	172	490	0	1,278	0	0	0	0	0	0	1,278
2026	627	172	502	0	1,302	0	0	0	0	0	0	1,302
2027	637	172	494	0	1,303	0	0	0	0	0	0	1,303
2028	649	172	527	0	1,349	0	0	0	0	0	0	1,349
2029	649	172	556	0	1,377	0	0	0	0	0	0	1,377
2030	670	172	554	0	1,396	0	0	0	0	0	0	1,396
2031	669	172	584	0	1,426	0	0	0	0	0	0	1,426
2032	694	172	582	0	1,448	0	0	0	0	0	0	1,448
2033	693	172	614	0	1,479	0	0	0	0	0	0	1,479
NOMINAL	14,205	4,225	11,258	0	29,689	6,779	0	0	0	441	7,220	22,469
NPV	4,154	1,306	3,127	0	8,587	4,516	0	0	0	294	4,810	3,777

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.79**

Measure Name: Heat Pump 10 to 13
Vintage: Existing Average

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	75	161	0	236	678	0	678	-442
2006	141	161	0	302	678	0	678	-376
2007	214	161	0	376	678	0	678	-302
2008	290	161	0	451	678	0	678	-227
2009	360	161	0	521	678	0	678	-157
2010	437	161	0	598	678	0	678	-80
2011	535	161	0	696	678	0	678	19
2012	625	161	0	786	678	0	678	108
2013	719	161	0	880	678	0	678	202
2014	816	161	0	978	678	0	678	300
2015	837	0	0	837	0	0	0	837
2016	857	0	0	857	0	0	0	857
2017	879	0	0	879	0	0	0	879
2018	901	0	0	901	0	0	0	901
2019	923	0	0	923	0	0	0	923
2020	946	0	0	946	0	0	0	946
2021	970	0	0	970	0	0	0	970
2022	991	0	0	991	0	0	0	991
2023	1,019	0	0	1,019	0	0	0	1,019
2024	1,045	0	0	1,045	0	0	0	1,045
2025	1,071	0	0	1,071	0	0	0	1,071
2026	1,098	0	0	1,098	0	0	0	1,098
2027	1,125	0	0	1,125	0	0	0	1,125
2028	1,153	0	0	1,153	0	0	0	1,153
2029	1,182	0	0	1,182	0	0	0	1,182
2030	1,212	0	0	1,212	0	0	0	1,212
2031	1,241	0	0	1,241	0	0	0	1,241
2032	1,273	0	0	1,273	0	0	0	1,273
2033	1,305	0	0	1,305	0	0	0	1,305
NOMINAL	22,932	1,614	0	24,546	6,779	0	6,779	17,767
NPV	6,770	1,075	0	7,846	4,516	0	4,516	3,330

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.74**

Input Data

Measure Name: Reduced Duct Leakage

Vintage: Existing Average

Incremental Participant Cost:	$125.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$176.00
Utility Non-recurring Cost per Participant:	$40.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	574
Peak Winter KW Reduction:	1
Peak Summer KW Reduction:	0.52

Year	Cumulative Participation
2005	4,080
2006	8,160
2007	12,240
2008	16,320
2009	20,400
2010	24,480
2011	28,560
2012	32,640
2013	36,720
2014	40,800

Measure Name: Reduced Duct Leakage
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	122	98	0	0	219	0	0	0	200	399	169	768	-548
2006	226	195	0	0	421	0	0	0	200	399	350	949	-527
2007	485	293	210	0	988	0	0	0	200	399	530	1,128	-140
2008	666	391	310	0	1,366	0	0	0	200	399	727	1,326	40
2009	824	488	360	0	1,673	0	0	0	200	399	912	1,511	162
2010	684	586	878	0	2,148	0	0	0	200	399	1,148	1,747	401
2011	672	683	781	0	2,136	0	0	0	200	399	1,341	1,940	196
2012	897	781	969	0	2,647	0	0	0	200	399	1,580	2,179	469
2013	923	879	1,047	0	2,848	0	0	0	200	399	1,802	2,401	447
2014	1,120	976	938	0	3,034	0	0	0	200	399	2,047	2,646	388
2015	1,220	976	1,042	0	3,238	0	0	0	0	0	2,097	2,097	1,142
2016	1,213	976	1,014	0	3,203	0	0	0	0	0	2,150	2,150	1,054
2017	1,304	976	1,111	0	3,391	0	0	0	0	0	2,204	2,204	1,187
2018	1,292	976	1,083	0	3,352	0	0	0	0	0	2,260	2,260	1,092
2019	1,382	976	1,172	0	3,530	0	0	0	0	0	2,308	2,308	1,222
2020	1,351	976	1,165	0	3,492	0	0	0	0	0	2,355	2,355	1,137
2021	1,378	976	1,168	0	3,522	0	0	0	0	0	2,430	2,430	1,092
2022	1,415	976	1,197	0	3,589	0	0	0	0	0	2,494	2,494	1,094
2023	1,438	976	1,227	0	3,641	0	0	0	0	0	2,556	2,556	1,084
2024	1,456	976	1,286	0	3,718	0	0	0	0	0	2,608	2,608	1,110
2025	1,480	976	1,289	0	3,745	0	0	0	0	0	2,684	2,684	1,061
2026	1,510	976	1,321	0	3,807	0	0	0	0	0	2,753	2,753	1,054
2027	1,519	976	1,354	0	3,850	0	0	0	0	0	2,823	2,823	1,027
2028	1,554	976	1,419	0	3,949	0	0	0	0	0	2,893	2,893	1,056
2029	1,560	976	1,411	0	3,948	0	0	0	0	0	2,963	2,963	984
2030	1,606	976	1,458	0	4,041	0	0	0	0	0	3,038	3,038	1,002
2031	1,610	976	1,482	0	4,069	0	0	0	0	0	3,115	3,115	954
2032	1,650	976	1,566	0	4,193	0	0	0	0	0	3,191	3,191	1,002
2033	1,663	976	1,557	0	4,197	0	0	0	0	0	3,273	3,273	925
NOMINAL	34,217	23,921	29,816	0	87,954	0	0	0	1,996	3,992	60,801	66,789	21,165
NPV	10,045	7,391	8,355	0	25,791	0	0	0	1,330	2,659	16,993	20,982	4,809

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.23

Measure Name: Reduced Duct Leakage
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	122	98	0	0	219	998	0	0	0	200	1,198	-978
2006	226	195	0	0	421	998	0	0	0	200	1,198	-776
2007	485	293	210	0	988	998	0	0	0	200	1,198	-209
2008	666	391	310	0	1,366	998	0	0	0	200	1,198	168
2009	824	488	360	0	1,673	998	0	0	0	200	1,198	475
2010	684	586	878	0	2,148	998	0	0	0	200	1,198	950
2011	672	683	781	0	2,136	998	0	0	0	200	1,198	938
2012	897	781	969	0	2,647	998	0	0	0	200	1,198	1,450
2013	923	879	1,047	0	2,848	998	0	0	0	200	1,198	1,650
2014	1,120	976	938	0	3,034	998	0	0	0	200	1,198	1,836
2015	1,220	976	1,042	0	3,238	0	0	0	0	0	0	3,238
2016	1,213	976	1,014	0	3,203	0	0	0	0	0	0	3,203
2017	1,304	976	1,111	0	3,391	0	0	0	0	0	0	3,391
2018	1,292	976	1,083	0	3,352	0	0	0	0	0	0	3,352
2019	1,382	976	1,172	0	3,530	0	0	0	0	0	0	3,530
2020	1,351	976	1,165	0	3,492	0	0	0	0	0	0	3,492
2021	1,378	976	1,168	0	3,522	0	0	0	0	0	0	3,522
2022	1,415	976	1,197	0	3,589	0	0	0	0	0	0	3,589
2023	1,438	976	1,227	0	3,641	0	0	0	0	0	0	3,641
2024	1,456	976	1,286	0	3,718	0	0	0	0	0	0	3,718
2025	1,480	976	1,289	0	3,745	0	0	0	0	0	0	3,745
2026	1,510	976	1,321	0	3,807	0	0	0	0	0	0	3,807
2027	1,519	976	1,354	0	3,850	0	0	0	0	0	0	3,850
2028	1,554	976	1,419	0	3,949	0	0	0	0	0	0	3,949
2029	1,560	976	1,411	0	3,948	0	0	0	0	0	0	3,948
2030	1,606	976	1,458	0	4,041	0	0	0	0	0	0	4,041
2031	1,610	976	1,482	0	4,069	0	0	0	0	0	0	4,069
2032	1,650	976	1,566	0	4,193	0	0	0	0	0	0	4,193
2033	1,663	976	1,557	0	4,197	0	0	0	0	0	0	4,197
NOMINAL	34,217	23,921	29,816	0	87,954	9,980	0	0	0	1,996	11,976	75,978
NPV	10,045	7,391	8,355	0	25,791	6,649	0	0	0	1,330	7,978	17,813

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.23**

Measure Name: Reduced Duct Leakage
Vintage: Existing Average

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	169	399	0	568	998	0	998	-430
2006	350	399	0	749	998	0	998	-249
2007	530	399	0	929	998	0	998	-69
2008	727	399	0	1,126	998	0	998	128
2009	912	399	0	1,311	998	0	998	313
2010	1,148	399	0	1,547	998	0	998	549
2011	**1,341**	**399**	**0**	**1,740**	998	0	998	742
2012	1,580	399	0	1,979	998	0	998	981
2013	1,802	399	0	2,202	998	0	998	1,204
2014	2,047	399	0	2,446	998	0	998	1,448
2015	2,097	0	0	2,097	0	0	0	2,097
2016	2,150	0	0	2,150	0	0	0	2,150
2017	2,204	0	0	2,204	0	0	0	2,204
2018	2,260	0	0	2,260	0	0	0	2,260
2019	2,308	0	0	2,308	0	0	0	2,308
2020	2,355	0	0	2,355	0	0	0	2,355
2021	2,430	0	0	2,430	0	0	0	2,430
2022	2,494	0	0	2,494	0	0	0	2,494
2023	2,556	0	0	2,556	0	0	0	2,556
2024	2,608	0	0	2,608	0	0	0	2,608
2025	2,684	0	0	2,684	0	0	0	2,684
2026	2,753	0	0	2,753	0	0	0	2,753
2027	2,823	0	0	2,823	0	0	0	2,823
2028	2,893	0	0	2,893	0	0	0	2,893
2029	2,963	0	0	2,963	0	0	0	2,963
2030	3,038	0	0	3,038	0	0	0	3,038
2031	3,115	0	0	3,115	0	0	0	3,115
2032	3,191	0	0	3,191	0	0	0	3,191
2033	3,273	0	0	3,273	0	0	0	3,273
NOMINAL	57,529	3,992	0	61,521	9,980	0	9,980	51,541
NPV	16,993	2,659	0	19,652	6,649	0	6,649	13,004

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.96**

Input Data

Measure Name: Heat pump 10 to 12

Vintage: Existing Average

Incremental Participant Cost:	$300.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$100.00
Utility Non-recurring Cost per Participant:	$40.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	977
Peak Winter KW Reduction:	0.73
Peak Summer KW Reduction:	0.71

Year	Cumulative Participation
2005	2,710
2006	5,420
2007	8,130
2008	10,840
2009	13,550
2010	16,260
2011	18,970
2012	21,680
2013	24,390
2014	27,100

Measure Name: Heat pump 10 to 12
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	253	83	0	0	336	0	0	0	250	610	333	1,192	-856
2006	456	167	0	0	623	0	0	0	250	610	669	1,529	-906
2007	856	250	336	0	1,442	0	0	0	250	610	966	1,826	-384
2008	1,159	334	480	0	1,973	0	0	0	250	610	1,322	2,182	-209
2009	1,463	417	581	0	2,462	0	0	0	250	610	1,662	2,522	-60
2010	1,236	501	1,152	0	2,889	0	0	0	250	610	2,033	2,892	-3
2011	1,284	584	1,297	0	3,165	0	0	0	250	610	2,438	3,298	-133
2012	1,659	667	1,557	0	3,883	0	0	0	250	610	2,848	3,708	175
2013	1,751	751	1,736	0	4,238	0	0	0	250	610	3,267	4,126	111
2014	2,092	834	1,591	0	4,518	0	0	0	250	610	3,722	4,582	-64
2015	2,262	834	1,702	0	4,798	0	0	0	0	0	3,815	3,815	983
2016	2,260	834	1,675	0	4,770	0	0	0	0	0	3,908	3,908	861
2017	2,402	834	1,797	0	5,033	0	0	0	0	0	4,007	4,007	1,026
2018	2,395	834	1,796	0	5,025	0	0	0	0	0	4,108	4,108	917
2019	2,536	834	1,885	0	5,256	0	0	0	0	0	4,198	4,198	1,058
2020	2,527	834	1,856	0	5,217	0	0	0	0	0	4,317	4,317	900
2021	2,559	834	1,903	0	5,296	0	0	0	0	0	4,421	4,421	876
2022	2,623	834	1,951	0	5,408	0	0	0	0	0	4,531	4,531	877
2023	2,668	834	1,999	0	5,502	0	0	0	0	0	4,647	4,647	855
2024	2,719	834	2,048	0	5,602	0	0	0	0	0	4,756	4,756	845
2025	2,754	834	2,101	0	5,689	0	0	0	0	0	4,882	4,882	808
2026	2,810	834	2,153	0	5,798	0	0	0	0	0	5,006	5,006	791
2027	2,840	834	2,187	0	5,860	0	0	0	0	0	5,131	5,131	730
2028	2,904	834	2,261	0	5,999	0	0	0	0	0	5,257	5,257	742
2029	2,922	834	2,297	0	6,053	0	0	0	0	0	5,389	5,389	664
2030	2,999	834	2,377	0	6,210	0	0	0	0	0	5,520	5,520	690
2031	3,021	834	2,413	0	6,269	0	0	0	0	0	5,661	5,661	607
2032	3,108	834	2,496	0	6,438	0	0	0	0	0	5,805	5,805	633
2033	3,128	834	2,535	0	6,497	0	0	0	0	0	5,950	5,950	547
NOMINAL	63,642	20,442	48,163	0	132,247	0	0	0	2,500	6,097	110,569	119,166	13,081
NPV	18,609	6,316	13,428	0	38,353	0	0	0	1,665	4,062	30,914	36,641	1,712

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.05

Measure Name: Heat pump 10 to 12
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	253	83	0	0	336	2,561	0	0	0	250	2,811	-2,475
2006	456	167	0	0	623	2,561	0	0	0	250	2,811	-2,188
2007	856	250	336	0	1,442	2,561	0	0	0	250	2,811	-1,369
2008	1,159	334	480	0	1,973	2,561	0	0	0	250	2,811	-838
2009	1,463	417	581	0	2,462	2,561	0	0	0	250	2,811	-349
2010	1,236	501	1,152	0	2,889	2,561	0	0	0	250	2,811	78
2011	1,284	584	1,297	0	3,165	2,561	0	0	0	250	2,811	354
2012	1,659	667	1,557	0	3,883	2,561	0	0	0	250	2,811	1,072
2013	1,751	751	1,736	0	4,238	2,561	0	0	0	250	2,811	1,427
2014	2,092	834	1,591	0	4,518	2,561	0	0	0	250	2,811	1,707
2015	2,262	834	1,702	0	4,798	0	0	0	0	0	0	4,798
2016	2,260	834	1,675	0	4,770	0	0	0	0	0	0	4,770
2017	2,402	834	1,797	0	5,033	0	0	0	0	0	0	5,033
2018	2,395	834	1,796	0	5,025	0	0	0	0	0	0	5,025
2019	2,536	834	1,885	0	5,256	0	0	0	0	0	0	5,256
2020	2,527	834	1,856	0	5,217	0	0	0	0	0	0	5,217
2021	2,559	834	1,903	0	5,296	0	0	0	0	0	0	5,296
2022	2,623	834	1,951	0	5,408	0	0	0	0	0	0	5,408
2023	2,668	834	1,999	0	5,502	0	0	0	0	0	0	5,502
2024	2,719	834	2,048	0	5,602	0	0	0	0	0	0	5,602
2025	2,754	834	2,101	0	5,689	0	0	0	0	0	0	5,689
2026	2,810	834	2,153	0	5,798	0	0	0	0	0	0	5,798
2027	2,840	834	2,187	0	5,860	0	0	0	0	0	0	5,860
2028	2,904	834	2,261	0	5,999	0	0	0	0	0	0	5,999
2029	2,922	834	2,297	0	6,053	0	0	0	0	0	0	6,053
2030	2,999	834	2,377	0	6,210	0	0	0	0	0	0	6,210
2031	3,021	834	2,413	0	6,269	0	0	0	0	0	0	6,269
2032	3,108	834	2,496	0	6,438	0	0	0	0	0	0	6,438
2033	3,128	834	2,535	0	6,497	0	0	0	0	0	0	6,497
NOMINAL	63,642	20,442	48,163	0	132,247	25,608	0	0	0	2,500	28,108	104,139
NPV	18,609	6,316	13,428	0	38,353	17,060	0	0	0	1,665	18,725	19,628

Utility Discount Rate: 8.16
Benefit Cost Ratio: 2.05

Measure Name: Heat pump 10 to 12
Vintage: Existing Average

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	333	610	0	942	2,561	0	2,561	-1,618
2006	669	610	0	1,279	2,561	0	2,561	-1,282
2007	966	610	0	1,576	2,561	0	2,561	-985
2008	1,322	610	0	1,932	2,561	0	2,561	-629
2009	1,662	610	0	2,272	2,561	0	2,561	-289
2010	2,033	610	0	2,642	2,561	0	2,561	82
2011	2,438	610	0	3,048	2,561	0	2,561	487
2012	2,848	610	0	3,458	2,561	0	2,561	897
2013	3,267	610	0	3,877	2,561	0	2,561	1,316
2014	3,722	610	0	4,332	2,561	0	2,561	1,771
2015	3,815	0	0	3,815	0	0	0	3,815
2016	3,908	0	0	3,908	0	0	0	3,908
2017	4,007	0	0	4,007	0	0	0	4,007
2018	4,108	0	0	4,108	0	0	0	4,108
2019	4,198	0	0	4,198	0	0	0	4,198
2020	4,317	0	0	4,317	0	0	0	4,317
2021	4,421	0	0	4,421	0	0	0	4,421
2022	4,531	0	0	4,531	0	0	0	4,531
2023	4,647	0	0	4,647	0	0	0	4,647
2024	4,756	0	0	4,756	0	0	0	4,756
2025	4,882	0	0	4,882	0	0	0	4,882
2026	5,006	0	0	5,006	0	0	0	5,006
2027	5,131	0	0	5,131	0	0	0	5,131
2028	5,257	0	0	5,257	0	0	0	5,257
2029	5,389	0	0	5,389	0	0	0	5,389
2030	5,520	0	0	5,520	0	0	0	5,520
2031	5,661	0	0	5,661	0	0	0	5,661
2032	5,805	0	0	5,805	0	0	0	5,805
2033	5,950	0	0	5,950	0	0	0	5,950
NOMINAL	104,619	6,097	0	110,716	25,608	0	25,608	85,108
NPV	30,914	4,062	0	34,976	17,060	0	17,060	17,916

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.05**

Input Data

Measure Name: Heat pump 13 to 14

Vintage: Existing Average

Incremental Participant Cost:	$200.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$100.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	378
Peak Winter KW Reduction:	0.56
Peak Summer KW Reduction:	0.29

Year	Cumulative Participation
2005	2,710
2006	5,420
2007	6,233
2008	7,182
2009	8,401
2010	10,027
2011	12,060
2012	14,770
2013	17,480
2014	20,190

Measure Name: Heat pump 13 to 14
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	103	65	0	0	167	0	0	0	250	610	130	990	-822
2006	204	130	0	0	334	0	0	0	250	610	279	1,139	-805
2007	348	195	142	0	685	0	0	0	250	610	378	1,238	-553
2008	464	260	201	0	925	0	0	0	250	610	512	1,371	-446
2009	579	325	237	0	1,142	0	0	0	250	610	640	1,500	-358
2010	477	390	460	0	1,327	0	0	0	250	610	779	1,639	-311
2011	498	455	522	0	1,475	0	0	0	250	610	942	1,802	-327
2012	647	520	615	0	1,782	0	0	0	250	610	1,099	1,959	-177
2013	675	585	703	0	1,963	0	0	0	250	610	1,258	2,118	-154
2014	815	650	648	0	2,112	0	0	0	250	610	1,441	2,300	-188
2015	883	650	700	0	2,233	0	0	0	0	0	1,477	1,477	757
2016	878	650	702	0	2,230	0	0	0	0	0	1,511	1,511	719
2017	941	650	743	0	2,334	0	0	0	0	0	1,552	1,552	782
2018	936	650	731	0	2,317	0	0	0	0	0	1,590	1,590	727
2019	991	650	786	0	2,427	0	0	0	0	0	1,617	1,617	810
2020	987	650	774	0	2,411	0	0	0	0	0	1,671	1,671	740
2021	999	650	793	0	2,442	0	0	0	0	0	1,712	1,712	730
2022	1,023	650	813	0	2,486	0	0	0	0	0	1,751	1,751	734
2023	1,040	650	833	0	2,523	0	0	0	0	0	1,798	1,798	725
2024	1,059	650	855	0	2,563	0	0	0	0	0	1,836	1,836	727
2025	1,072	650	876	0	2,598	0	0	0	0	0	1,888	1,888	710
2026	1,095	650	897	0	2,642	0	0	0	0	0	1,938	1,938	704
2027	1,106	650	899	0	2,655	0	0	0	0	0	1,986	1,986	669
2028	1,130	650	943	0	2,723	0	0	0	0	0	2,034	2,034	689
2029	1,135	650	953	0	2,738	0	0	0	0	0	2,086	2,086	652
2030	1,164	650	991	0	2,804	0	0	0	0	0	2,133	2,133	671
2031	1,172	650	1,001	0	2,823	0	0	0	0	0	2,190	2,190	633
2032	1,206	650	1,041	0	2,897	0	0	0	0	0	2,247	2,247	651
2033	1,214	650	1,052	0	2,915	0	0	0	0	0	2,303	2,303	612
NOMINAL	24,837	15,924	19,912	0	60,673	0	0	0	2,500	6,097	42,777	51,374	9,299
NPV	7,297	4,920	5,524	0	17,741	0	0	0	1,665	4,062	11,969	17,696	45

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.00

Measure Name: Heat pump 13 to 14
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	103	65	0	0	167	854	0	0	0	250	1,104	-936
2006	204	130	0	0	334	854	0	0	0	250	1,104	-770
2007	348	195	142	0	685	854	0	0	0	250	1,104	-419
2008	464	260	201	0	925	854	0	0	0	250	1,104	-179
2009	579	325	237	0	1,142	854	0	0	0	250	1,104	38
2010	477	390	460	0	1,327	854	0	0	0	250	1,104	224
2011	498	455	522	0	1,475	854	0	0	0	250	1,104	372
2012	647	520	615	0	1,782	854	0	0	0	250	1,104	678
2013	675	585	703	0	1,963	854	0	0	0	250	1,104	860
2014	815	650	648	0	2,112	854	0	0	0	250	1,104	1,008
2015	883	650	700	0	2,233	0	0	0	0	0	0	2,233
2016	878	650	702	0	2,230	0	0	0	0	0	0	2,230
2017	941	650	743	0	2,334	0	0	0	0	0	0	2,334
2018	936	650	731	0	2,317	0	0	0	0	0	0	2,317
2019	991	650	786	0	2,427	0	0	0	0	0	0	2,427
2020	987	650	774	0	2,411	0	0	0	0	0	0	2,411
2021	999	650	793	0	2,442	0	0	0	0	0	0	2,442
2022	1,023	650	813	0	2,486	0	0	0	0	0	0	2,486
2023	1,040	650	833	0	2,523	0	0	0	0	0	0	2,523
2024	1,059	650	855	0	2,563	0	0	0	0	0	0	2,563
2025	1,072	650	876	0	2,598	0	0	0	0	0	0	2,598
2026	1,095	650	897	0	2,642	0	0	0	0	0	0	2,642
2027	1,106	650	899	0	2,655	0	0	0	0	0	0	2,655
2028	1,130	650	943	0	2,723	0	0	0	0	0	0	2,723
2029	1,135	650	953	0	2,738	0	0	0	0	0	0	2,738
2030	1,164	650	991	0	2,804	0	0	0	0	0	0	2,804
2031	1,172	650	1,001	0	2,823	0	0	0	0	0	0	2,823
2032	1,206	650	1,041	0	2,897	0	0	0	0	0	0	2,897
2033	1,214	650	1,052	0	2,915	0	0	0	0	0	0	2,915
NOMINAL	24,837	15,924	19,912	0	60,673	8,536	0	0	0	2,500	11,036	49,638
NPV	7,297	4,920	5,524	0	17,741	5,687	0	0	0	1,665	7,352	10,389

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.41**

Measure Name: Heat pump 13 to 14
Vintage: Existing Average

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	130	610	0	740	854	0	854	-114
2006	279	610	0	889	854	0	854	35
2007	378	610	0	988	854	0	854	134
2008	512	610	0	1,121	854	0	854	268
2009	640	610	0	1,250	854	0	854	396
2010	779	610	0	1,389	854	0	854	535
2011	942	610	0	1,552	854	0	854	699
2012	1,099	610	0	1,709	854	0	854	855
2013	1,258	610	0	1,868	854	0	854	1,014
2014	1,441	610	0	2,050	854	0	854	1,197
2015	1,477	0	0	1,477	0	0	0	1,477
2016	1,511	0	0	1,511	0	0	0	1,511
2017	1,552	0	0	1,552	0	0	0	1,552
2018	1,590	0	0	1,590	0	0	0	1,590
2019	1,617	0	0	1,617	0	0	0	1,617
2020	1,671	0	0	1,671	0	0	0	1,671
2021	1,712	0	0	1,712	0	0	0	1,712
2022	1,751	0	0	1,751	0	0	0	1,751
2023	1,798	0	0	1,798	0	0	0	1,798
2024	1,836	0	0	1,836	0	0	0	1,836
2025	1,888	0	0	1,888	0	0	0	1,888
2026	1,938	0	0	1,938	0	0	0	1,938
2027	1,986	0	0	1,986	0	0	0	1,986
2028	2,034	0	0	2,034	0	0	0	2,034
2029	2,086	0	0	2,086	0	0	0	2,086
2030	2,133	0	0	2,133	0	0	0	2,133
2031	2,190	0	0	2,190	0	0	0	2,190
2032	2,247	0	0	2,247	0	0	0	2,247
2033	2,303	0	0	2,303	0	0	0	2,303
NOMINAL	40,474	6,097	0	46,571	8,536	0	8,536	38,036
NPV	11,969	4,062	0	16,031	5,687	0	5,687	10,344

Utility Discount Rate: 8.16
Benefit Cost Ratio: 2.82

Input Data

Measure Name: HP 13 to 15

Vintage: Existing

Incremental Participant Cost:	$500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$150.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	640
Peak Winter KW Reduction:	0.79
Peak Summer KW Reduction:	0.47

Year	Cumulative Participation
2005	515
2006	1,030
2007	1,185
2008	1,365
2009	1,597
2010	1,906
2011	2,292
2012	2,807
2013	3,322
2014	3,837

Measure Name: HP 13 to 15
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	16	0	0	50	0	0	0	44	161	40	246	-196
2006	49	32	0	0	81	0	0	0	44	161	74	280	-199
2007	103	48	41	0	192	0	0	0	44	161	113	318	-127
2008	137	64	58	0	259	0	0	0	44	161	153	358	-100
2009	172	80	70	0	321	0	0	0	44	161	192	398	-76
2010	136	96	136	0	367	0	0	0	44	161	225	430	-63
2011	149	112	154	0	415	0	0	0	44	161	282	488	-73
2012	196	128	157	0	481	0	0	0	44	161	330	535	-54
2013	204	144	207	0	554	0	0	0	44	161	379	585	-30
2014	243	160	190	0	593	0	0	0	44	161	430	636	-43
2015	263	160	205	0	628	0	0	0	0	0	441	441	187
2016	263	160	201	0	624	0	0	0	0	0	452	452	171
2017	280	160	217	0	657	0	0	0	0	0	464	464	193
2018	279	160	213	0	652	0	0	0	0	0	475	475	177
2019	297	160	230	0	686	0	0	0	0	0	487	487	199
2020	293	160	242	0	695	0	0	0	0	0	499	499	195
2021	298	160	231	0	688	0	0	0	0	0	512	512	176
2022	303	160	236	0	699	0	0	0	0	0	521	521	179
2023	309	160	260	0	729	0	0	0	0	0	538	538	191
2024	317	160	249	0	725	0	0	0	0	0	551	551	174
2025	318	160	274	0	751	0	0	0	0	0	565	565	186
2026	326	160	261	0	746	0	0	0	0	0	579	579	168
2027	329	160	267	0	756	0	0	0	0	0	593	593	162
2028	337	160	274	0	771	0	0	0	0	0	608	608	163
2029	339	160	279	0	777	0	0	0	0	0	623	623	154
2030	348	160	288	0	795	0	0	0	0	0	639	639	156
2031	350	160	293	0	802	0	0	0	0	0	654	654	148
2032	361	160	303	0	823	0	0	0	0	0	671	671	152
2033	363	160	308	0	830	0	0	0	0	0	688	688	142
NOMINAL	7,391	3,915	5,843	0	17,148	0	0	0	441	1,614	12,780	14,835	2,313
NPV	2,164	1,210	1,614	0	4,988	0	0	0	294	1,075	3,570	4,939	49

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.01

Measure Name: HP 13 to 15
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	16	0	0	50	377	0	0	0	44	421	-371
2006	49	32	0	0	81	377	0	0	0	44	421	-340
2007	103	48	41	0	192	377	0	0	0	44	421	-229
2008	137	64	58	0	259	377	0	0	0	44	421	-162
2009	172	80	70	0	321	377	0	0	0	44	421	-99
2010	136	96	136	0	367	377	0	0	0	44	421	-53
2011	149	112	154	0	415	377	0	0	0	44	421	-6
2012	196	128	157	0	481	377	0	0	0	44	421	61
2013	204	144	207	0	554	377	0	0	0	44	421	133
2014	243	160	190	0	593	377	0	0	0	44	421	172
2015	263	160	205	0	628	0	0	0	0	0	0	628
2016	263	160	201	0	624	0	0	0	0	0	0	624
2017	280	160	217	0	657	0	0	0	0	0	0	657
2018	279	160	213	0	652	0	0	0	0	0	0	652
2019	297	160	230	0	686	0	0	0	0	0	0	686
2020	293	160	242	0	695	0	0	0	0	0	0	695
2021	298	160	231	0	688	0	0	0	0	0	0	688
2022	303	160	236	0	699	0	0	0	0	0	0	699
2023	309	160	260	0	729	0	0	0	0	0	0	729
2024	317	160	249	0	725	0	0	0	0	0	0	725
2025	318	160	274	0	751	0	0	0	0	0	0	751
2026	326	160	261	0	746	0	0	0	0	0	0	746
2027	329	160	267	0	756	0	0	0	0	0	0	756
2028	337	160	274	0	771	0	0	0	0	0	0	771
2029	339	160	279	0	777	0	0	0	0	0	0	777
2030	348	160	288	0	795	0	0	0	0	0	0	795
2031	350	160	293	0	802	0	0	0	0	0	0	802
2032	361	160	303	0	823	0	0	0	0	0	0	823
2033	363	160	308	0	830	0	0	0	0	0	0	830
NOMINAL	7,391	3,915	5,843	0	17,148	3,766	0	0	0	441	4,207	12,941
NPV	2,164	1,210	1,614	0	4,988	2,509	0	0	0	294	2,803	2,185

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.78

Measure Name: HP 13 to 15
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	40	161	0	202	377	0	377	-175
2006	74	161	0	236	377	0	377	-141
2007	113	161	0	274	377	0	377	-102
2008	153	161	0	314	377	0	377	-62
2009	192	161	0	354	377	0	377	-23
2010	225	161	0	386	377	0	377	9
2011	282	161	0	444	377	0	377	67
2012	330	161	0	491	377	0	377	114
2013	379	161	0	540	377	0	377	164
2014	430	161	0	592	377	0	377	215
2015	441	0	0	441	0	0	0	441
2016	452	0	0	452	0	0	0	452
2017	464	0	0	464	0	0	0	464
2018	475	0	0	475	0	0	0	475
2019	487	0	0	487	0	0	0	487
2020	499	0	0	499	0	0	0	499
2021	512	0	0	512	0	0	0	512
2022	521	0	0	521	0	0	0	521
2023	538	0	0	538	0	0	0	538
2024	551	0	0	551	0	0	0	551
2025	565	0	0	565	0	0	0	565
2026	579	0	0	579	0	0	0	579
2027	593	0	0	593	0	0	0	593
2028	608	0	0	608	0	0	0	608
2029	623	0	0	623	0	0	0	623
2030	639	0	0	639	0	0	0	639
2031	654	0	0	654	0	0	0	654
2032	671	0	0	671	0	0	0	671
2033	688	0	0	688	0	0	0	688
NOMINAL	12,092	1,614	0	13,706	3,766	0	3,766	9,940
NPV	3,570	1,075	0	4,645	2,509	0	2,509	2,136

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.85**

Input Data

Measure Name: Insulation R 19

Vintage: Existing Average

Incremental Participant Cost:	$220.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$85.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	372
Peak Winter KW Reduction:	0.71
Peak Summer KW Reduction:	0.33

Year	Cumulative Participation
2005	900
2006	1,800
2007	2,700
2008	3,600
2009	4,500
2010	5,400
2011	6,300
2012	7,200
2013	8,100
2014	9,000

Measure Name: Insulation R 19
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	**TOTAL BENEFITS**	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	69	44	0	0	113	0	0	0	124	265	94	483	-370
2006	117	88	0	0	205	0	0	0	124	265	182	571	-366
2007	238	132	97	0	466	0	0	0	124	266	270	659	-193
2008	331	176	142	0	649	0	0	0	124	265	376	765	-116
2009	413	220	169	0	802	0	0	0	124	265	470	859	-57
2010	358	264	482	0	1,104	0	0	0	124	265	604	994	111
2011	346	308	373	0	1,027	0	0	0	124	265	690	1,079	-52
2012	467	352	462	0	1,281	0	0	0	124	266	823	1,212	69
2013	478	397	496	0	1,370	0	0	0	124	265	930	1,319	51
2014	583	441	433	0	1,456	0	0	0	124	265	1,056	1,445	11
2015	626	441	494	0	1,561	0	0	0	0	0	1,081	1,081	480
2016	628	441	456	0	1,524	0	0	0	0	0	1,108	1,108	415
2017	668	441	525	0	1,634	0	0	0	0	0	1,137	1,137	497
2018	665	441	512	0	1,618	0	0	0	0	0	1,165	1,165	453
2019	709	441	551	0	1,701	0	0	0	0	0	1,194	1,194	507
2020	692	441	538	0	1,670	0	0	0	0	0	1,213	1,213	458
2021	708	441	552	0	1,700	0	0	0	0	0	1,251	1,251	448
2022	728	441	566	0	1,734	0	0	0	0	0	1,286	1,286	447
2023	740	441	580	0	1,760	0	0	0	0	0	1,319	1,319	442
2024	752	441	594	0	1,786	0	0	0	0	0	1,350	1,350	436
2025	763	441	609	0	1,812	0	0	0	0	0	1,384	1,384	429
2026	779	441	624	0	1,843	0	0	0	0	0	1,420	1,420	423
2027	786	441	640	0	1,866	0	0	0	0	0	1,456	1,456	410
2028	801	441	655	0	1,897	0	0	0	0	0	1,489	1,489	408
2029	806	441	670	0	1,916	0	0	0	0	0	1,528	1,528	388
2030	831	441	689	0	1,960	0	0	0	0	0	1,567	1,567	393
2031	833	441	703	0	1,977	0	0	0	0	0	1,606	1,606	370
2032	855	441	724	0	2,019	0	0	0	0	0	1,645	1,645	374
2033	862	441	739	0	2,041	0	0	0	0	0	1,688	1,688	354
NOMINAL	17,625	10,794	14,074	0	42,493	0	0	0	1,239	2,654	31,380	35,273	7,220
NPV	5,162	3,335	3,966	0	12,463	0	0	0	825	1,768	8,779	11,373	1,090

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.10**

Measure Name: Insulation R 19
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	69	44	0	0	113	1,274	0	0	0	124	1,398	-1,285
2006	117	88	0	0	205	1,274	0	0	0	124	1,398	-1,193
2007	238	132	97	0	466	1,274	0	0	0	124	1,398	-932
2008	331	176	142	0	649	1,274	0	0	0	124	1,398	-749
2009	413	220	169	0	802	1,274	0	0	0	124	1,398	-595
2010	358	264	482	0	1,104	1,274	0	0	0	124	1,398	-294
2011	346	308	373	0	1,027	1,274	0	0	0	124	1,398	-371
2012	467	352	462	0	1,281	1,274	0	0	0	124	1,398	-117
2013	478	397	496	0	1,370	1,274	0	0	0	124	1,398	-28
2014	583	441	433	0	1,456	1,274	0	0	0	124	1,398	58
2015	626	441	494	0	1,561	0	0	0	0	0	0	1,561
2016	628	441	456	0	1,524	0	0	0	0	0	0	1,524
2017	668	441	525	0	1,634	0	0	0	0	0	0	1,634
2018	665	441	512	0	1,618	0	0	0	0	0	0	1,618
2019	709	441	551	0	1,701	0	0	0	0	0	0	1,701
2020	692	441	538	0	1,670	0	0	0	0	0	0	1,670
2021	708	441	552	0	1,700	0	0	0	0	0	0	1,700
2022	728	441	566	0	1,734	0	0	0	0	0	0	1,734
2023	740	441	580	0	1,760	0	0	0	0	0	0	1,760
2024	752	441	594	0	1,786	0	0	0	0	0	0	1,786
2025	763	441	609	0	1,812	0	0	0	0	0	0	1,812
2026	779	441	624	0	1,843	0	0	0	0	0	0	1,843
2027	786	441	640	0	1,866	0	0	0	0	0	0	1,866
2028	801	441	655	0	1,897	0	0	0	0	0	0	1,897
2029	806	441	670	0	1,916	0	0	0	0	0	0	1,916
2030	831	441	689	0	1,960	0	0	0	0	0	0	1,960
2031	833	441	703	0	1,977	0	0	0	0	0	0	1,977
2032	855	441	724	0	2,019	0	0	0	0	0	0	2,019
2033	862	441	739	0	2,041	0	0	0	0	0	0	2,041
NOMINAL	17,625	10,794	14,074	0	42,493	12,741	0	0	0	1,239	13,980	28,513
NPV	5,162	3,335	3,966	0	12,463	8,488	0	0	0	825	9,313	3,150

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.34**

Measure Name: Insulation R 19
Vintage: Existing Average

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	94	265	0	359	1,274	0	1,274	-915
2006	182	265	0	447	1,274	0	1,274	-827
2007	270	266	0	535	1,274	0	1,274	-739
2008	376	265	0	641	1,274	0	1,274	-633
2009	470	265	0	735	1,274	0	1,274	-539
2010	604	265	0	870	1,274	0	1,274	-404
2011	690	265	0	956	1,274	0	1,274	-318
2012	823	266	0	1,088	1,274	0	1,274	-186
2013	930	265	0	1,195	1,274	0	1,274	-79
2014	1,056	265	0	1,321	1,274	0	1,274	47
2015	1,081	0	0	1,081	0	0	0	1,081
2016	1,108	0	0	1,108	0	0	0	1,108
2017	1,137	0	0	1,137	0	0	0	1,137
2018	1,165	0	0	1,165	0	0	0	1,165
2019	1,194	0	0	1,194	0	0	0	1,194
2020	1,213	0	0	1,213	0	0	0	1,213
2021	1,251	0	0	1,251	0	0	0	1,251
2022	1,286	0	0	1,286	0	0	0	1,286
2023	1,319	0	0	1,319	0	0	0	1,319
2024	1,350	0	0	1,350	0	0	0	1,350
2025	1,384	0	0	1,384	0	0	0	1,384
2026	1,420	0	0	1,420	0	0	0	1,420
2027	1,456	0	0	1,456	0	0	0	1,456
2028	1,489	0	0	1,489	0	0	0	1,489
2029	1,528	0	0	1,528	0	0	0	1,528
2030	1,567	0	0	1,567	0	0	0	1,567
2031	1,606	0	0	1,606	0	0	0	1,606
2032	1,645	0	0	1,645	0	0	0	1,645
2033	1,688	0	0	1,688	0	0	0	1,688
NOMINAL	29,692	2,654	0	32,347	12,741	0	12,741	19,606
NPV	8,779	1,768	0	10,548	8,488	0	8,488	2,060

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.24**

Input Data

Measure Name: Insulation R 30

Vintage: Existing Average

Incremental Participant Cost:	$220.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$115.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	575
Peak Winter KW Reduction:	0.94
Peak Summer KW Reduction:	0.46

Year	Cumulative Participation
2005	3,000
2006	6,000
2007	9,000
2008	12,000
2009	15,000
2010	18,000
2011	21,000
2012	24,000
2013	27,000
2014	30,000

Measure Name: Insulation R 30
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	26	15	0	0	41	0	0	0	31	89	36	156	-115
2006	45	29	0	0	74	0	0	0	31	89	71	190	-116
2007	84	44	32	0	159	0	0	0	31	88	100	219	-60
2008	126	59	53	0	237	0	0	0	31	89	145	265	-28
2009	160	73	64	0	297	0	0	0	31	89	185	304	-7
2010	133	88	123	0	344	0	0	0	31	89	225	345	-1
2011	136	103	139	0	378	0	0	0	31	89	268	388	-10
2012	189	117	174	0	481	0	0	0	31	88	329	449	32
2013	186	132	185	0	504	0	0	0	31	89	360	480	24
2014	230	147	145	0	522	0	0	0	31	89	409	529	-7
2015	242	147	210	0	599	0	0	0	0	0	420	420	179
2016	247	147	153	0	546	0	0	0	0	0	430	430	116
2017	258	147	196	0	601	0	0	0	0	0	441	441	160
2018	257	147	192	0	595	0	0	0	0	0	452	452	143
2019	274	147	206	0	626	0	0	0	0	0	463	463	163
2020	265	147	201	0	613	0	0	0	0	0	465	465	148
2021	273	147	206	0	625	0	0	0	0	0	483	483	142
2022	279	147	242	0	668	0	0	0	0	0	499	499	169
2023	286	147	217	0	649	0	0	0	0	0	511	511	138
2024	291	147	222	0	660	0	0	0	0	0	524	524	136
2025	296	147	228	0	670	0	0	0	0	0	537	537	133
2026	302	147	233	0	682	0	0	0	0	0	551	551	131
2027	304	147	239	0	690	0	0	0	0	0	564	564	126
2028	311	147	245	0	703	0	0	0	0	0	579	579	124
2029	312	147	250	0	709	0	0	0	0	0	593	593	116
2030	323	147	258	0	727	0	0	0	0	0	608	608	119
2031	322	147	263	0	732	0	0	0	0	0	623	623	109
2032	332	147	270	0	749	0	0	0	0	0	639	639	111
2033	334	147	276	0	757	0	0	0	0	0	655	655	102
NOMINAL	6,823	3,592	5,222	0	15,637	0	0	0	310	885	12,166	13,360	2,276
NPV	1,995	1,110	1,447	0	4,552	0	0	0	206	589	3,402	4,197	354

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.08

Measure Name: Insulation R 30
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST **$(000)**	(7) TOTAL FUEL & O&M INCREASE **$(000)**	(8) INCREASED T&D CAP. COSTS **$(000)**	(9) INCREASED GEN. CAP. COSTS **$(000)**	(10) UTILITY PROGRAM COSTS **$(000)**	(11) **TOTAL COSTS $(000)**	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	26	15	0	0	41	398	0	0	0	31	429	-388
2006	45	29	0	0	74	398	0	0	0	31	429	-355
2007	84	44	32	0	159	398	0	0	0	31	429	-270
2008	126	59	53	0	237	398	0	0	0	31	429	-192
2009	160	73	64	0	297	398	0	0	0	31	429	-132
2010	133	88	123	0	344	398	0	0	0	31	429	-86
2011	136	103	139	0	378	398	0	0	0	31	429	-51
2012	189	117	174	0	481	398	0	0	0	31	429	52
2013	186	132	185	0	504	398	0	0	0	31	429	74
2014	230	147	145	0	522	398	0	0	0	31	429	93
2015	242	147	210	0	599	0	0	0	0	0	0	599
2016	247	147	153	0	546	0	0	0	0	0	0	546
2017	258	147	196	0	601	0	0	0	0	0	0	601
2018	257	147	192	0	595	0	0	0	0	0	0	595
2019	274	147	206	0	626	0	0	0	0	0	0	626
2020	265	147	201	0	613	0	0	0	0	0	0	613
2021	273	147	206	0	625	0	0	0	0	0	0	625
2022	279	147	242	0	668	0	0	0	0	0	0	668
2023	286	147	217	0	649	0	0	0	0	0	0	649
2024	291	147	222	0	660	0	0	0	0	0	0	660
2025	296	147	228	0	670	0	0	0	0	0	0	670
2026	302	147	233	0	682	0	0	0	0	0	0	682
2027	304	147	239	0	690	0	0	0	0	0	0	690
2028	311	147	245	0	703	0	0	0	0	0	0	703
2029	312	147	250	0	709	0	0	0	0	0	0	709
2030	323	147	258	0	727	0	0	0	0	0	0	727
2031	322	147	263	0	732	0	0	0	0	0	0	732
2032	332	147	270	0	749	0	0	0	0	0	0	749
2033	334	147	276	0	757	0	0	0	0	0	0	757
NOMINAL	6,823	3,592	5,222	0	15,637	3,982	0	0	0	310	4,291	11,345
NPV	1,995	1,110	1,447	0	4,552	2,653	0	0	0	206	2,859	1,693

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.59**

Measure Name: Insulation R 30
Vintage: Existing Average

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	36	89	0	125	398	0	398	-273
2006	71	89	0	159	398	0	398	-239
2007	100	88	0	188	398	0	398	-209
2008	145	89	0	234	398	0	398	-164
2009	185	89	0	273	398	0	398	-125
2010	225	89	0	314	398	0	398	-85
2011	268	89	0	357	398	0	398	-41
2012	329	88	0	418	398	0	398	20
2013	360	89	0	449	398	0	398	51
2014	409	89	0	498	398	0	398	100
2015	420	0	0	420	0	0	0	420
2016	430	0	0	430	0	0	0	430
2017	441	0	0	441	0	0	0	441
2018	452	0	0	452	0	0	0	452
2019	463	0	0	463	0	0	0	463
2020	465	0	0	465	0	0	0	465
2021	483	0	0	483	0	0	0	483
2022	499	0	0	499	0	0	0	499
2023	511	0	0	511	0	0	0	511
2024	524	0	0	524	0	0	0	524
2025	537	0	0	537	0	0	0	537
2026	551	0	0	551	0	0	0	551
2027	564	0	0	564	0	0	0	564
2028	579	0	0	579	0	0	0	579
2029	593	0	0	593	0	0	0	593
2030	608	0	0	608	0	0	0	608
2031	623	0	0	623	0	0	0	623
2032	639	0	0	639	0	0	0	639
2033	655	0	0	655	0	0	0	655
NOMINAL	11,511	885	0	12,396	3,982	0	3,982	8,415
NPV	3,402	589	0	3,991	2,653	0	2,653	1,339

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.50**

Input Data

Measure Name: HVAC Strip 10 to 13

Vintage: Existing Average

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$350.00
Utility Non-recurring Cost per Participant:	$40.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1280
Peak Winter KW Reduction:	2.9
Peak Summer KW Reduction:	0.81

Year	Cumulative Participation
2005	515
2006	1,030
2007	1,545
2008	2,060
2009	2,575
2010	3,090
2011	3,605
2012	4,120
2013	4,635
2014	5,150

Measure Name: HVAC Strip 10 to 13
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	32	22	0	0	53	0	0	0	21	175	39	234	-181
2006	44	43	0	0	88	0	0	0	21	175	71	267	-179
2007	92	65	34	0	190	0	0	0	21	175	108	304	-113
2008	123	87	48	0	257	0	0	0	21	175	147	342	-85
2009	153	108	56	0	317	0	0	0	21	175	184	380	-63
2010	122	130	106	0	358	0	0	0	21	175	215	410	-53
2011	138	152	120	0	410	0	0	0	21	175	269	464	-54
2012	177	173	150	0	500	0	0	0	21	175	316	512	-12
2013	189	195	163	0	547	0	0	0	21	175	363	559	-12
2014	225	217	151	0	593	0	0	0	21	175	413	608	-16
2015	240	217	180	0	637	0	0	0	0	0	423	423	214
2016	242	217	161	0	620	0	0	0	0	0	434	434	186
2017	256	217	191	0	664	0	0	0	0	0	445	445	219
2018	257	217	172	0	645	0	0	0	0	0	456	456	190
2019	272	217	188	0	677	0	0	0	0	0	467	467	210
2020	270	217	184	0	670	0	0	0	0	0	479	479	191
2021	274	217	188	0	679	0	0	0	0	0	491	491	188
2022	279	217	193	0	688	0	0	0	0	0	499	499	189
2023	285	217	198	0	699	0	0	0	0	0	516	516	184
2024	288	217	203	0	707	0	0	0	0	0	520	520	186
2025	295	217	208	0	719	0	0	0	0	0	542	542	178
2026	301	217	213	0	730	0	0	0	0	0	555	555	175
2027	301	217	238	0	756	0	0	0	0	0	569	569	187
2028	312	217	224	0	752	0	0	0	0	0	583	583	169
2029	314	217	226	0	756	0	0	0	0	0	597	597	159
2030	323	217	235	0	774	0	0	0	0	0	613	613	161
2031	324	217	237	0	778	0	0	0	0	0	627	627	151
2032	335	217	247	0	798	0	0	0	0	0	644	644	154
2033	337	217	249	0	803	0	0	0	0	0	660	660	144
NOMINAL	6,796	5,310	4,761	0	16,867	0	0	0	205	1,750	12,244	14,199	2,668
NPV	1,982	1,641	1,318	0	4,940	0	0	0	137	1,166	3,420	4,723	218

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.05

Measure Name: HVAC Strip 10 to 13
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	32	22	0	0	53	175	0	0	0	21	196	-142
2006	44	43	0	0	88	175	0	0	0	21	196	-108
2007	92	65	34	0	190	175	0	0	0	21	196	-5
2008	123	87	48	0	257	175	0	0	0	21	196	62
2009	153	108	56	0	317	175	0	0	0	21	196	122
2010	122	130	106	0	358	175	0	0	0	21	196	162
2011	138	152	120	0	410	175	0	0	0	21	196	215
2012	177	173	150	0	500	175	0	0	0	21	196	305
2013	189	195	163	0	547	175	0	0	0	21	196	351
2014	225	217	151	0	593	175	0	0	0	21	196	397
2015	240	217	180	0	637	0	0	0	0	0	0	637
2016	242	217	161	0	620	0	0	0	0	0	0	620
2017	256	217	191	0	664	0	0	0	0	0	0	664
2018	257	217	172	0	645	0	0	0	0	0	0	645
2019	272	217	188	0	677	0	0	0	0	0	0	677
2020	270	217	184	0	670	0	0	0	0	0	0	670
2021	274	217	188	0	679	0	0	0	0	0	0	679
2022	279	217	193	0	688	0	0	0	0	0	0	688
2023	285	217	198	0	699	0	0	0	0	0	0	699
2024	288	217	203	0	707	0	0	0	0	0	0	707
2025	295	217	208	0	719	0	0	0	0	0	0	719
2026	301	217	213	0	730	0	0	0	0	0	0	730
2027	301	217	238	0	756	0	0	0	0	0	0	756
2028	312	217	224	0	752	0	0	0	0	0	0	752
2029	314	217	226	0	756	0	0	0	0	0	0	756
2030	323	217	235	0	774	0	0	0	0	0	0	774
2031	324	217	237	0	778	0	0	0	0	0	0	778
2032	335	217	247	0	798	0	0	0	0	0	0	798
2033	337	217	249	0	803	0	0	0	0	0	0	803
NOMINAL	6,796	5,310	4,761	0	16,867	1,750	0	0	0	205	1,955	14,912
NPV	1,982	1,641	1,318	0	4,940	1,166	0	0	0	137	1,302	3,638

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.79**

Measure Name: HVAC Strip 10 to 13
Vintage: Existing Average

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	39	175	0	214	175	0	175	39
2006	71	175	0	246	175	0	175	71
2007	108	175	0	283	175	0	175	108
2008	147	175	0	322	175	0	175	147
2009	184	175	0	359	175	0	175	184
2010	215	175	0	390	175	0	175	215
2011	269	175	0	444	175	0	175	269
2012	316	175	0	491	175	0	175	316
2013	363	175	0	538	175	0	175	363
2014	413	175	0	588	175	0	175	413
2015	423	0	0	423	0	0	0	423
2016	434	0	0	434	0	0	0	434
2017	445	0	0	445	0	0	0	445
2018	456	0	0	456	0	0	0	456
2019	467	0	0	467	0	0	0	467
2020	479	0	0	479	0	0	0	479
2021	491	0	0	491	0	0	0	491
2022	499	0	0	499	0	0	0	499
2023	516	0	0	516	0	0	0	516
2024	520	0	0	520	0	0	0	520
2025	542	0	0	542	0	0	0	542
2026	555	0	0	555	0	0	0	555
2027	569	0	0	569	0	0	0	569
2028	583	0	0	583	0	0	0	583
2029	597	0	0	597	0	0	0	597
2030	613	0	0	613	0	0	0	613
2031	627	0	0	627	0	0	0	627
2032	644	0	0	644	0	0	0	644
2033	660	0	0	660	0	0	0	660
NOMINAL	11,584	1,750	0	13,334	1,750	0	1,750	11,584
NPV	3,420	1,166	0	4,586	1,166	0	1,166	3,420

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.93**

Input Data

Measure Name: Strip 10 to HP 12

Vintage: Existing Average

Incremental Participant Cost:	$400.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$250.00
Utility Non-recurring Cost per Participant:	$40.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1214
Peak Winter KW Reduction:	2.73
Peak Summer KW Reduction:	0.62

Year	Cumulative Participation
2005	2,810
2006	5,620
2007	8,430
2008	11,240
2009	14,050
2010	16,860
2011	19,670
2012	22,480
2013	25,290
2014	28,100

Measure Name: Strip 10 to HP 12
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	97	79	0	0	176	0	0	0	82	200	137	419	-243
2006	195	158	0	0	353	0	0	0	82	200	293	575	-221
2007	309	238	105	0	652	0	0	0	82	200	396	678	-26
2008	416	317	150	0	883	0	0	0	82	200	539	821	62
2009	522	396	173	0	1,092	0	0	0	82	200	675	957	135
2010	449	475	348	0	1,272	0	0	0	82	200	816	1,098	174
2011	503	555	370	0	1,428	0	0	0	82	200	993	1,275	153
2012	639	634	465	0	1,738	0	0	0	82	200	1,176	1,458	280
2013	675	713	502	0	1,889	0	0	0	82	200	1,326	1,608	281
2014	805	792	465	0	2,062	0	0	0	82	200	1,517	1,799	263
2015	852	792	509	0	2,153	0	0	0	0	0	1,555	1,555	598
2016	858	792	499	0	2,149	0	0	0	0	0	1,594	1,594	554
2017	902	792	547	0	2,241	0	0	0	0	0	1,634	1,634	606
2018	908	792	535	0	2,235	0	0	0	0	0	1,675	1,675	560
2019	948	792	581	0	2,321	0	0	0	0	0	1,704	1,704	617
2020	945	792	571	0	2,309	0	0	0	0	0	1,750	1,750	559
2021	967	792	586	0	2,345	0	0	0	0	0	1,804	1,804	542
2022	990	792	601	0	2,383	0	0	0	0	0	1,845	1,845	538
2023	1,008	792	616	0	2,417	0	0	0	0	0	1,894	1,894	523
2024	1,026	792	630	0	2,448	0	0	0	0	0	1,935	1,935	514
2025	1,046	792	647	0	2,485	0	0	0	0	0	1,991	1,991	494
2026	1,067	792	663	0	2,523	0	0	0	0	0	2,042	2,042	481
2027	1,079	792	680	0	2,552	0	0	0	0	0	2,092	2,092	460
2028	1,104	792	696	0	2,592	0	0	0	0	0	2,143	2,143	449
2029	1,117	792	700	0	2,609	0	0	0	0	0	2,195	2,195	414
2030	1,147	792	732	0	2,672	0	0	0	0	0	2,253	2,253	419
2031	1,159	792	736	0	2,687	0	0	0	0	0	2,307	2,307	380
2032	1,190	792	768	0	2,750	0	0	0	0	0	2,367	2,367	383
2033	1,205	792	773	0	2,770	0	0	0	0	0	2,426	2,426	344
NOMINAL	24,125	19,411	14,650	0	58,186	0	0	0	820	2,000	45,072	47,892	10,294
NPV	7,029	5,998	4,055	0	17,081	0	0	0	546	1,332	12,611	14,490	2,591

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.18**

Measure Name: Strip 10 to HP 12
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	97	79	0	0	176	560	0	0	0	82	642	-466
2006	195	158	0	0	353	560	0	0	0	82	642	-289
2007	309	238	105	0	652	560	0	0	0	82	642	10
2008	416	317	150	0	883	560	0	0	0	82	642	241
2009	522	396	173	0	1,092	560	0	0	0	82	642	450
2010	449	475	348	0	1,272	560	0	0	0	82	642	630
2011	503	555	370	0	1,428	560	0	0	0	82	642	786
2012	639	634	465	0	1,738	560	0	0	0	82	642	1,096
2013	675	713	502	0	1,889	560	0	0	0	82	642	1,247
2014	805	792	465	0	2,062	560	0	0	0	82	642	1,420
2015	852	792	509	0	2,153	0	0	0	0	0	0	2,153
2016	858	792	499	0	2,149	0	0	0	0	0	0	2,149
2017	902	792	547	0	2,241	0	0	0	0	0	0	2,241
2018	908	792	535	0	2,235	0	0	0	0	0	0	2,235
2019	948	792	581	0	2,321	0	0	0	0	0	0	2,321
2020	945	792	571	0	2,309	0	0	0	0	0	0	2,309
2021	967	792	586	0	2,345	0	0	0	0	0	0	2,345
2022	990	792	601	0	2,383	0	0	0	0	0	0	2,383
2023	1,008	792	616	0	2,417	0	0	0	0	0	0	2,417
2024	1,026	792	630	0	2,448	0	0	0	0	0	0	2,448
2025	1,046	792	647	0	2,485	0	0	0	0	0	0	2,485
2026	1,067	792	663	0	2,523	0	0	0	0	0	0	2,523
2027	1,079	792	680	0	2,552	0	0	0	0	0	0	2,552
2028	1,104	792	696	0	2,592	0	0	0	0	0	0	2,592
2029	1,117	792	700	0	2,609	0	0	0	0	0	0	2,609
2030	1,147	792	732	0	2,672	0	0	0	0	0	0	2,672
2031	1,159	792	736	0	2,687	0	0	0	0	0	0	2,687
2032	1,190	792	768	0	2,750	0	0	0	0	0	0	2,750
2033	1,205	792	773	0	2,770	0	0	0	0	0	0	2,770
NOMINAL	24,125	19,411	14,650	0	58,186	5,600	0	0	0	820	6,420	51,766
NPV	7,029	5,998	4,055	0	17,081	3,731	0	0	0	546	4,277	12,804

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.99**

Measure Name: Strip 10 to HP 12
Vintage: Existing Average

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	137	200	0	337	560	0	560	-223
2006	293	200	0	493	560	0	560	-67
2007	396	200	0	596	560	0	560	36
2008	539	200	0	739	560	0	560	179
2009	675	200	0	875	560	0	560	315
2010	816	200	0	1,016	560	0	560	456
2011	993	200	0	1,193	560	0	560	633
2012	1,176	200	0	1,376	560	0	560	816
2013	1,326	200	0	1,526	560	0	560	966
2014	1,517	200	0	1,717	560	0	560	1,157
2015	1,555	0	0	1,555	0	0	0	1,555
2016	1,594	0	0	1,594	0	0	0	1,594
2017	1,634	0	0	1,634	0	0	0	1,634
2018	1,675	0	0	1,675	0	0	0	1,675
2019	1,704	0	0	1,704	0	0	0	1,704
2020	1,750	0	0	1,750	0	0	0	1,750
2021	1,804	0	0	1,804	0	0	0	1,804
2022	1,845	0	0	1,845	0	0	0	1,845
2023	1,894	0	0	1,894	0	0	0	1,894
2024	1,935	0	0	1,935	0	0	0	1,935
2025	1,991	0	0	1,991	0	0	0	1,991
2026	2,042	0	0	2,042	0	0	0	2,042
2027	2,092	0	0	2,092	0	0	0	2,092
2028	2,143	0	0	2,143	0	0	0	2,143
2029	2,195	0	0	2,195	0	0	0	2,195
2030	2,253	0	0	2,253	0	0	0	2,253
2031	2,307	0	0	2,307	0	0	0	2,307
2032	2,367	0	0	2,367	0	0	0	2,367
2033	2,426	0	0	2,426				2,426
NOMINAL	42,646	2,000	0	44,646	5,600		5,600	39,046
NPV	12,611	1,332	0	13,944	3,731	0	3,731	10,213

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.74**

Input Data

Measure Name: Strip 13 to 14

Vintage: Existing

Incremental Participant Cost:	$300.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$250.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1191
Peak Winter KW Reduction:	3.02
Peak Summer KW Reduction:	0.31

Year	Cumulative Participation
2005	2,810
2006	5,620
2007	6,463
2008	7,447
2009	8,711
2010	10,397
2011	12,505
2012	15,315
2013	18,125
2014	20,935

Measure Name: Strip 13 to 14
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	87	89	0	0	177	0	0	0	82	200	137	419	-242
2006	139	179	0	0	318	0	0	0	82	200	261	543	-225
2007	257	268	64	0	589	0	0	0	82	200	395	677	-88
2008	347	358	92	0	798	0	0	0	82	200	539	821	-23
2009	437	447	101	0	985	0	0	0	82	200	674	956	29
2010	412	537	173	0	1,121	0	0	0	82	200	815	1,097	25
2011	489	626	206	0	1,321	0	0	0	82	200	990	1,272	49
2012	597	716	267	0	1,579	0	0	0	82	200	1,175	1,457	122
2013	651	805	286	0	1,742	0	0	0	82	200	1,325	1,607	135
2014	756	895	283	0	1,934	0	0	0	82	200	1,516	1,798	136
2015	783	895	300	0	1,977	0	0	0	0	0	1,554	1,554	423
2016	793	895	294	0	1,982	0	0	0	0	0	1,593	1,593	389
2017	821	895	330	0	2,046	0	0	0	0	0	1,632	1,632	414
2018	833	895	322	0	2,049	0	0	0	0	0	1,673	1,673	376
2019	854	895	356	0	2,105	0	0	0	0	0	1,702	1,702	403
2020	860	895	350	0	2,104	0	0	0	0	0	1,748	1,748	355
2021	881	895	376	0	2,152	0	0	0	0	0	1,802	1,802	350
2022	902	895	369	0	2,165	0	0	0	0	0	1,843	1,843	322
2023	921	895	378	0	2,193	0	0	0	0	0	1,892	1,892	302
2024	937	895	386	0	2,218	0	0	0	0	0	1,932	1,932	285
2025	960	895	397	0	2,251	0	0	0	0	0	1,989	1,989	262
2026	980	895	407	0	2,281	0	0	0	0	0	2,039	2,039	241
2027	994	895	437	0	2,325	0	0	0	0	0	2,090	2,090	236
2028	1,017	895	426	0	2,338	0	0	0	0	0	2,140	2,140	198
2029	1,037	895	428	0	2,359	0	0	0	0	0	2,193	2,193	167
2030	1,063	895	449	0	2,406	0	0	0	0	0	2,250	2,250	155
2031	1,081	895	450	0	2,425	0	0	0	0	0	2,305	2,305	121
2032	1,107	895	470	0	2,471	0	0	0	0	0	2,364	2,364	107
2033	1,128	895	473	0	2,495	0	0	0	0	0	2,423	2,423	72
NOMINAL	22,121	21,915	8,869	0	52,905	0	0	0	820	2,000	44,991	47,811	5,094
NPV	6,383	6,772	2,417	0	15,572	0	0	0	546	1,332	12,571	14,449	1,123

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.08**

Measure Name: Strip 13 to 14
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	87	89	0	0	177	420	0	0	0	82	502	-325
2006	139	179	0	0	318	420	0	0	0	82	502	-184
2007	257	268	64	0	589	420	0	0	0	82	502	87
2008	347	358	92	0	798	420	0	0	0	82	502	296
2009	437	447	101	0	985	420	0	0	0	82	502	483
2010	412	537	173	0	1,121	420	0	0	0	82	502	619
2011	489	626	206	0	1,321	420	0	0	0	82	502	819
2012	597	716	267	0	1,579	420	0	0	0	82	502	1,077
2013	651	805	286	0	1,742	420	0	0	0	82	502	1,240
2014	756	895	283	0	1,934	420	0	0	0	82	502	1,432
2015	783	895	300	0	1,977	0	0	0	0	0	0	1,977
2016	793	895	294	0	1,982	0	0	0	0	0	0	1,982
2017	821	895	330	0	2,046	0	0	0	0	0	0	2,046
2018	833	895	322	0	2,049	0	0	0	0	0	0	2,049
2019	854	895	356	0	2,105	0	0	0	0	0	0	2,105
2020	860	895	350	0	2,104	0	0	0	0	0	0	2,104
2021	881	895	376	0	2,152	0	0	0	0	0	0	2,152
2022	902	895	369	0	2,165	0	0	0	0	0	0	2,165
2023	921	895	378	0	2,193	0	0	0	0	0	0	2,193
2024	937	895	386	0	2,218	0	0	0	0	0	0	2,218
2025	960	895	397	0	2,251	0	0	0	0	0	0	2,251
2026	980	895	407	0	2,281	0	0	0	0	0	0	2,281
2027	994	895	437	0	2,325	0	0	0	0	0	0	2,325
2028	1,017	895	426	0	2,338	0	0	0	0	0	0	2,338
2029	1,037	895	428	0	2,359	0	0	0	0	0	0	2,359
2030	1,063	895	449	0	2,406	0	0	0	0	0	0	2,406
2031	1,081	895	450	0	2,425	0	0	0	0	0	0	2,425
2032	1,107	895	470	0	2,471	0	0	0	0	0	0	2,471
2033	1,128	895	473	0	2,495	0	0	0	0	0	0	2,495
NOMINAL	22,121	21,915	8,869	0	52,905	4,200	0	0	0	820	5,020	47,885
NPV	6,383	6,772	2,417	0	15,572	2,798	0	0	0	546	3,344	12,228

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **4.66**

Measure Name: Strip 13 to 14
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	137	200	0	337	420	0	420	-83
2006	261	200	0	461	420	0	420	41
2007	395	200	0	595	420	0	420	175
2008	539	200	0	739	420	0	420	319
2009	674	200	0	874	420	0	420	454
2010	815	200	0	1,015	420	0	420	595
2011	990	200	0	1,190	420	0	420	770
2012	1,175	200	0	1,375	420	0	420	955
2013	1,325	200	0	1,525	420	0	420	1,105
2014	1,516	200	0	1,716	420	0	420	1,296
2015	1,554	0	0	1,554	0	0	0	1,554
2016	1,593	0	0	1,593	0	0	0	1,593
2017	1,632	0	0	1,632	0	0	0	1,632
2018	1,673	0	0	1,673	0	0	0	1,673
2019	1,702	0	0	1,702	0	0	0	1,702
2020	1,748	0	0	1,748	0	0	0	1,748
2021	1,802	0	0	1,802	0	0	0	1,802
2022	1,843	0	0	1,843	0	0	0	1,843
2023	1,892	0	0	1,892	0	0	0	1,892
2024	1,932	0	0	1,932	0	0	0	1,932
2025	1,989	0	0	1,989	0	0	0	1,989
2026	2,039	0	0	2,039	0	0	0	2,039
2027	2,090	0	0	2,090	0	0	0	2,090
2028	2,140	0	0	2,140	0	0	0	2,140
2029	2,193	0	0	2,193	0	0	0	2,193
2030	2,250	0	0	2,250	0	0	0	2,250
2031	2,305	0	0	2,305	0	0	0	2,305
2032	2,364	0	0	2,364	0	0	0	2,364
2033	2,423	0	0	2,423	0	0	0	2,423
NOMINAL	42,568	2,000	0	44,568	4,200	0	4,200	40,368
NPV	12,571	1,332	0	13,903	2,798	0	2,798	11,105

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **4.97**

Input Data

Measure Name: Strip to HP 15

Vintage: Existing Average

Incremental Participant Cost:	$600.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$350.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1328
Peak Winter KW Reduction:	3.13
Peak Summer KW Reduction:	0.52

Year	Cumulative Participation
2005	515
2006	1,030
2007	1,185
2008	1,365
2009	1,597
2010	1,906
2011	2,292
2012	2,807
2013	3,322
2014	3,837

Measure Name: Strip 13 to 15
Vintage: Existing Average

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	30	26	0	0	56	0	0	0	15	175	39	229	-173
2006	42	52	0	0	93	0	0	0	15	175	72	262	-168
2007	81	78	24	0	183	0	0	0	15	175	109	299	-116
2008	110	103	35	0	248	0	0	0	15	175	149	339	-91
2009	136	129	39	0	305	0	0	0	15	175	186	376	-71
2010	117	155	71	0	343	0	0	0	15	175	217	407	-64
2011	140	181	82	0	403	0	0	0	15	175	272	462	-58
2012	172	207	104	0	483	0	0	0	15	175	321	511	-28
2013	189	233	113	0	535	0	0	0	15	175	367	557	-22
2014	221	259	105	0	584	0	0	0	15	175	417	607	-23
2015	230	259	117	0	606	0	0	0	0	0	427	427	179
2016	232	259	115	0	605	0	0	0	0	0	438	438	167
2017	243	259	142	0	643	0	0	0	0	0	449	449	194
2018	245	259	123	0	627	0	0	0	0	0	460	460	167
2019	256	259	137	0	651	0	0	0	0	0	472	472	180
2020	257	259	134	0	650	0	0	0	0	0	487	487	163
2021	260	259	138	0	656	0	0	0	0	0	495	495	160
2022	264	259	141	0	664	0	0	0	0	0	504	504	160
2023	270	259	145	0	673	0	0	0	0	0	519	519	153
2024	274	259	148	0	681	0	0	0	0	0	529	529	152
2025	281	259	152	0	692	0	0	0	0	0	547	547	145
2026	287	259	156	0	701	0	0	0	0	0	561	561	140
2027	291	259	160	0	709	0	0	0	0	0	575	575	135
2028	298	259	164	0	720	0	0	0	0	0	591	591	129
2029	302	259	164	0	725	0	0	0	0	0	603	603	121
2030	309	259	172	0	739	0	0	0	0	0	619	619	120
2031	313	259	172	0	744	0	0	0	0	0	632	632	112
2032	323	259	181	0	763	0	0	0	0	0	654	654	109
2033	327	259	181	0	767	0	0	0	0	0	666	666	100
NOMINAL	6,496	6,338	3,413	0	16,247	0	0	0	150	1,750	12,377	14,277	1,970
NPV	1,887	1,958	936	0	4,781	0	0	0	100	1,166	3,457	4,723	58

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.01**

Measure Name: Strip 13 to 15
Vintage: Existing Average

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST **$(000)**	(7) TOTAL FUEL & O&M INCREASE **$(000)**	(8) INCREASED T&D CAP. COSTS **$(000)**	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	30	26	0	0	56	210	0	0	0	15	225	-169
2006	42	52	0	0	93	210	0	0	0	15	225	-132
2007	81	78	24	0	183	210	0	0	0	15	225	-42
2008	110	103	35	0	248	210	0	0	0	15	225	23
2009	136	129	39	0	305	210	0	0	0	15	225	80
2010	117	155	71	0	343	210	0	0	0	15	225	118
2011	140	181	82	0	403	210	0	0	0	15	225	178
2012	172	207	104	0	483	210	0	0	0	15	225	258
2013	189	233	113	0	535	210	0	0	0	15	225	310
2014	221	259	105	0	584	210	0	0	0	15	225	359
2015	230	259	117	0	606	0	0	0	0	0	0	606
2016	232	259	115	0	605	0	0	0	0	0	0	605
2017	243	259	142	0	643	0	0	0	0	0	0	643
2018	245	259	123	0	627	0	0	0	0	0	0	627
2019	256	259	137	0	651	0	0	0	0	0	0	651
2020	257	259	134	0	650	0	0	0	0	0	0	650
2021	260	259	138	0	656	0	0	0	0	0	0	656
2022	264	259	141	0	664	0	0	0	0	0	0	664
2023	270	259	145	0	673	0	0	0	0	0	0	673
2024	274	259	148	0	681	0	0	0	0	0	0	681
2025	281	259	152	0	692	0	0	0	0	0	0	692
2026	287	259	156	0	701	0	0	0	0	0	0	701
2027	291	259	160	0	709	0	0	0	0	0	0	709
2028	298	259	164	0	720	0	0	0	0	0	0	720
2029	302	259	164	0	725	0	0	0	0	0	0	725
2030	309	259	172	0	739	0	0	0	0	0	0	739
2031	313	259	172	0	744	0	0	0	0	0	0	744
2032	323	259	181	0	763	0	0	0	0	0	0	763
2033	327	259	181	0	767	0	0	0	0	0	0	767
NOMINAL	6,496	6,338	3,413	0	16,247	2,100	0	0	0	150	2,250	13,997
NPV	1,887	1,958	936	0	4,781	1,399	0	0	0	100	1,499	3,282

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.19**

Measure Name: Strip 13 to 15
Vintage: Existing Average

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	39	175	0	214	210	0	210	4
2006	72	175	0	247	210	0	210	37
2007	109	175	0	284	210	0	210	74
2008	149	175	0	324	210	0	210	114
2009	186	175	0	361	210	0	210	151
2010	217	175	0	392	210	0	210	182
2011	272	175	0	447	210	0	210	237
2012	321	175	0	496	210	0	210	286
2013	367	175	0	542	210	0	210	332
2014	417	175	0	592	210	0	210	382
2015	427	0	0	427	0	0	0	427
2016	438	0	0	438	0	0	0	438
2017	449	0	0	449	0	0	0	449
2018	460	0	0	460	0	0	0	460
2019	472	0	0	472	0	0	0	472
2020	487	0	0	487	0	0	0	487
2021	495	0	0	495	0	0	0	495
2022	504	0	0	504	0	0	0	504
2023	519	0	0	519	0	0	0	519
2024	529	0	0	529	0	0	0	529
2025	547	0	0	547	0	0	0	547
2026	561	0	0	561	0	0	0	561
2027	575	0	0	575	0	0	0	575
2028	591	0	0	591	0	0	0	591
2029	603	0	0	603	0	0	0	603
2030	619	0	0	619	0	0	0	619
2031	632	0	0	632	0	0	0	632
2032	654	0	0	654	0	0	0	654
2033	666	0	0	666	0	0	0	666
NOMINAL	11,710	1,750	0	13,460	2,100	0	2,100	11,360
NPV	3,457	1,166	0	4,623	1,399	0	1,399	3,224

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **3.30**

Input Data

Measure Name: CFM Reduction

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$75.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	297
Peak Winter KW Reduction:	0.27
Peak Summer KW Reduction:	0.13

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure Name: CFM Reduction
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	8	2	10	-7
2006	3	2	0	0	4	0	0	0	7	8	5	19	-15
2007	6	2	2	0	10	0	0	0	7	8	7	21	-12
2008	7	3	2	0	13	0	0	0	7	8	9	24	-11
2009	10	4	3	0	16	0	0	0	7	8	12	26	-10
2010	8	5	6	0	19	0	0	0	7	8	15	29	-10
2011	10	5	6	0	22	0	0	0	7	8	17	32	-10
2012	11	6	8	0	26	0	0	0	7	8	20	35	-9
2013	12	7	9	0	28	0	0	0	7	8	23	38	-10
2014	15	8	8	0	30	0	0	0	7	8	26	41	-11
2015	15	8	9	0	32	0	0	0	0	0	27	27	5
2016	15	8	8	0	31	0	0	0	0	0	28	28	3
2017	16	8	9	0	33	0	0	0	0	0	29	29	4
2018	17	8	8	0	32	0	0	0	0	0	29	29	3
2019	17	8	10	0	35	0	0	0	0	0	30	30	5
2020	17	8	10	0	34	0	0	0	0	0	31	31	4
2021	18	8	10	0	35	0	0	0	0	0	31	31	4
2022	19	8	10	0	36	0	0	0	0	0	32	32	4
2023	18	8	10	0	36	0	0	0	0	0	33	33	3
2024	19	8	11	0	37	0	0	0	0	0	34	34	3
2025	19	8	11	0	38	0	0	0	0	0	35	35	3
2026	20	8	11	0	38	0	0	0	0	0	36	36	3
2027	19	8	11	0	38	0	0	0	0	0	36	36	2
2028	20	8	12	0	39	0	0	0	0	0	37	37	2
2029	20	8	12	0	40	0	0	0	0	0	38	38	2
2030	21	8	12	0	41	0	0	0	0	0	39	39	2
2031	22	8	13	0	42	0	0	0	0	0	40	40	2
2032	21	8	13	0	42	0	0	0	0	0	41	41	1
2033	23	8	13	0	44	0	0	0	0	0	42	42	1
NOMINAL	437	193	244	0	874	0	0	0	63	75	787	925	-51
NPV	127	59	67	0	254	0	0	0	40	50	220	310	-57

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.82**

Measure Name: CFM Reduction
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	0	0	3
2006	3	2	0	0	4	0	0	0	0	7	7	-3
2007	6	2	2	0	10	0	0	0	0	7	7	3
2008	7	3	2	0	13	0	0	0	0	7	7	6
2009	10	4	3	0	16	0	0	0	0	7	7	9
2010	8	5	6	0	19	0	0	0	0	7	7	12
2011	10	5	6	0	22	0	0	0	0	7	7	15
2012	11	6	8	0	26	0	0	0	0	7	7	19
2013	12	7	9	0	28	0	0	0	0	7	7	21
2014	15	8	8	0	30	0	0	0	0	7	7	23
2015	15	8	9	0	32	0	0	0	0	0	0	32
2016	15	8	8	0	31	0	0	0	0	0	0	31
2017	16	8	9	0	33	0	0	0	0	0	0	33
2018	17	8	8	0	32	0	0	0	0	0	0	32
2019	17	8	10	0	35	0	0	0	0	0	0	35
2020	17	8	10	0	34	0	0	0	0	0	0	34
2021	18	8	10	0	35	0	0	0	0	0	0	35
2022	19	8	10	0	36	0	0	0	0	0	0	36
2023	18	8	10	0	36	0	0	0	0	0	0	36
2024	19	8	11	0	37	0	0	0	0	0	0	37
2025	19	8	11	0	38	0	0	0	0	0	0	38
2026	20	8	11	0	38	0	0	0	0	0	0	38
2027	19	8	11	0	38	0	0	0	0	0	0	38
2028	20	8	12	0	39	0	0	0	0	0	0	39
2029	20	8	12	0	40	0	0	0	0	0	0	40
2030	21	8	12	0	41	0	0	0	0	0	0	41
2031	22	8	13	0	42	0	0	0	0	0	0	42
2032	21	8	13	0	42	0	0	0	0	0	0	42
2033	23	8	13	0	44	0	0	0	0	0	0	44
NOMINAL	437	193	244	0	874					63	63	811
NPV	127	59	67	0	254	0	0	0	0	40	40	213

Utility Discount Rate: 8.16
Benefit Cost Ratio: 6.31

Measure Name: CFM Reduction
Vintage: Existing

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	2	8	0	10	0	0	0	10
2006	5	8	0	12	0	0	0	12
2007	7	8	0	14	0	0	0	14
2008	9	8	0	17	0	0	0	17
2009	12	8	0	19	0	0	0	19
2010	15	8	0	22	0	0	0	22
2011	17	8	0	25	0	0	0	25
2012	20	8	0	28	0	0	0	28
2013	23	8	0	31	0	0	0	31
2014	26	8	0	34	0	0	0	34
2015	27	0	0	27	0	0	0	27
2016	28	0	0	28	0	0	0	28
2017	29	0	0	29	0	0	0	29
2018	29	0	0	29	0	0	0	29
2019	30	0	0	30	0	0	0	30
2020	31	0	0	31	0	0	0	31
2021	31	0	0	31	0	0	0	31
2022	32	0	0	32	0	0	0	32
2023	33	0	0	33	0	0	0	33
2024	34	0	0	34	0	0	0	34
2025	35	0	0	35	0	0	0	35
2026	36	0	0	36	0	0	0	36
2027	36	0	0	36	0	0	0	36
2028	37	0	0	37	0	0	0	37
2029	38	0	0	38	0	0	0	38
2030	39	0	0	39	0	0	0	39
2031	40	0	0	40	0	0	0	40
2032	41	0	0	41	0	0	0	41
2033	42	0	0	42				42
NOMINAL	744	75	0	819	0	0	0	819
NPV	220	50	0	270	0	0	0	270

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Reduced Duct Leakage

Vintage: Existing Low

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$100.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	587
Peak Winter KW Reduction:	0.87
Peak Summer KW Reduction:	0.46

Year	Cumulative Participation
2005	50
2006	100
2007	150
2008	200
2009	250
2010	300
2011	350
2012	400
2013	450
2014	500

Measure Name: Reduced Duct Leakage
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	5	2	7	-4
2006	3	2	0	0	6	0	0	0	4	5	5	13	-7
2007	6	4	3	0	12	0	0	0	4	5	7	15	-3
2008	8	5	4	0	17	0	0	0	4	5	9	18	-1
2009	10	6	4	0	21	0	0	0	4	5	12	20	0
2010	9	7	8	0	24	0	0	0	4	5	14	23	1
2011	10	9	9	0	27	0	0	0	4	5	17	26	2
2012	11	10	11	0	32	0	0	0	4	5	20	29	4
2013	12	11	11	0	35	0	0	0	4	5	23	32	3
2014	14	12	11	0	38	0	0	0	4	5	26	35	3
2015	16	12	12	0	40	0	0	0	0	0	27	27	13
2016	11	12	10	0	34	0	0	0	0	0	21	21	13
2017	16	12	12	0	40	0	0	0	0	0	28	28	12
2018	16	12	13	0	41	0	0	0	0	0	29	29	12
2019	18	12	14	0	44	0	0	0	0	0	30	30	15
2020	17	12	14	0	43	0	0	0	0	0	30	30	12
2021	18	12	14	0	44	0	0	0	0	0	31	31	13
2022	18	12	14	0	45	0	0	0	0	0	32	32	13
2023	19	12	15	0	45	0	0	0	0	0	33	33	13
2024	19	12	15	0	46	0	0	0	0	0	34	34	12
2025	19	12	15	0	46	0	0	0	0	0	34	34	12
2026	19	12	16	0	47	0	0	0	0	0	35	35	12
2027	20	12	16	0	48	0	0	0	0	0	36	36	12
2028	19	12	16	0	48	0	0	0	0	0	37	37	11
2029	20	12	17	0	49	0	0	0	0	0	38	38	11
2030	21	12	17	0	50	0	0	0	0	0	39	39	11
2031	21	12	18	0	51	0	0	0	0	0	40	40	11
2032	22	12	18	0	52	0	0	0	0	0	41	41	11
2033	22	12	18	0	53	0	0	0	0	0	42	42	11
NOMINAL	433	304	345	0	1,082	0	0	0	32	50	774	855	227
NPV	127	94	95	0	316	0	0	0	20	33	216	269	47

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.18**

Measure Name: Reduced Duct Leakage
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	0	0	3
2006	3	2	0	0	6	0	0	0	0	4	4	2
2007	6	4	3	0	12	0	0	0	0	4	4	9
2008	8	5	4	0	17	0	0	0	0	4	4	13
2009	10	6	4	0	21	0	0	0	0	4	4	17
2010	9	7	8	0	24	0	0	0	0	4	4	21
2011	10	9	9	0	27	0	0	0	0	4	4	24
2012	11	10	11	0	32	0	0	0	0	4	4	29
2013	12	11	11	0	35	0	0	0	0	4	4	31
2014	14	12	11	0	38	0	0	0	0	4	4	34
2015	16	12	12	0	40	0	0	0	0	0	0	40
2016	11	12	10	0	34	0	0	0	0	0	0	34
2017	16	12	12	0	40	0	0	0	0	0	0	40
2018	16	12	13	0	41	0	0	0	0	0	0	41
2019	18	12	14	0	44	0	0	0	0	0	0	44
2020	17	12	14	0	43	0	0	0	0	0	0	43
2021	18	12	14	0	44	0	0	0	0	0	0	44
2022	18	12	14	0	45	0	0	0	0	0	0	45
2023	19	12	15	0	45	0	0	0	0	0	0	45
2024	19	12	15	0	46	0	0	0	0	0	0	46
2025	19	12	15	0	46	0	0	0	0	0	0	46
2026	19	12	16	0	47	0	0	0	0	0	0	47
2027	20	12	16	0	48	0	0	0	0	0	0	48
2028	19	12	16	0	48	0	0	0	0	0	0	48
2029	20	12	17	0	49	0	0	0	0	0	0	49
2030	21	12	17	0	50	0	0	0	0	0	0	50
2031	21	12	18	0	51	0	0	0	0	0	0	51
2032	22	12	18	0	52	0	0	0	0	0	0	52
2033	22	12	18	0	53	0	0	0	0	0	0	53
NOMINAL	433	304	345	0	1,082	0	0	0	0	32	32	1,051
NPV	127	94	95	0	316	0	0	0	0	20	20	296

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **15.75**

Measure Name: Reduced Duct Leakage
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	2	5	0	7	0	0	0	7
2006	5	5	0	10	0	0	0	10
2007	7	5	0	12	0	0	0	12
2008	9	5	0	14	0	0	0	14
2009	12	5	0	17	0	0	0	17
2010	14	5	0	19	0	0	0	19
2011	17	5	0	22	0	0	0	22
2012	20	5	0	25	0	0	0	25
2013	23	5	0	28	0	0	0	28
2014	26	5	0	31	0	0	0	31
2015	27	0	0	27	0	0	0	27
2016	21	0	0	21	0	0	0	21
2017	28	0	0	28	0	0	0	28
2018	29	0	0	29	0	0	0	29
2019	30	0	0	30	0	0	0	30
2020	30	0	0	30	0	0	0	30
2021	31	0	0	31	0	0	0	31
2022	32	0	0	32	0	0	0	32
2023	33	0	0	33	0	0	0	33
2024	34	0	0	34	0	0	0	34
2025	34	0	0	34	0	0	0	34
2026	35	0	0	35	0	0	0	35
2027	36	0	0	36	0	0	0	36
2028	37	0	0	37	0	0	0	37
2029	38	0	0	38	0	0	0	38
2030	39	0	0	39	0	0	0	39
2031	40	0	0	40	0	0	0	40
2032	41	0	0	41	0	0	0	41
2033	42	0	0	42	0	0	0	42
NOMINAL	732	50	0	782	0	0	0	782
NPV	216	33	0	249	0	0	0	249

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Heat Recovery

Vintage: Existing Low

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	
Non-Recurring Incentive per Participant:	$100.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	406
Peak Winter KW Reduction:	0
Peak Summer KW Reduction:	0.24

Year	Cumulative Participation
2005	9
2006	18
2007	27
2008	36
2009	45
2010	54
2011	63
2012	72
2013	81
2014	90

Measure Name: Heat Recovery
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	1	0	1	-1
2006	0	0	0	0	0	0	0	0	1	1	1	2	-2
2007	1	0	0	0	1	0	0	0	1	1	1	2	-1
2008	1	0	0	0	2	0	0	0	1	1	1	3	-1
2009	1	0	0	0	2	0	0	0	1	1	1	3	-1
2010	1	0	1	0	2	0	0	0	1	1	2	3	-1
2011	2	0	1	0	2	0	0	0	1	1	2	4	-1
2012	1	0	1	0	2	0	0	0	1	1	2	4	-2
2013	2	0	1	0	3	0	0	0	1	1	3	4	-2
2014	2	0	1	0	3	0	0	0	1	1	3	5	-2
2015	2	0	1	0	3	0	0	0	0	0	3	3	0
2016	2	0	1	0	3	0	0	0	0	0	3	3	-1
2017	2	0	1	0	3	0	0	0	0	0	4	4	0
2018	2	0	1	0	3	0	0	0	0	0	4	4	-1
2019	2	0	1	0	3	0	0	0	0	0	4	4	0
2020	2	0	1	0	3	0	0	0	0	0	4	4	0
2021	2	0	1	0	3	0	0	0	0	0	4	4	-1
2022	2	0	1	0	4	0	0	0	0	0	4	4	0
2023	2	0	1	0	3	0	0	0	0	0	4	4	-1
2024	2	0	1	0	4	0	0	0	0	0	4	4	-1
2025	2	0	1	0	4	0	0	0	0	0	4	4	-1
2026	2	0	1	0	4	0	0	0	0	0	4	4	-1
2027	2	0	1	0	3	0	0	0	0	0	4	4	-1
2028	2	0	2	0	3	0	0	0	0	0	5	5	-1
2029	2	0	2	0	4	0	0	0	0	0	5	5	-1
2030	2	0	2	0	4	0	0	0	0	0	5	5	-1
2031	2	0	2	0	4	0	0	0	0	0	5	5	-1
2032	2	0	2	0	4	0	0	0	0	0	5	5	-1
2033	3	0	2	0	4	0	0	0	0	0	5	5	-1
NOMINAL	51	0	31	0	82	0	0	0	6	9	97	112	-30
NPV	16	0	9	0	24	0	0	0	4	6	27	37	-12

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.67**

Measure Name: Heat Recovery
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	1	1	0
2007	1	0	0	0	1	0	0	0	0	1	1	0
2008	1	0	0	0	2	0	0	0	0	1	1	1
2009	1	0	0	0	2	0	0	0	0	1	1	1
2010	1	0	1	0	2	0	0	0	0	1	1	1
2011	2	0	1	0	2	0	0	0	0	1	1	2
2012	1	0	1	0	2	0	0	0	0	1	1	2
2013	2	0	1	0	3	0	0	0	0	1	1	2
2014	2	0	1	0	3	0	0	0	0	1	1	2
2015	2	0	1	0	3	0	0	0	0	0	0	3
2016	2	0	1	0	3	0	0	0	0	0	0	3
2017	2	0	1	0	3	0	0	0	0	0	0	3
2018	2	0	1	0	3	0	0	0	0	0	0	3
2019	2	0	1	0	3	0	0	0	0	0	0	3
2020	2	0	1	0	3	0	0	0	0	0	0	3
2021	2	0	1	0	3	0	0	0	0	0	0	3
2022	2	0	1	0	4	0	0	0	0	0	0	4
2023	2	0	1	0	3	0	0	0	0	0	0	3
2024	2	0	1	0	4	0	0	0	0	0	0	4
2025	2	0	1	0	4	0	0	0	0	0	0	4
2026	2	0	1	0	4	0	0	0	0	0	0	4
2027	2	0	1	0	3	0	0	0	0	0	0	3
2028	2	0	2	0	3	0	0	0	0	0	0	3
2029	2	0	2	0	4	0	0	0	0	0	0	4
2030	2	0	2	0	4	0	0	0	0	0	0	4
2031	2	0	2	0	4	0	0	0	0	0	0	4
2032	2	0	2	0	4	0	0	0	0	0	0	4
2033	3	0	2	0	4	0	0	0	0	0	0	4
NOMINAL	51	0	31	0	82	0	0	0	0	6	6	76
NPV	16	0	9	0	24	0	0	0	0	4	4	21

Utility Discount Rate: 8.16
Benefit Cost Ratio: 6.76

Measure Name: Heat Recovery
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	1	0	1	0	0	0	1
2006	1	1	0	1	0	0	0	1
2007	1	1	0	2	0	0	0	2
2008	1	1	0	2	0	0	0	2
2009	1	1	0	2	0	0	0	2
2010	2	1	0	3	0	0	0	3
2011	2	1	0	3	0	0	0	3
2012	2	1	0	3	0	0	0	3
2013	3	1	0	4	0	0	0	4
2014	3	1	0	4	0	0	0	4
2015	3	0	0	3	0	0	0	3
2016	3	0	0	3	0	0	0	3
2017	4	0	0	4	0	0	0	4
2018	4	0	0	4	0	0	0	4
2019	4	0	0	4	0	0	0	4
2020	4	0	0	4	0	0	0	4
2021	4	0	0	4	0	0	0	4
2022	4	0	0	4	0	0	0	4
2023	4	0	0	4	0	0	0	4
2024	4	0	0	4	0	0	0	4
2025	4	0	0	4	0	0	0	4
2026	4	0	0	4	0	0	0	4
2027	4	0	0	4	0	0	0	4
2028	5	0	0	5	0	0	0	5
2029	5	0	0	5	0	0	0	5
2030	5	0	0	5	0	0	0	5
2031	5	0	0	5	0	0	0	5
2032	5	0	0	5	0	0	0	5
2033	5	0	0	5	0	0	0	5
NOMINAL	92	9	0	101	0	0	0	101
NPV	27	6	0	33	0	0	0	33

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Heat Pump HP to 12

Vintage: Existing Low

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$100.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	654
Peak Winter KW Reduction:	0.72
Peak Summer KW Reduction:	0.54

Year	Cumulative Participation
2005	5
2006	10
2007	15
2008	20
2009	25
2010	30
2011	35
2012	40
2013	45
2014	50

Measure Name: Heat Pump HP to 12
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	1	0	1	0
2006	1	0	0	0	1	0	0	0	0	1	1	1	-1
2007	1	0	0	0	1	0	0	0	0	1	1	2	0
2008	1	0	0	0	2	0	0	0	0	1	1	2	0
2009	2	0	1	0	2	0	0	0	0	1	1	2	0
2010	1	1	1	0	3	0	0	0	0	1	2	2	0
2011	1	1	1	0	3	0	0	0	0	1	2	3	0
2012	1	1	1	0	3	0	0	0	0	1	2	3	0
2013	1	1	1	0	4	0	0	0	0	1	3	3	0
2014	2	1	1	0	4	0	0	0	0	1	3	4	0
2015	2	1	2	0	4	0	0	0	0	0	3	3	1
2016	2	1	1	0	4	0	0	0	0	0	3	3	1
2017	2	1	1	0	4	0	0	0	0	0	3	3	1
2018	2	1	2	0	4	0	0	0	0	0	3	3	1
2019	2	1	2	0	5	0	0	0	0	0	3	3	2
2020	2	1	2	0	5	0	0	0	0	0	3	3	1
2021	2	1	2	0	5	0	0	0	0	0	3	3	1
2022	2	1	2	0	5	0	0	0	0	0	4	4	1
2023	2	1	2	0	5	0	0	0	0	0	4	4	1
2024	2	1	2	0	5	0	0	0	0	0	4	4	1
2025	2	1	2	0	4	0	0	0	0	0	4	4	0
2026	2	1	2	0	5	0	0	0	0	0	4	4	1
2027	2	1	2	0	5	0	0	0	0	0	4	4	1
2028	2	1	2	0	5	0	0	0	0	0	4	4	1
2029	2	1	2	0	5	0	0	0	0	0	4	4	1
2030	2	1	2	0	5	0	0	0	0	0	4	4	1
2031	2	1	2	0	5	0	0	0	0	0	4	4	1
2032	3	1	2	0	6	0	0	0	0	0	5	5	1
2033	3	1	2	0	6	0	0	0	0	0	5	5	1
NOMINAL	50	22	42	0	115	0	0	0	3	5	87	95	20
NPV	15	7	12	0	34	0	0	0	2	3	24	30	4

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.15

Measure Name: Heat Pump HP to 12
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	1	0	0	0	1	0	0	0	0	0	0	0
2007	1	0	0	0	1	0	0	0	0	0	0	1
2008	1	0	0	0	2	0	0	0	0	0	0	2
2009	2	0	1	0	2	0	0	0	0	0	0	2
2010	1	1	1	0	3	0	0	0	0	0	0	2
2011	1	1	1	0	3	0	0	0	0	0	0	3
2012	1	1	1	0	3	0	0	0	0	0	0	3
2013	1	1	1	0	4	0	0	0	0	0	0	3
2014	2	1	1	0	4	0	0	0	0	0	0	4
2015	2	1	2	0	4	0	0	0	0	0	0	4
2016	2	1	1	0	4	0	0	0	0	0	0	4
2017	2	1	1	0	4	0	0	0	0	0	0	4
2018	2	1	2	0	4	0	0	0	0	0	0	4
2019	2	1	2	0	5	0	0	0	0	0	0	5
2020	2	1	2	0	5	0	0	0	0	0	0	5
2021	2	1	2	0	5	0	0	0	0	0	0	5
2022	2	1	2	0	5	0	0	0	0	0	0	5
2023	2	1	2	0	5	0	0	0	0	0	0	5
2024	2	1	2	0	5	0	0	0	0	0	0	5
2025	2	1	2	0	4	0	0	0	0	0	0	4
2026	2	1	2	0	5	0	0	0	0	0	0	5
2027	2	1	2	0	5	0	0	0	0	0	0	5
2028	2	1	2	0	5	0	0	0	0	0	0	5
2029	2	1	2	0	5	0	0	0	0	0	0	5
2030	2	1	2	0	5	0	0	0	0	0	0	5
2031	2	1	2	0	5	0	0	0	0	0	0	5
2032	3	1	2	0	6	0	0	0	0	0	0	6
2033	3	1	2	0	6	0	0	0	0	0	0	6
NOMINAL	50	22	42	0	115	0	0	0	0	3	3	111
NPV	15	7	12	0	34	0	0	0	0	2	2	32

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **16.93**

Measure Name: Heat Pump HP to 12
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	1	0	1	0	0	0	1
2006	1	1	0	1	0	0	0	1
2007	1	1	0	1	0	0	0	1
2008	1	1	0	2	0	0	0	2
2009	1	1	0	2	0	0	0	2
2010	2	1	0	2	0	0	0	2
2011	2	1	0	2	0	0	0	2
2012	2	1	0	3	0	0	0	3
2013	3	1	0	3	0	0	0	3
2014	3	1	0	3	0	0	0	3
2015	3	0	0	3	0	0	0	3
2016	3	0	0	3	0	0	0	3
2017	3	0	0	3	0	0	0	3
2018	3	0	0	3	0	0	0	3
2019	3	0	0	3	0	0	0	3
2020	3	0	0	3	0	0	0	3
2021	3	0	0	3	0	0	0	3
2022	4	0	0	4	0	0	0	4
2023	4	0	0	4	0	0	0	4
2024	4	0	0	4	0	0	0	4
2025	4	0	0	4	0	0	0	4
2026	4	0	0	4	0	0	0	4
2027	4	0	0	4	0	0	0	4
2028	4	0	0	4	0	0	0	4
2029	4	0	0	4	0	0	0	4
2030	4	0	0	4	0	0	0	4
2031	4	0	0	4	0	0	0	4
2032	5	0	0	5	0	0	0	5
2033	5	0	0	5	0	0	0	5
NOMINAL	82	5	0	87	0	0	0	87
NPV	24	3	0	28	0	0	0	28

Utility Discount Rate: 8.16
Benefit Cost Ratio: NA

Input Data

Measure Name: Heat Pump to 13

Vintage: Existing Low

		Year	Cumulative Participation
Incremental Participant Cost:	$0.00	2005	1
Incremental Annual O&M Cost:	$0.00	2006	2
Non-Recurring Incentive per Participant:	$150.00	2007	3
Utility Non-recurring Cost per Participant:	$70.00	2008	4
Utility Recurring Cost per Participant:	$0.00	2009	5
Annual kWh Reduction:	828	2010	6
Peak Winter KW Reduction:	0.78	2011	7
Peak Summer KW Reduction:	0.71	2012	8
		2013	9
		2014	10

Measure Name: Heat Pump to 13
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	1	0	0	0	0	0	0	0	0
2009	1	0	0	0	1	0	0	0	0	0	0	1	0
2010	0	0	0	0	1	0	0	0	0	0	0	1	0
2011	0	0	0	0	1	0	0	0	0	0	0	1	0
2012	0	0	0	0	1	0	0	0	0	0	1	1	0
2013	0	0	0	0	1	0	0	0	0	0	1	1	0
2014	1	0	0	0	1	0	0	0	0	0	1	1	0
2015	0	0	0	0	1	0	0	0	0	0	1	1	0
2016	0	0	0	0	1	0	0	0	0	0	1	1	0
2017	0	0	0	0	1	0	0	0	0	0	1	1	0
2018	0	0	0	0	1	0	0	0	0	0	1	1	0
2019	1	0	0	0	2	0	0	0	0	0	1	1	1
2020	1	0	0	0	1	0	0	0	0	0	1	1	0
2021	0	0	0	0	1	0	0	0	0	0	1	1	0
2022	1	0	0	0	2	0	0	0	0	0	1	1	1
2023	0	0	0	0	1	0	0	0	0	0	1	1	0
2024	0	0	1	0	1	0	0	0	0	0	1	1	0
2025	1	0	0	0	1	0	0	0	0	0	1	1	0
2026	1	0	0	0	1	0	0	0	0	0	1	1	0
2027	0	0	0	0	1	0	0	0	0	0	1	1	0
2028	0	0	1	0	1	0	0	0	0	0	1	1	0
2029	0	0	1	0	1	0	0	0	0	0	1	1	0
2030	1	0	1	0	1	0	0	0	0	0	1	1	0
2031	0	0	1	0	1	0	0	0	0	0	1	1	0
2032	0	0	1	0	1	0	0	0	0	0	1	1	0
2033	1	0	1	0	2	0	0	0	0	0	1	1	0
NOMINAL	11	5	11	0	26	0	0	0	1	2	22	24	2
NPV	4	2	3	0	8	0	0	0	0	1	6	8	0

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.06

Measure Name: Heat Pump to 13
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	1	0	0	0	0	0	0	0
2009	1	0	0	0	1	0	0	0	0	0	0	1
2010	0	0	0	0	1	0	0	0	0	0	0	1
2011	0	0	0	0	1	0	0	0	0	0	0	1
2012	0	0	0	0	1	0	0	0	0	0	0	1
2013	0	0	0	0	1	0	0	0	0	0	0	0
2014	1	0	0	0	1	0	0	0	0	0	0	1
2015	0	0	0	0	1	0	0	0	0	0	0	1
2016	0	0	0	0	1	0	0	0	0	0	0	1
2017	0	0	0	0	1	0	0	0	0	0	0	1
2018	0	0	0	0	1	0	0	0	0	0	0	1
2019	1	0	0	0	2	0	0	0	0	0	0	2
2020	1	0	0	0	1	0	0	0	0	0	0	1
2021	0	0	0	0	1	0	0	0	0	0	0	1
2022	1	0	0	0	2	0	0	0	0	0	0	2
2023	0	0	0	0	1	0	0	0	0	0	0	1
2024	0	0	1	0	1	0	0	0	0	0	0	1
2025	1	0	0	0	1	0	0	0	0	0	0	1
2026	1	0	0	0	1	0	0	0	0	0	0	1
2027	0	0	0	0	1	0	0	0	0	0	0	1
2028	0	0	1	0	1	0	0	0	0	0	0	1
2029	0	0	1	0	1	0	0	0	0	0	0	1
2030	1	0	1	0	1	0	0	0	0	0	0	1
2031	0	0	1	0	1	0	0	0	0	0	0	1
2032	0	0	1	0	1	0	0	0	0	0	0	1
2033	1	0	1	0	2	0	0	0	0	0	0	2
NOMINAL	11	5	11	0	26	0	0	0	0	1	1	26
NPV	4	2	3	0	8	0	0	0	0	0	0	8

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **19.95**

Measure Name: Heat Pump to 13
Vintage: Existing Low

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0
2010	0	0	0	1	0	0	0	1
2011	0	0	0	1	0	0	0	1
2012	1	0	0	1	0	0	0	1
2013	1	0	0	1	0	0	0	1
2014	1	0	0	1	0	0	0	1
2015	1	0	0	1	0	0	0	1
2016	1	0	0	1	0	0	0	1
2017	1	0	0	1	0	0	0	1
2018	1	0	0	1	0	0	0	1
2019	1	0	0	1	0	0	0	1
2020	1	0	0	1	0	0	0	1
2021	1	0	0	1	0	0	0	1
2022	1	0	0	1	0	0	0	1
2023	1	0	0	1	0	0	0	1
2024	1	0	0	1	0	0	0	1
2025	1	0	0	1	0	0	0	1
2026	1	0	0	1	0	0	0	1
2027	1	0	0	1	0	0	0	1
2028	1	0	0	1	0	0	0	1
2029	1	0	0	1	0	0	0	1
2030	1	0	0	1	0	0	0	1
2031	1	0	0	1	0	0	0	1
2032	1	0	0	1	0	0	0	1
2033	1	0	0	1	0	0	0	1
NOMINAL	21	2	0	22	0	0	0	22
NPV	6	1	0	7	0	0	0	7

Utility Discount Rate: 8.16
Benefit Cost Ratio: NA

Input Data

Measure Name: HVAC Tune Up

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$40.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	323
Peak Winter KW Reduction:	0.5
Peak Summer KW Reduction:	0.26

Year	Cumulative Participation
2005	25
2006	50
2007	75
2008	100
2009	125
2010	150
2011	175
2012	200
2013	225
2014	250

Measure Name: HVAC Tune Up
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	1	0	0	0	1	0	0	0	0	1	1	2	0
2006	1	1	0	0	1	0	0	0	2	1	1	4	-3
2007	2	1	1	0	3	0	0	0	2	1	2	5	-1
2008	3	1	1	0	5	0	0	0	2	1	3	5	0
2009	3	2	1	0	6	0	0	0	2	1	3	6	0
2010	2	2	2	0	7	0	0	0	2	1	4	7	0
2011	3	2	2	0	8	0	0	0	2	1	5	7	0
2012	3	3	3	0	9	0	0	0	2	1	6	8	1
2013	3	3	3	0	9	0	0	0	2	1	6	9	0
2014	4	4	3	0	11	0	0	0	2	1	7	10	1
2015	4	4	3	0	11	0	0	0	0	0	7	7	4
2016	4	4	3	0	11	0	0	0	0	0	8	8	3
2017	4	4	4	0	11	0	0	0	0	0	8	8	4
2018	5	4	4	0	12	0	0	0	0	0	8	8	4
2019	5	4	4	0	13	0	0	0	0	0	8	8	4
2020	5	4	4	0	12	0	0	0	0	0	8	8	4
2021	5	4	4	0	12	0	0	0	0	0	9	9	4
2022	5	4	4	0	13	0	0	0	0	0	9	9	4
2023	5	4	4	0	13	0	0	0	0	0	9	9	4
2024	6	4	4	0	13	0	0	0	0	0	9	9	4
2025	5	4	4	0	13	0	0	0	0	0	9	9	4
2026	5	4	4	0	13	0	0	0	0	0	10	10	3
2027	5	4	5	0	13	0	0	0	0	0	10	10	3
2028	5	4	5	0	13	0	0	0	0	0	10	10	3
2029	6	4	5	0	14	0	0	0	0	0	10	10	3
2030	6	4	5	0	14	0	0	0	0	0	11	11	3
2031	6	4	5	0	14	0	0	0	0	0	11	11	3
2032	6	4	5	0	15	0	0	0	0	0	11	11	3
2033	7	4	5	0	15	0	0	0	0	0	12	12	4
NOMINAL	122	87	96	0	305	0	0	0	16	10	214	240	65
NPV	36	27	27	0	90	0	0	0	10	7	60	77	13

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.17**

Measure Name: HVAC Tune Up
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	1	0	0	0	1	0	0	0	0	0	0	1
2006	1	1	0	0	1	0	0	0	0	2	2	0
2007	2	1	1	0	3	0	0	0	0	2	2	2
2008	3	1	1	0	5	0	0	0	0	2	2	3
2009	3	2	1	0	6	0	0	0	0	2	2	4
2010	2	2	2	0	7	0	0	0	0	2	2	5
2011	3	2	2	0	8	0	0	0	0	2	2	6
2012	3	3	3	0	9	0	0	0	0	2	2	7
2013	3	3	3	0	9	0	0	0	0	2	2	8
2014	4	4	3	0	11	0	0	0	0	2	2	9
2015	4	4	3	0	11	0	0	0	0	0	0	11
2016	4	4	3	0	11	0	0	0	0	0	0	11
2017	4	4	4	0	11	0	0	0	0	0	0	11
2018	5	4	4	0	12	0	0	0	0	0	0	12
2019	5	4	4	0	13	0	0	0	0	0	0	13
2020	5	4	4	0	12	0	0	0	0	0	0	12
2021	5	4	4	0	12	0	0	0	0	0	0	12
2022	5	4	4	0	13	0	0	0	0	0	0	13
2023	5	4	4	0	13	0	0	0	0	0	0	13
2024	6	4	4	0	13	0	0	0	0	0	0	13
2025	5	4	4	0	13	0	0	0	0	0	0	13
2026	5	4	4	0	13	0	0	0	0	0	0	13
2027	5	4	5	0	13	0	0	0	0	0	0	13
2028	5	4	5	0	13	0	0	0	0	0	0	13
2029	6	4	5	0	14	0	0	0	0	0	0	14
2030	6	4	5	0	14	0	0	0	0	0	0	14
2031	6	4	5	0	14	0	0	0	0	0	0	14
2032	6	4	5	0	15	0	0	0	0	0	0	15
2033	7	4	5	0	15	0	0	0	0	0	0	15
NOMINAL	122	87	96	0	305	0	0	0	0	16	16	290
NPV	36	27	27	0	90	0	0	0	0	10	10	80

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **8.93**

Measure Name: HVAC Tune Up
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	1	1	0	2	0	0	0	2
2006	1	1	0	2	0	0	0	2
2007	2	1	0	3	0	0	0	3
2008	3	1	0	4	0	0	0	4
2009	3	1	0	4	0	0	0	4
2010	4	1	0	5	0	0	0	5
2011	5	1	0	6	0	0	0	6
2012	6	1	0	7	0	0	0	7
2013	6	1	0	7	0	0	0	7
2014	7	1	0	8	0	0	0	8
2015	7	0	0	7	0	0	0	7
2016	8	0	0	8	0	0	0	8
2017	8	0	0	8	0	0	0	8
2018	8	0	0	8	0	0	0	8
2019	8	0	0	8	0	0	0	8
2020	8	0	0	8	0	0	0	8
2021	9	0	0	9	0	0	0	9
2022	9	0	0	9	0	0	0	9
2023	9	0	0	9	0	0	0	9
2024	9	0	0	9	0	0	0	9
2025	9	0	0	9	0	0	0	9
2026	10	0	0	10	0	0	0	10
2027	10	0	0	10	0	0	0	10
2028	10	0	0	10	0	0	0	10
2029	10	0	0	10	0	0	0	10
2030	11	0	0	11	0	0	0	11
2031	11	0	0	11	0	0	0	11
2032	11	0	0	11	0	0	0	11
2033	12	0	0	12	0	0	0	12
NOMINAL	203	10	0	213	0	0	0	213
NPV	60	7	0	67	0	0	0	67

Utility Discount Rate: 8.16
Benefit Cost Ratio: NA

Input Data

Measure Name: Attic Insulation R-19

Vintage: Existing Low

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	
Non-Recurring Incentive per Participant:	$75.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	438
Peak Winter KW Reduction:	0.74
Peak Summer KW Reduction:	0.33

Year	Cumulative Participation
2005	80
2006	160
2007	240
2008	320
2009	400
2010	480
2011	560
2012	640
2013	720
2014	800

Measure Name: Attic Insulation R-19
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	6	3	9	-5
2006	3	2	0	0	6	0	0	0	6	6	5	17	-11
2007	7	4	3	0	13	0	0	0	6	6	8	20	-6
2008	10	5	4	0	18	0	0	0	6	6	11	23	-5
2009	12	6	5	0	22	0	0	0	6	6	14	26	-3
2010	10	7	9	0	26	0	0	0	6	6	17	29	-3
2011	11	9	10	0	29	0	0	0	6	6	21	32	-3
2012	14	10	12	0	35	0	0	0	6	6	24	36	0
2013	14	11	13	0	38	0	0	0	6	6	28	39	-1
2014	17	12	12	0	41	0	0	0	6	6	31	43	-2
2015	18	12	13	0	43	0	0	0	0	0	32	32	11
2016	18	12	13	0	43	0	0	0	0	0	33	33	10
2017	19	12	14	0	46	0	0	0	0	0	34	34	12
2018	19	12	14	0	45	0	0	0	0	0	35	35	10
2019	21	12	15	0	48	0	0	0	0	0	35	35	13
2020	20	12	14	0	47	0	0	0	0	0	36	36	10
2021	21	12	15	0	48	0	0	0	0	0	37	37	11
2022	21	12	15	0	49	0	0	0	0	0	38	38	11
2023	21	12	16	0	49	0	0	0	0	0	39	39	10
2024	22	12	16	0	50	0	0	0	0	0	40	40	10
2025	22	12	16	0	50	0	0	0	0	0	41	41	9
2026	22	12	17	0	51	0	0	0	0	0	42	42	9
2027	23	12	17	0	52	0	0	0	0	0	43	43	9
2028	23	12	18	0	53	0	0	0	0	0	44	44	8
2029	23	12	18	0	53	0	0	0	0	0	45	45	8
2030	24	12	18	0	54	0	0	0	0	0	46	46	8
2031	24	12	19	0	55	0	0	0	0	0	48	48	7
2032	25	12	20	0	57	0	0	0	0	0	49	49	8
2033	26	12	20	0	58	0	0	0	0	0	50	50	8
NOMINAL	508	299	375	0	1,181	0	0	0	50	60	930	1,041	141
NPV	149	92	104	0	346	0	0	0	32	40	260	332	13

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.04

Measure Name: Attic Insulation R-19
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	1	0	0	3	0	0	0	0	0	0	3
2006	3	2	0	0	6	0	0	0	0	6	6	0
2007	7	4	3	0	13	0	0	0	0	6	6	8
2008	10	5	4	0	18	0	0	0	0	6	6	13
2009	12	6	5	0	22	0	0	0	0	6	6	17
2010	10	7	9	0	26	0	0	0	0	6	6	20
2011	11	9	10	0	29	0	0	0	0	6	6	24
2012	14	10	12	0	35	0	0	0	0	6	6	30
2013	14	11	13	0	38	0	0	0	0	6	6	32
2014	17	12	12	0	41	0	0	0	0	6	6	35
2015	18	12	13	0	43	0	0	0	0	0	0	43
2016	18	12	13	0	43	0	0	0	0	0	0	43
2017	19	12	14	0	46	0	0	0	0	0	0	46
2018	19	12	14	0	45	0	0	0	0	0	0	45
2019	21	12	15	0	48	0	0	0	0	0	0	48
2020	20	12	14	0	47	0	0	0	0	0	0	47
2021	21	12	15	0	48	0	0	0	0	0	0	48
2022	21	12	15	0	49	0	0	0	0	0	0	49
2023	21	12	16	0	49	0	0	0	0	0	0	49
2024	22	12	16	0	50	0	0	0	0	0	0	50
2025	22	12	16	0	50	0	0	0	0	0	0	50
2026	22	12	17	0	51	0	0	0	0	0	0	51
2027	23	12	17	0	52	0	0	0	0	0	0	52
2028	23	12	18	0	53	0	0	0	0	0	0	53
2029	23	12	18	0	53	0	0	0	0	0	0	53
2030	24	12	18	0	54	0	0	0	0	0	0	54
2031	24	12	19	0	55	0	0	0	0	0	0	55
2032	25	12	20	0	57	0	0	0	0	0	0	57
2033	26	12	20	0	58	0	0	0	0	0	0	58
NOMINAL	508	299	375	0	1,181	0	0	0	0	50	50	1,131
NPV	149	92	104	0	346	0	0	0	0	32	32	313

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **10.76**

Measure Name: Attic Insulation R-19
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	3	6	0	9	0	0	0	9
2006	5	6	0	11	0	0	0	11
2007	8	6	0	14	0	0	0	14
2008	11	6	0	17	0	0	0	17
2009	14	6	0	20	0	0	0	20
2010	17	6	0	23	0	0	0	23
2011	21	6	0	27	0	0	0	27
2012	24	6	0	30	0	0	0	30
2013	28	6	0	34	0	0	0	34
2014	31	6	0	37	0	0	0	37
2015	32	0	0	32	0	0	0	32
2016	33	0	0	33	0	0	0	33
2017	34	0	0	34	0	0	0	34
2018	35	0	0	35	0	0	0	35
2019	35	0	0	35	0	0	0	35
2020	36	0	0	36	0	0	0	36
2021	37	0	0	37	0	0	0	37
2022	38	0	0	38	0	0	0	38
2023	39	0	0	39	0	0	0	39
2024	40	0	0	40	0	0	0	40
2025	41	0	0	41	0	0	0	41
2026	42	0	0	42	0	0	0	42
2027	43	0	0	43	0	0	0	43
2028	44	0	0	44	0	0	0	44
2029	45	0	0	45	0	0	0	45
2030	46	0	0	46	0	0	0	46
2031	48	0	0	48	0	0	0	48
2032	49	0	0	49	0	0	0	49
2033	50	0	0	50	0	0	0	50
NOMINAL	880	60	0	940	0	0	0	940
NPV	260	40	0	300	0	0	0	300

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Attic Insulation R-30

Vintage: Existing Low

		Year	Cumulative Participation
Incremental Participant Cost:	$0.00	2005	5
Incremental Annual O&M Cost:		2006	10
Non-Recurring Incentive per Participant:	$100.00	2007	15
Utility Non-recurring Cost per Participant:	$70.00	2008	20
Utility Recurring Cost per Participant:	$0.00	2009	25
Annual kWh Reduction:	611	2010	30
Peak Winter KW Reduction:	0.94	2011	35
Peak Summer KW Reduction:	0.43	2012	40
		2013	45
		2014	50

Progress Energy Florida, Inc.

Measure Name: Attic Insulation R-30
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	1	0	0	0	1	0	0	0	0	1	0	1	0
2006	0	0	0	0	0	0	0	0	0	1	0	1	-1
2007	1	0	0	0	1	0	0	0	0	1	1	2	-1
2008	1	0	0	0	2	0	0	0	0	1	1	2	0
2009	1	0	0	0	2	0	0	0	0	1	1	2	0
2010	1	1	1	0	2	0	0	0	0	1	1	2	0
2011	1	1	1	0	2	0	0	0	0	1	2	3	0
2012	1	1	1	0	3	0	0	0	0	1	2	3	0
2013	1	1	1	0	3	0	0	0	0	1	2	3	0
2014	2	1	1	0	4	0	0	0	0	1	3	4	0
2015	1	1	1	0	3	0	0	0	0	0	3	3	1
2016	2	1	1	0	4	0	0	0	0	0	3	3	1
2017	2	1	1	0	4	0	0	0	0	0	3	3	1
2018	2	1	1	0	4	0	0	0	0	0	3	3	1
2019	2	1	1	0	4	0	0	0	0	0	3	3	1
2020	2	1	1	0	4	0	0	0	0	0	3	3	1
2021	2	1	1	0	4	0	0	0	0	0	3	3	1
2022	2	1	1	0	4	0	0	0	0	0	3	3	1
2023	2	1	1	0	4	0	0	0	0	0	3	3	0
2024	1	1	1	0	4	0	0	0	0	0	3	3	0
2025	2	1	1	0	4	0	0	0	0	0	4	4	1
2026	2	1	1	0	4	0	0	0	0	0	4	4	1
2027	2	1	1	0	4	0	0	0	0	0	4	4	1
2028	1	1	2	0	4	0	0	0	0	0	4	4	0
2029	2	1	2	0	4	0	0	0	0	0	4	4	0
2030	2	1	2	0	4	0	0	0	0	0	4	4	0
2031	2	1	2	0	4	0	0	0	0	0	4	4	0
2032	2	1	2	0	4	0	0	0	0	0	4	4	0
2033	3	1	2	0	5	0	0	0	0	0	4	4	1
NOMINAL	42	24	31	0	97	0	0	0	3	5	81	89	7
NPV	13	7	9	0	29	0	0	0	2	3	23	28	1

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.03**

Measure Name: Attic Insulation R-30
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	1	0	0	0	1	0	0	0	0	0	0	1
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	1	0	0	0	1	0	0	0	0	0	0	1
2008	1	0	0	0	2	0	0	0	0	0	0	1
2009	1	0	0	0	2	0	0	0	0	0	0	2
2010	1	1	1	0	2	0	0	0	0	0	0	2
2011	1	1	1	0	2	0	0	0	0	0	0	2
2012	1	1	1	0	3	0	0	0	0	0	0	3
2013	1	1	1	0	3	0	0	0	0	0	0	2
2014	2	1	1	0	4	0	0	0	0	0	0	3
2015	1	1	1	0	3	0	0	0	0	0	0	3
2016	2	1	1	0	4	0	0	0	0	0	0	4
2017	2	1	1	0	4	0	0	0	0	0	0	4
2018	2	1	1	0	4	0	0	0	0	0	0	4
2019	2	1	1	0	4	0	0	0	0	0	0	4
2020	2	1	1	0	4	0	0	0	0	0	0	4
2021	2	1	1	0	4	0	0	0	0	0	0	4
2022	2	1	1	0	4	0	0	0	0	0	0	4
2023	2	1	1	0	4	0	0	0	0	0	0	4
2024	1	1	1	0	4	0	0	0	0	0	0	4
2025	2	1	1	0	4	0	0	0	0	0	0	4
2026	2	1	1	0	4	0	0	0	0	0	0	4
2027	2	1	1	0	4	0	0	0	0	0	0	4
2028	1	1	2	0	4	0	0	0	0	0	0	4
2029	2	1	2	0	4	0	0	0	0	0	0	4
2030	2	1	2	0	4	0	0	0	0	0	0	4
2031	2	1	2	0	4	0	0	0	0	0	0	4
2032	2	1	2	0	4	0	0	0	0	0	0	4
2033	3	1	2	0	5	0	0	0	0	0	0	5
NOMINAL	42	24	31	0	97	0	0	0	0	3	3	94
NPV	13	7	9	0	29	0	0	0	0	2	2	27

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **14.33**

Measure Name: Attic Insulation R-30
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	1	0	1	0	0	0	1
2006	0	1	0	1	0	0	0	1
2007	1	1	0	1	0	0	0	1
2008	1	1	0	1	0	0	0	1
2009	1	1	0	2	0	0	0	2
2010	1	1	0	2	0	0	0	2
2011	2	1	0	2	0	0	0	2
2012	2	1	0	3	0	0	0	3
2013	2	1	0	3	0	0	0	3
2014	3	1	0	3	0	0	0	3
2015	3	0	0	3	0	0	0	3
2016	3	0	0	3	0	0	0	3
2017	3	0	0	3	0	0	0	3
2018	3	0	0	3	0	0	0	3
2019	3	0	0	3	0	0	0	3
2020	3	0	0	3	0	0	0	3
2021	3	0	0	3	0	0	0	3
2022	3	0	0	3	0	0	0	3
2023	3	0	0	3	0	0	0	3
2024	3	0	0	3	0	0	0	3
2025	4	0	0	4	0	0	0	4
2026	4	0	0	4	0	0	0	4
2027	4	0	0	4	0	0	0	4
2028	4	0	0	4	0	0	0	4
2029	4	0	0	4	0	0	0	4
2030	4	0	0	4	0	0	0	4
2031	4	0	0	4	0	0	0	4
2032	4	0	0	4	0	0	0	4
2033	4	0	0	4	0	0	0	4
NOMINAL	77	5	0	82	0	0	0	82
NPV	23	3	0	26	0	0	0	26

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Heat Pump Strip to 12

Vintage: Existing Low

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$12,800.00
Non-Recurring Incentive per Participant:	$250.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1628
Peak Winter KW Reduction:	3.1
Peak Summer KW Reduction:	0.62

Year	Cumulative Participation
2005	40
2006	80
2007	120
2008	160
2009	200
2010	240
2011	280
2012	320
2013	360
2014	400

Measure Name: Heat Pump Strip to 12
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	3	0	0	6	0	0	0	0	10	5	15	-9
2006	6	5	0	0	11	0	0	0	3	10	10	23	-12
2007	11	8	3	0	22	0	0	0	3	10	15	28	-7
2008	15	10	4	0	29	0	0	0	3	10	21	33	-4
2009	19	13	5	0	37	0	0	0	3	10	26	39	-2
2010	17	15	10	0	42	0	0	0	3	10	32	45	-2
2011	20	18	11	0	49	0	0	0	3	10	38	51	-2
2012	23	21	14	0	58	0	0	0	3	10	45	57	0
2013	25	23	14	0	63	0	0	0	3	10	51	64	-1
2014	30	26	14	0	70	0	0	0	3	10	58	71	-1
2015	31	26	15	0	72	0	0	0	0	0	60	60	13
2016	32	26	13	0	71	0	0	0	0	0	61	61	10
2017	32	26	15	0	73	0	0	0	0	0	63	63	11
2018	33	26	16	0	75	0	0	0	0	0	64	64	11
2019	35	26	18	0	78	0	0	0	0	0	66	66	13
2020	35	26	17	0	78	0	0	0	0	0	67	67	10
2021	35	26	18	0	78	0	0	0	0	0	69	69	9
2022	36	26	18	0	80	0	0	0	0	0	71	71	9
2023	37	26	19	0	81	0	0	0	0	0	73	73	8
2024	39	26	19	0	83	0	0	0	0	0	74	74	9
2025	37	26	19	0	82	0	0	0	0	0	76	76	6
2026	38	26	20	0	84	0	0	0	0	0	78	78	6
2027	39	26	20	0	86	0	0	0	0	0	80	80	5
2028	41	26	21	0	88	0	0	0	0	0	82	82	5
2029	40	26	21	0	87	0	0	0	0	0	84	84	3
2030	42	26	22	0	89	0	0	0	0	0	86	86	3
2031	41	26	22	0	90	0	0	0	0	0	89	89	1
2032	45	26	23	0	94	0	0	0	0	0	91	91	3
2033	45	26	24	0	94	0	0	0	0	0	93	93	1
NOMINAL	879	632	437	0	1,948	0	0	0	25	100	1,729	1,854	94
NPV	256	195	120	0	571	0	0	0	16	67	483	566	4

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.01**

Measure Name: Heat Pump Strip to 12
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	3	3	0	0	6	0	0	0	0	0	0	6
2006	6	5	0	0	11	0	0	0	0	3	3	8
2007	11	8	3	0	22	0	0	0	0	3	3	19
2008	15	10	4	0	29	0	0	0	0	3	3	27
2009	19	13	5	0	37	0	0	0	0	3	3	34
2010	17	15	10	0	42	0	0	0	0	3	3	39
2011	20	18	11	0	49	0	0	0	0	3	3	46
2012	23	21	14	0	58	0	0	0	0	3	3	55
2013	25	23	14	0	63	0	0	0	0	3	3	60
2014	30	26	14	0	70	0	0	0	0	3	3	67
2015	31	26	15	0	72	0	0	0	0	0	0	72
2016	32	26	13	0	71	0	0	0	0	0	0	71
2017	32	26	15	0	73	0	0	0	0	0	0	73
2018	33	26	16	0	75	0	0	0	0	0	0	75
2019	35	26	18	0	78	0	0	0	0	0	0	78
2020	35	26	17	0	78	0	0	0	0	0	0	78
2021	35	26	18	0	78	0	0	0	0	0	0	78
2022	36	26	18	0	80	0	0	0	0	0	0	80
2023	37	26	19	0	81	0	0	0	0	0	0	81
2024	39	26	19	0	83	0	0	0	0	0	0	83
2025	37	26	19	0	82	0	0	0	0	0	0	82
2026	38	26	20	0	84	0	0	0	0	0	0	84
2027	39	26	20	0	86	0	0	0	0	0	0	86
2028	41	26	21	0	88	0	0	0	0	0	0	88
2029	40	26	21	0	87	0	0	0	0	0	0	87
2030	42	26	22	0	89	0	0	0	0	0	0	89
2031	41	26	22	0	90	0	0	0	0	0	0	90
2032	45	26	23	0	94	0	0	0	0	0	0	94
2033	45	26	24	0	94	0	0	0	0	0	0	94
NOMINAL	879	632	437	0	1,948	0	0	0	0	25	25	1,923
NPV	256	195	120	0	571	0	0	0	0	16	16	555

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **35.52**

Measure Name: Heat Pump Strip to 12
Vintage: Existing Low

PARTICIPANT TEST

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	5	10	0	15	0	0	0	15
2006	10	10	0	20	0	0	0	20
2007	15	10	0	25	0	0	0	25
2008	21	10	0	31	0	0	0	31
2009	26	10	0	36	0	0	0	36
2010	32	10	0	42	0	0	0	42
2011	38	10	0	48	0	0	0	48
2012	45	10	0	55	0	0	0	55
2013	51	10	0	61	0	0	0	61
2014	58	10	0	68	0	0	0	68
2015	60	0	0	60	0	0	0	60
2016	61	0	0	61	0	0	0	61
2017	63	0	0	63	0	0	0	63
2018	64	0	0	64	0	0	0	64
2019	66	0	0	66	0	0	0	66
2020	67	0	0	67	0	0	0	67
2021	69	0	0	69	0	0	0	69
2022	71	0	0	71	0	0	0	71
2023	73	0	0	73	0	0	0	73
2024	74	0	0	74	0	0	0	74
2025	76	0	0	76	0	0	0	76
2026	78	0	0	78	0	0	0	78
2027	80	0	0	80	0	0	0	80
2028	82	0	0	82	0	0	0	82
2029	84	0	0	84	0	0	0	84
2030	86	0	0	86	0	0	0	86
2031	89	0	0	89	0	0	0	89
2032	91	0	0	91	0	0	0	91
2033	93	0	0	93	0	0	0	93
NOMINAL	1,636	100	0	1,736	0	0	0	1,736
NPV	483	67	0	550	0	0	0	550

Utility Discount Rate: 8.16
Benefit Cost Ratio: NA

Input Data

Measure Name: Heat Pump Strip to 13

Vintage: Existing Low

		Year	Cumulative Participation
Incremental Participant Cost:	$0.00	2005	1
Incremental Annual O&M Cost:	$0.00	2006	2
Non-Recurring Incentive per Participant:	$350.00	2007	3
Utility Non-recurring Cost per Participant:	$70.00	2008	4
Utility Recurring Cost per Participant:	$0.00	2009	5
Annual kWh Reduction:	1877	2010	6
Peak Winter KW Reduction:	3.16	2011	7
Peak Summer KW Reduction:	0.82	2012	8
		2013	9
		2014	10

Measure Name: Heat Pump Strip to 13
Vintage: Existing Low

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	1	0
2007	0	0	0	0	1	0	0	0	0	0	0	1	0
2008	1	0	0	0	1	0	0	0	0	0	1	1	0
2009	1	0	0	0	1	0	0	0	0	0	1	1	0
2010	1	0	0	0	1	0	0	0	0	0	1	1	0
2011	1	0	0	0	2	0	0	0	0	0	1	2	0
2012	1	1	0	0	2	0	0	0	0	0	1	2	0
2013	1	1	0	0	2	0	0	0	0	0	1	2	0
2014	1	1	0	0	2	0	0	0	0	0	2	2	0
2015	1	1	1	0	2	0	0	0	0	0	2	2	0
2016	1	1	0	0	1	0	0	0	0	0	2	2	0
2017	1	1	0	0	2	0	0	0	0	0	2	2	0
2018	1	1	1	0	2	0	0	0	0	0	2	2	0
2019	1	1	1	0	2	0	0	0	0	0	2	2	1
2020	1	1	1	0	2	0	0	0	0	0	2	2	0
2021	1	1	1	0	2	0	0	0	0	0	2	2	0
2022	1	1	1	0	3	0	0	0	0	0	2	2	0
2023	1	1	0	0	2	0	0	0	0	0	2	2	0
2024	1	1	1	0	2	0	0	0	0	0	2	2	0
2025	1	1	1	0	2	0	0	0	0	0	2	2	0
2026	1	1	1	0	2	0	0	0	0	0	2	2	0
2027	1	1	1	0	2	0	0	0	0	0	2	2	-1
2028	1	1	1	0	2	0	0	0	0	0	2	2	0
2029	1	1	1	0	2	0	0	0	0	0	2	2	0
2030	2	1	1	0	3	0	0	0	0	0	2	2	0
2031	1	1	1	0	2	0	0	0	0	0	3	3	0
2032	1	1	1	0	2	0	0	0	0	0	3	3	0
2033	1	1	1	0	3	0	0	0	0	0	3	3	0
NOMINAL	22	16	13	0	51	0	0	0	1	4	50	54	-3
NPV	7	5	3	0	16	0	0	0	0	2	14	17	-1

Utility Discount Rate: 8.16
Benefit Cost Ratio: 0.94

Measure Name: Heat Pump Strip to 13
Vintage: Existing Low

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	1	0	0	0	0	0	0	0
2008	1	0	0	0	1	0	0	0	0	0	0	1
2009	1	0	0	0	1	0	0	0	0	0	0	1
2010	1	0	0	0	1	0	0	0	0	0	0	1
2011	1	0	0	0	2	0	0	0	0	0	0	1
2012	1	1	0	0	2	0	0	0	0	0	0	2
2013	1	1	0	0	2	0	0	0	0	0	0	1
2014	1	1	0	0	2	0	0	0	0	0	0	2
2015	1	1	1	0	2	0	0	0	0	0	0	2
2016	1	1	0	0	1	0	0	0	0	0	0	1
2017	1	1	0	0	2	0	0	0	0	0	0	2
2018	1	1	1	0	2	0	0	0	0	0	0	2
2019	1	1	1	0	2	0	0	0	0	0	0	2
2020	1	1	1	0	2	0	0	0	0	0	0	2
2021	1	1	1	0	2	0	0	0	0	0	0	2
2022	1	1	1	0	3	0	0	0	0	0	0	3
2023	1	1	0	0	2	0	0	0	0	0	0	2
2024	1	1	1	0	2	0	0	0	0	0	0	2
2025	1	1	1	0	2	0	0	0	0	0	0	2
2026	1	1	1	0	2	0	0	0	0	0	0	2
2027	1	1	1	0	2	0	0	0	0	0	0	2
2028	1	1	1	0	2	0	0	0	0	0	0	2
2029	1	1	1	0	2	0	0	0	0	0	0	2
2030	2	1	1	0	3	0	0	0	0	0	0	3
2031	1	1	1	0	2	0	0	0	0	0	0	2
2032	1	1	1	0	2	0	0	0	0	0	0	2
2033	1	1	1	0	3	0	0	0	0	0	0	3
NOMINAL	22	16	13	0	51	0	0	0	0	1	1	51
NPV	7	5	3	0	16	0	0	0	0	0	0	15

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **38.80**

Measure Name: Heat Pump Strip to 13
Vintage: Existing Low

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S **BILL** INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	1	0	0	0	1
2007	0	0	0	1	0	0	0	1
2008	1	0	0	1	0	0	0	1
2009	1	0	0	1	0	0	0	1
2010	1	0	0	1	0	0	0	1
2011	1	0	0	1	0	0	0	1
2012	1	0	0	2	0	0	0	2
2013	1	0	0	2	0	0	0	2
2014	2	0	0	2	0	0	0	2
2015	2	0	0	2	0	0	0	2
2016	2	0	0	2	0	0	0	2
2017	2	0	0	2	0	0	0	2
2018	2	0	0	2	0	0	0	2
2019	2	0	0	2	0	0	0	2
2020	2	0	0	2	0	0	0	2
2021	2	0	0	2	0	0	0	2
2022	2	0	0	2	0	0	0	2
2023	2	0	0	2	0	0	0	2
2024	2	0	0	2	0	0	0	2
2025	2	0	0	2	0	0	0	2
2026	2	0	0	2	0	0	0	2
2027	2	0	0	2	0	0	0	2
2028	2	0	0	2	0	0	0	2
2029	2	0	0	2	0	0	0	2
2030	2	0	0	2	0	0	0	2
2031	3	0	0	3	0	0	0	3
2032	3	0	0	3	0	0	0	3
2033	3	0	0	3	0	0	0	3
NOMINAL	47	4	0	51	0	0	0	51
NPV	14	2	0	16	0	0	0	16

Utility Discount Rate:
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Water Heater Wrap

Vintage: Existing

Incremental Participant Cost:	$0.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$25.00
Utility Non-recurring Cost per Participant:	$70.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	167
Peak Winter KW Reduction:	0.03
Peak Summer KW Reduction:	0.01

Year	Cumulative Participation
2005	100
2006	200
2007	300
2008	400
2009	500
2010	600
2011	700
2012	800
2013	900
2014	1,000

Measure Name: Water Heater Wrap
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	**TOTAL BENEFITS**	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	0	0	0	2	0	0	0	0	3	3	6	-3
2006	3	1	0	0	3	0	0	0	7	3	6	15	-12
2007	5	1	0	0	6	0	0	0	7	3	9	19	-13
2008	6	1	1	0	8	0	0	0	7	3	12	22	-14
2009	8	2	1	0	10	0	0	0	7	3	16	25	-15
2010	9	2	1	0	12	0	0	0	7	3	19	29	-17
2011	11	2	1	0	14	0	0	0	7	3	23	32	-18
2012	12	3	2	0	17	0	0	0	7	3	26	36	-19
2013	14	3	2	0	19	0	0	0	7	3	30	40	-21
2014	16	3	1	0	21	0	0	0	7	3	35	44	-23
2015	16	3	2	0	21	0	0	0	0	0	35	35	-14
2016	12	3	2	0	18	0	0	0	0	0	30	30	-13
2017	17	3	2	0	22	0	0	0	0	0	37	37	-15
2018	17	3	2	0	22	0	0	0	0	0	38	38	-16
2019	18	3	2	0	23	0	0	0	0	0	39	39	-16
2020	18	3	2	0	24	0	0	0	0	0	40	40	-17
2021	19	3	2	0	24	0	0	0	0	0	41	41	-17
2022	19	3	3	0	24	0	0	0	0	0	42	42	-18
2023	18	3	3	0	24	0	0	0	0	0	42	42	-18
2024	19	3	3	0	25	0	0	0	0	0	44	44	-19
2025	19	3	3	0	25	0	0	0	0	0	45	45	-20
2026	21	3	3	0	27	0	0	0	0	0	47	47	-20
2027	20	3	3	0	26	0	0	0	0	0	48	48	-21
2028	21	3	3	0	27	0	0	0	0	0	49	49	-22
2029	21	3	3	0	27	0	0	0	0	0	50	50	-23
2030	22	3	3	0	29	0	0	0	0	0	51	51	-23
2031	22	3	3	0	28	0	0	0	0	0	53	53	-24
2032	24	3	3	0	30	0	0	0	0	0	54	54	-24
2033	23	3	3	0	30	0	0	0	0	0	55	55	-25
NOMINAL	448	85	60	0	592	0	0	0	63	25	1,021	1,109	-517
NPV	128	26	16	0	170	0	0	0	40	17	285	342	-171

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.50**

Measure Name: Water Heater Wrap
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	2	0	0	0	2	0	0	0	0	0	0	2
2006	3	1	0	0	3	0	0	0	0	7	7	-4
2007	5	1	0	0	6	0	0	0	0	7	7	-1
2008	6	1	1	0	8	0	0	0	0	7	7	1
2009	8	2	1	0	10	0	0	0	0	7	7	3
2010	9	2	1	0	12	0	0	0	0	7	7	5
2011	11	2	1	0	14	0	0	0	0	7	7	7
2012	12	3	2	0	17	0	0	0	0	7	7	10
2013	14	3	2	0	19	0	0	0	0	7	7	12
2014	16	3	1	0	21	0	0	0	0	7	7	14
2015	16	3	2	0	21	0	0	0	0	0	0	21
2016	12	3	2	0	18	0	0	0	0	0	0	
2017	17	3	2	0	22	0	0	0	0	0	0	22
2018	17	3	2	0	22	0	0	0	0	0	0	22
2019	18	3	2	0	23	0	0	0	0	0	0	23
2020	18	3	2	0	24	0	0	0	0	0	0	24
2021	19	3	2	0	24	0	0	0	0	0	0	24
2022	19	3	3	0	24	0	0	0	0	0	0	24
2023	18	3	3	0	24	0	0	0	0	0	0	24
2024	19	3	3	0	25	0	0	0	0	0	0	25
2025	19	3	3	0	25	0	0	0	0	0	0	25
2026	21	3	3	0	27	0	0	0	0	0	0	27
2027	20	3	3	0	26	0	0	0	0	0	0	26
2028	21	3	3	0	27	0	0	0	0	0	0	27
2029	21	3	3	0	27	0	0	0	0	0	0	27
2030	22	3	3	0	29	0	0	0	0	0	0	29
2031	22	3	3	0	28	0	0	0	0	0	0	28
2032	24	3	3	0	30	0	0	0	0	0	0	30
2033	23	3	3	0	30	0	0	0	0	0	0	30
NOMINAL	448	85	60	0	592					63	63	529
NPV	128	26	16	0	170	0	0	0	0	40	40	130

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **4.24**

Measure Name: Water Heater Wrap
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	3	3	0	6	0	0	0	6
2006	6	3	0	8	0	0	0	8
2007	9	3	0	12	0	0	0	12
2008	12	3	0	15	0	0	0	15
2009	16	3	0	18	0	0	0	18
2010	19	3	0	22	0	0	0	22
2011	23	3	0	25	0	0	0	25
2012	26	3	0	29	0	0	0	29
2013	30	3	0	33	0	0	0	33
2014	35	3	0	37	0	0	0	37
2015	35	0	0	35	0	0	0	35
2016	30	0	0	30	0	0	0	30
2017	37	0	0	37	0	0	0	37
2018	38	0	0	38	0	0	0	38
2019	39	0	0	39	0	0	0	39
2020	40	0	0	40	0	0	0	40
2021	41	0	0	41	0	0	0	41
2022	42	0	0	42	0	0	0	42
2023	42	0	0	42	0	0	0	42
2024	44	0	0	44	0	0	0	44
2025	45	0	0	45	0	0	0	45
2026	47	0	0	47	0	0	0	47
2027	48	0	0	48	0	0	0	48
2028	49	0	0	49	0	0	0	49
2029	50	0	0	50	0	0	0	50
2030	51	0	0	51	0	0	0	51
2031	53	0	0	53	0	0	0	53
2032	54	0	0	54	0	0	0	54
2033	55	0	0	55	0	0	0	55
NOMINAL	966	25	0	991	0	0	0	991
NPV	285	17	0	301	0	0	0	301

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **NA**

Input Data

Measure Name: Reduced Duct Leakage Existin

Vintage: New

Incremental Participant Cost:	$125.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$61.15
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	374
Peak Winter KW Reduction:	0.99
Peak Summer KW Reduction:	0.26

Year	Cumulative Participation
2005	10,100
2006	21,631
2007	32,946
2008	44,488
2009	55,953
2010	67,072
2011	77,626
2012	87,226
2013	95,876
2014	103,576

Measure Name: Reduced Duct Leakage Existing Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	TOTAL BENEFITS	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	TOTAL COSTS	NET BENEFITS
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	140	166	0	0	306	0	0	0	315	0	189	504	-198
2006	267	332	0	0	599	0	0	0	315	0	394	709	-110
2007	475	498	193	0	1,165	0	0	0	315	0	548	863	302
2008	636	663	267	0	1,566	0	0	0	315	0	746	1,061	505
2009	795	829	312	0	1,936	0	0	0	315	0	934	1,249	687
2010	675	995	575	0	2,245	0	0	0	315	0	1,159	1,474	770
2011	696	1,161	685	0	2,541	0	0	0	315	0	1,376	1,691	850
2012	911	1,327	804	0	3,041	0	0	0	315	0	1,619	1,934	1,107
2013	949	1,493	899	0	3,341	0	0	0	315	0	1,841	2,156	1,184
2014	1,139	1,658	835	0	3,633	0	0	0	315	0	2,105	2,420	1,213
2015	1,226	1,658	943	0	3,827	0	0	0	0	0	2,156	2,156	1,671
2016	1,225	1,658	894	0	3,777	0	0	0	0	0	2,208	2,208	1,569
2017	1,306	1,658	990	0	3,954	0	0	0	0	0	2,266	2,266	1,688
2018	1,301	1,658	969	0	3,928	0	0	0	0	0	2,323	2,323	1,604
2019	1,378	1,658	1,055	0	4,091	0	0	0	0	0	2,369	2,369	1,723
2020	1,359	1,658	1,030	0	4,048	0	0	0	0	0	2,430	2,430	1,618
2021	1,385	1,658	1,057	0	4,100	0	0	0	0	0	2,502	2,502	1,598
2022	1,420	1,658	1,083	0	4,161	0	0	0	0	0	2,561	2,561	1,600
2023	1,444	1,658	1,110	0	4,212	0	0	0	0	0	2,627	2,627	1,585
2024	1,469	1,658	1,137	0	4,264	0	0	0	0	0	2,687	2,687	1,578
2025	1,490	1,658	1,166	0	4,315	0	0	0	0	0	2,760	2,760	1,555
2026	1,521	1,658	1,196	0	4,375	0	0	0	0	0	2,832	2,832	1,543
2027	1,535	1,658	1,205	0	4,398	0	0	0	0	0	2,902	2,902	1,496
2028	1,569	1,658	1,256	0	4,483	0	0	0	0	0	2,973	2,973	1,510
2029	1,577	1,658	1,269	0	4,505	0	0	0	0	0	3,046	3,046	1,458
2030	1,620	1,658	1,320	0	4,598	0	0	0	0	0	3,120	3,120	1,478
2031	1,630	1,658	1,334	0	4,622	0	0	0	0	0	3,201	3,201	1,421
2032	1,678	1,658	1,386	0	4,722	0	0	0	0	0	3,283	3,283	1,440
2033	1,688	1,658	1,401	0	4,747	0	0	0	0	0	3,365	3,365	1,382
NOMINAL	34,500	40,630	26,371	0	101,501	0	0	0	3,150	0	62,524	65,674	35,827
NPV	10,125	12,554	7,278	0	29,957	0	0	0	2,099	0	17,492	19,590	10,367

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.53

Measure Name: Reduced Duct Leakage Existing Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST **$(000)**	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	140	166	0	0	306	1,890	0	0	0	315	2,205	-1,899
2006	267	332	0	0	599	1,890	0	0	0	315	2,205	-1,606
2007	475	498	193	0	1,165	1,890	0	0	0	315	2,205	-1,040
2008	636	663	267	0	1,566	1,890	0	0	0	315	2,205	-639
2009	795	829	312	0	1,936	1,890	0	0	0	315	2,205	-269
2010	675	995	575	0	2,245	1,890	0	0	0	315	2,205	40
2011	696	1,161	685	0	2,541	1,890	0	0	0	315	2,205	336
2012	911	1,327	804	0	3,041	1,890	0	0	0	315	2,205	836
2013	949	1,493	899	0	3,341	1,890	0	0	0	315	2,205	1,136
2014	1,139	1,658	835	0	3,633	1,890	0	0	0	315	2,205	1,428
2015	1,226	1,658	943	0	3,827	0	0	0	0	0	0	3,827
2016	1,225	1,658	894	0	3,777	0	0	0	0	0	0	3,777
2017	1,306	1,658	990	0	3,954	0	0	0	0	0	0	3,954
2018	1,301	1,658	969	0	3,928	0	0	0	0	0	0	3,928
2019	1,378	1,658	1,055	0	4,091	0	0	0	0	0	0	4,091
2020	1,359	1,658	1,030	0	4,048	0	0	0	0	0	0	4,048
2021	1,385	1,658	1,057	0	4,100	0	0	0	0	0	0	4,100
2022	1,420	1,658	1,083	0	4,161	0	0	0	0	0	0	4,161
2023	1,444	1,658	1,110	0	4,212	0	0	0	0	0	0	4,212
2024	1,469	1,658	1,137	0	4,264	0	0	0	0	0	0	4,264
2025	1,490	1,658	1,166	0	4,315	0	0	0	0	0	0	4,315
2026	1,521	1,658	1,196	0	4,375	0	0	0	0	0	0	4,375
2027	1,535	1,658	1,205	0	4,398	0	0	0	0	0	0	4,398
2028	1,569	1,658	1,256	0	4,483	0	0	0	0	0	0	4,483
2029	1,577	1,658	1,269	0	4,505	0	0	0	0	0	0	4,505
2030	1,620	1,658	1,320	0	4,598	0	0	0	0	0	0	4,598
2031	1,630	1,658	1,334	0	4,622	0	0	0	0	0	0	4,622
2032	1,678	1,658	1,386	0	4,722	0	0	0	0	0	0	4,722
2033	1,688	1,658	1,401	0	4,747	0	0	0	0	0	0	4,747
NOMINAL	34,500	40,630	26,371	0	101,501	18,900	0	0	0	3,150	22,050	79,451
NPV	10,125	12,554	7,278	0	29,957	12,591	0	0	0	2,099	14,690	15,268

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.04**

Measure Name: Reduced Duct Leakage Existing Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	189	0	0	189	1,890	0	1,890	-1,701
2006	394	0	0	394	1,890	0	1,890	-1,496
2007	548	0	0	548	1,890	0	1,890	-1,342
2008	746	0	0	746	1,890	0	1,890	-1,144
2009	934	0	0	934	1,890	0	1,890	-956
2010	1,159	0	0	1,159	1,890	0	1,890	-731
2011	1,376	0	0	1,376	1,890	0	1,890	-514
2012	1,619	0	0	1,619	1,890	0	1,890	-271
2013	1,841	0	0	1,841	1,890	0	1,890	-49
2014	2,105	0	0	2,105	1,890	0	1,890	215
2015	2,156	0	0	2,156	0	0	0	2,156
2016	2,208	0	0	2,208	0	0	0	2,208
2017	2,266	0	0	2,266	0	0	0	2,266
2018	2,323	0	0	2,323	0	0	0	2,323
2019	2,369	0	0	2,369	0	0	0	2,369
2020	2,430	0	0	2,430	0	0	0	2,430
2021	2,502	0	0	2,502	0	0	0	2,502
2022	2,561	0	0	2,561	0	0	0	2,561
2023	2,627	0	0	2,627	0	0	0	2,627
2024	2,687	0	0	2,687	0	0	0	2,687
2025	2,760	0	0	2,760	0	0	0	2,760
2026	2,832	0	0	2,832	0	0	0	2,832
2027	2,902	0	0	2,902	0	0	0	2,902
2028	2,973	0	0	2,973	0	0	0	2,973
2029	3,046	0	0	3,046	0	0	0	3,046
2030	3,120	0	0	3,120	0	0	0	3,120
2031	3,201	0	0	3,201	0	0	0	3,201
2032	3,283	0	0	3,283	0	0	0	3,283
2033	3,365	0	0	3,365	0	0	0	3,365
NOMINAL	59,159	0	0	59,159	18,900	0	18,900	40,259
NPV	17,492	0	0	17,492	12,591	0	12,591	4,901

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.39**

Input Data

Measure Name: Reduced Duct Leakage New C

Vintage: New

Incremental Participant Cost:	$125.00
Incremental Annual O&M Cost:	0
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$61.15
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	298
Peak Winter KW Reduction:	0.85
Peak Summer KW Reduction:	0.19

Year	Cumulative Participation
2005	10,100
2006	21,631
2007	32,946
2008	44,488
2009	55,953
2010	67,072
2011	77,626
2012	87,226
2013	95,876
2014	103,576

Measure Name: Reduced Duct Leakage New Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	112	142	0	0	254	0	0	0	315	0	151	466	-212
2006	219	285	0	0	504	0	0	0	315	0	320	635	-131
2007	375	427	148	0	950	0	0	0	315	0	438	753	198
2008	499	570	203	0	1,272	0	0	0	315	0	594	909	362
2009	624	712	240	0	1,577	0	0	0	315	0	743	1,058	519
2010	519	854	435	0	1,809	0	0	0	315	0	904	1,219	590
2011	563	997	502	0	2,062	0	0	0	315	0	1,098	1,413	650
2012	728	1,139	606	0	2,472	0	0	0	315	0	1,296	1,611	861
2013	747	1,282	716	0	2,745	0	0	0	315	0	1,465	1,780	965
2014	906	1,424	639	0	2,969	0	0	0	315	0	1,677	1,992	977
2015	974	1,424	703	0	3,101	0	0	0	0	0	1,719	1,719	1,382
2016	972	1,424	687	0	3,082	0	0	0	0	0	1,760	1,760	1,322
2017	1,034	1,424	763	0	3,221	0	0	0	0	0	1,805	1,805	1,415
2018	1,032	1,424	746	0	3,202	0	0	0	0	0	1,851	1,851	1,350
2019	1,089	1,424	815	0	3,328	0	0	0	0	0	1,885	1,885	1,443
2020	1,076	1,424	796	0	3,297	0	0	0	0	0	1,936	1,936	1,361
2021	1,096	1,424	817	0	3,337	0	0	0	0	0	1,994	1,994	1,344
2022	1,123	1,424	854	0	3,401	0	0	0	0	0	2,040	2,040	1,361
2023	1,143	1,424	858	0	3,425	0	0	0	0	0	2,093	2,093	1,332
2024	1,164	1,424	879	0	3,467	0	0	0	0	0	2,139	2,139	1,328
2025	1,180	1,424	902	0	3,506	0	0	0	0	0	2,199	2,199	1,307
2026	1,206	1,424	924	0	3,554	0	0	0	0	0	2,256	2,256	1,297
2027	1,216	1,424	945	0	3,585	0	0	0	0	0	2,312	2,312	1,273
2028	1,244	1,424	970	0	3,638	0	0	0	0	0	2,368	2,368	1,270
2029	1,249	1,424	1,000	0	3,672	0	0	0	0	0	2,428	2,428	1,245
2030	1,285	1,424	1,020	0	3,729	0	0	0	0	0	2,485	2,485	1,244
2031	1,291	1,424	1,051	0	3,766	0	0	0	0	0	2,550	2,550	1,216
2032	1,332	1,424	1,071	0	3,827	0	0	0	0	0	2,616	2,616	1,211
2033	1,338	1,424	1,104	0	3,865	0	0	0	0	0	2,681	2,681	1,184
NOMINAL	27,333	34,885	20,398	0	82,616	0	0	0	3,150	0	49,802	52,952	29,664
NPV	8,021	10,779	5,600	0	24,399	0	0	0	2,099	0	13,931	16,030	8,369

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.52

Measure Name: Reduced Duct Leakage New Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	112	142	0	0	254	1,890	0	0	0	315	2,205	-1,951
2006	219	285	0	0	504	1,890	0	0	0	315	2,205	-1,701
2007	375	427	148	0	950	1,890	0	0	0	315	2,205	-1,255
2008	499	570	203	0	1,272	1,890	0	0	0	315	2,205	-933
2009	624	712	240	0	1,577	1,890	0	0	0	315	2,205	-628
2010	519	854	435	0	1,809	1,890	0	0	0	315	2,205	-396
2011	563	997	502	0	2,062	1,890	0	0	0	315	2,205	-143
2012	728	1,139	606	0	2,472	1,890	0	0	0	315	2,205	267
2013	747	1,282	716	0	2,745	1,890	0	0	0	315	2,205	540
2014	906	1,424	639	0	2,969	1,890	0	0	0	315	2,205	764
2015	974	1,424	703	0	3,101	0	0	0	0	0	0	3,101
2016	972	1,424	687	0	3,082	0	0	0	0	0	0	3,082
2017	1,034	1,424	763	0	3,221	0	0	0	0	0	0	3,221
2018	1,032	1,424	746	0	3,202	0	0	0	0	0	0	3,202
2019	1,089	1,424	815	0	3,328	0	0	0	0	0	0	3,328
2020	1,076	1,424	796	0	3,297	0	0	0	0	0	0	3,297
2021	1,096	1,424	817	0	3,337	0	0	0	0	0	0	3,337
2022	1,123	1,424	854	0	3,401	0	0	0	0	0	0	3,401
2023	1,143	1,424	858	0	3,425	0	0	0	0	0	0	3,425
2024	1,164	1,424	879	0	3,467	0	0	0	0	0	0	3,467
2025	1,180	1,424	902	0	3,506	0	0	0	0	0	0	3,506
2026	1,206	1,424	924	0	3,554	0	0	0	0	0	0	3,554
2027	1,216	1,424	945	0	3,585	0	0	0	0	0	0	3,585
2028	1,244	1,424	970	0	3,638	0	0	0	0	0	0	3,638
2029	1,249	1,424	1,000	0	3,672	0	0	0	0	0	0	3,672
2030	1,285	1,424	1,020	0	3,729	0	0	0	0	0	0	3,729
2031	1,291	1,424	1,051	0	3,766	0	0	0	0	0	0	3,766
2032	1,332	1,424	1,071	0	3,827	0	0	0	0	0	0	3,827
2033	1,338	1,424	1,104	0	3,865	0	0	0	0	0	0	3,865
NOMINAL	27,333	34,885	20,398	0	82,616	18,900	0	0	0	3,150	22,050	60,566
NPV	8,021	10,779	5,600	0	24,399	12,591	0	0	0	2,099	14,690	9,710

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.66**

Measure Name: Reduced Duct Leakage New Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	151	0	0	151	1,890	0	1,890	-1,739
2006	320	0	0	320	1,890	0	1,890	-1,570
2007	438	0	0	438	1,890	0	1,890	-1,452
2008	594	0	0	594	1,890	0	1,890	-1,296
2009	743	0	0	743	1,890	0	1,890	-1,147
2010	904	0	0	904	1,890	0	1,890	-986
2011	1,098	0	0	1,098	1,890	0	1,890	-792
2012	1,296	0	0	1,296	1,890	0	1,890	-594
2013	1,465	0	0	1,465	1,890	0	1,890	-425
2014	1,677	0	0	1,677	1,890	0	1,890	-213
2015	1,719	0	0	1,719	0	0	0	1,719
2016	1,760	0	0	1,760	0	0	0	1,760
2017	1,805	0	0	1,805	0	0	0	1,805
2018	1,851	0	0	1,851	0	0	0	1,851
2019	1,885	0	0	1,885	0	0	0	1,885
2020	1,936	0	0	1,936	0	0	0	1,936
2021	1,994	0	0	1,994	0	0	0	1,994
2022	2,040	0	0	2,040	0	0	0	2,040
2023	2,093	0	0	2,093	0	0	0	2,093
2024	2,139	0	0	2,139	0	0	0	2,139
2025	2,199	0	0	2,199	0	0	0	2,199
2026	2,256	0	0	2,256	0	0	0	2,256
2027	2,312	0	0	2,312	0	0	0	2,312
2028	2,368	0	0	2,368	0	0	0	2,368
2029	2,428	0	0	2,428	0	0	0	2,428
2030	2,485	0	0	2,485	0	0	0	2,485
2031	2,550	0	0	2,550	0	0	0	2,550
2032	2,616	0	0	2,616	0	0	0	2,616
2033	2,681	0	0	2,681	0	0	0	2,681
NOMINAL	47,121	0	0	47,121	18,900	0	18,900	28,221
NPV	13,931	0	0	13,931	12,591	0	12,591	1,340

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.11

Input Data

Measure Name: HVAC HP 11-13

Vintage: New

Incremental Participant Cost:	$400.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$115.00
Utility Non-recurring Cost per Participant:	$41.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	465
Peak Winter KW Reduction:	0.61
Peak Summer KW Reduction:	0.55

Year	Cumulative Participation
2005	197
2006	397
2007	599
2008	801
2009	1,004
2010	1,207
2011	1,411
2012	1,617
2013	1,825
2014	2,036

Measure Name: HVAC HP 11-13
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	96	45	0	0	141	0	0	0	164	461	105	730	-590
2006	192	90	0	0	282	0	0	0	164	461	231	856	-574
2007	348	135	169	0	652	0	0	0	164	461	305	930	-278
2008	463	180	238	0	881	0	0	0	164	461	413	1,038	-157
2009	574	225	286	0	1,085	0	0	0	164	461	515	1,140	-56
2010	430	270	566	0	1,266	0	0	0	164	461	629	1,254	12
2011	412	315	634	0	1,360	0	0	0	164	461	762	1,387	-26
2012	572	360	748	0	1,680	0	0	0	164	461	890	1,515	166
2013	570	405	849	0	1,824	0	0	0	164	461	1,025	1,650	174
2014	704	450	780	0	1,933	0	0	0	164	461	1,164	1,789	144
2015	797	450	839	0	2,086	0	0	0	0	0	1,193	1,193	892
2016	782	450	821	0	2,053	0	0	0	0	0	1,221	1,221	832
2017	857	450	885	0	2,192	0	0	0	0	0	1,254	1,254	939
2018	839	450	869	0	2,157	0	0	0	0	0	1,285	1,285	872
2019	920	450	930	0	2,299	0	0	0	0	0	1,317	1,317	982
2020	894	450	912	0	2,256	0	0	0	0	0	1,350	1,350	905
2021	900	450	935	0	2,284	0	0	0	0	0	1,380	1,380	904
2022	925	450	958	0	2,333	0	0	0	0	0	1,415	1,415	918
2023	939	450	982	0	2,371	0	0	0	0	0	1,454	1,454	917
2024	953	450	1,006	0	2,409	0	0	0	0	0	1,483	1,483	927
2025	964	450	1,031	0	2,445	0	0	0	0	0	1,528	1,528	917
2026	981	450	1,057	0	2,488	0	0	0	0	0	1,566	1,566	922
2027	985	450	1,063	0	2,498	0	0	0	0	0	1,605	1,605	893
2028	1,006	450	1,111	0	2,566	0	0	0	0	0	1,644	1,644	923
2029	1,001	450	1,127	0	2,578	0	0	0	0	0	1,686	1,686	892
2030	1,034	450	1,167	0	2,651	0	0	0	0	0	1,728	1,728	922
2031	1,028	450	1,184	0	2,662	0	0	0	0	0	1,770	1,770	891
2032	1,064	450	1,226	0	2,740	0	0	0	0	0	1,816	1,816	924
2033	1,058	450	1,244	0	2,752	0	0	0	0	0	1,861	1,861	890
NOMINAL	22,284	11,024	23,616	0	56,925	0	0	0	1,643	4,607	34,598	40,848	16,077
NPV	6,610	3,406	6,583	0	16,600	0	0	0	1,094	3,069	9,685	13,848	2,752

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.20**

Measure Name: HVAC HP 11-13
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	96	45	0	0	141	1,963	0	0	0	164	2,127	-1,986
2006	192	90	0	0	282	1,963	0	0	0	164	2,127	-1,845
2007	348	135	169	0	652	1,963	0	0	0	164	2,127	-1,475
2008	463	180	238	0	881	1,963	0	0	0	164	2,127	-1,246
2009	574	225	286	0	1,085	1,963	0	0	0	164	2,127	-1,042
2010	430	270	566	0	1,266	1,963	0	0	0	164	2,127	-861
2011	412	315	634	0	1,360	1,963	0	0	0	164	2,127	-767
2012	572	360	748	0	1,680	1,963	0	0	0	164	2,127	-447
2013	570	405	849	0	1,824	1,963	0	0	0	164	2,127	-303
2014	704	450	780	0	1,933	1,963	0	0	0	164	2,128	-195
2015	797	450	839	0	2,086	0	0	0	0	0	0	2,086
2016	782	450	821	0	2,053	0	0	0	0	0	0	2,053
2017	857	450	885	0	2,192	0	0	0	0	0	0	2,192
2018	839	450	869	0	2,157	0	0	0	0	0	0	2,157
2019	920	450	930	0	2,299	0	0	0	0	0	0	2,299
2020	894	450	912	0	2,256	0	0	0	0	0	0	2,256
2021	900	450	935	0	2,284	0	0	0	0	0	0	2,284
2022	925	450	958	0	2,333	0	0	0	0	0	0	2,333
2023	939	450	982	0	2,371	0	0	0	0	0	0	2,371
2024	953	450	1,006	0	2,409	0	0	0	0	0	0	2,409
2025	964	450	1,031	0	2,445	0	0	0	0	0	0	2,445
2026	981	450	1,057	0	2,488	0	0	0	0	0	0	2,488
2027	985	450	1,063	0	2,498	0	0	0	0	0	0	2,498
2028	1,006	450	1,111	0	2,566	0	0	0	0	0	0	2,566
2029	1,001	450	1,127	0	2,578	0	0	0	0	0	0	2,578
2030	1,034	450	1,167	0	2,651	0	0	0	0	0	0	2,651
2031	1,028	450	1,184	0	2,662	0	0	0	0	0	0	2,662
2032	1,064	450	1,226	0	2,740	0	0	0	0	0	0	2,740
2033	1,058	450	1,244	0	2,752	0	0	0	0	0	0	2,752
NOMINAL	22,284	11,024	23,616	0	56,925	19,630	0	0	0	1,643	21,272	35,652
NPV	6,610	3,406	6,583	0	16,600	13,077	0	0	0	1,094	14,171	2,428

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.17**

Measure Name: HVAC HP 11-13
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST **$(000)**	(6) PARTICIPANT'S BILL INCREASE **$(000)**	(7) **TOTAL COSTS $(000)**	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	105	461	0	566	1,963	0	1,963	-1,397
2006	231	461	0	692	1,963	0	1,963	-1,271
2007	305	461	0	766	1,963	0	1,963	-1,197
2008	413	461	0	874	1,963	0	1,963	-1,089
2009	515	461	0	976	1,963	0	1,963	-987
2010	629	461	0	1,089	1,963	0	1,963	-874
2011	762	461	0	1,222	1,963	0	1,963	-741
2012	890	461	0	1,350	1,963	0	1,963	-613
2013	1,025	461	0	1,486	1,963	0	1,963	-477
2014	1,164	461	0	1,625	1,963	0	1,963	-338
2015	1,193	0	0	1,193	0	0	0	1,193
2016	1,221	0	0	1,221	0	0	0	1,221
2017	1,254	0	0	1,254	0	0	0	1,254
2018	1,285	0	0	1,285	0	0	0	1,285
2019	1,317	0	0	1,317	0	0	0	1,317
2020	1,350	0	0	1,350	0	0	0	1,350
2021	1,380	0	0	1,380	0	0	0	1,380
2022	1,415	0	0	1,415	0	0	0	1,415
2023	1,454	0	0	1,454	0	0	0	1,454
2024	1,483	0	0	1,483	0	0	0	1,483
2025	1,528	0	0	1,528	0	0	0	1,528
2026	1,566	0	0	1,566	0	0	0	1,566
2027	1,605	0	0	1,605	0	0	0	1,605
2028	1,644	0	0	1,644	0	0	0	1,644
2029	1,686	0	0	1,686	0	0	0	1,686
2030	1,728	0	0	1,728	0	0	0	1,728
2031	1,770	0	0	1,770	0	0	0	1,770
2032	1,816	0	0	1,816	0	0	0	1,816
2033	1,861	0	0	1,861	0	0	0	1,861
NOMINAL	32,737	4,607	0	37,344	19,630	0	19,630	17,714
NPV	9,685	3,069	0	12,754	13,077	0	13,077	-324

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.98**

Input Data

Measure Name: HVAC HP 11-14

Vintage: New

Incremental Participant Cost:	$500.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$315.00
Utility Non-recurring Cost per Participant:	$41.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	673
Peak Winter KW Reduction:	0.81
Peak Summer KW Reduction:	0.8

Year	Cumulative Participation
2005	201
2006	402
2007	607
2008	813
2009	1,018
2010	1,225
2011	1,432
2012	1,642
2013	1,854
2014	2,066

Measure Name: HVAC HP 11-14
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	29	10	0	0	39	0	0	0	29	223	29	280	-241
2006	40	21	0	0	60	0	0	0	29	223	51	303	-243
2007	89	31	43	0	164	0	0	0	29	223	78	330	-166
2008	119	41	61	0	221	0	0	0	29	223	106	357	-136
2009	143	52	74	0	268	0	0	0	29	223	126	378	-109
2010	102	62	172	0	336	0	0	0	29	223	152	403	-68
2011	107	72	163	0	343	0	0	0	29	223	195	447	-104
2012	151	83	169	0	403	0	0	0	29	223	228	480	-77
2013	148	93	219	0	459	0	0	0	29	223	262	514	-54
2014	182	103	201	0	486	0	0	0	29	223	298	549	-63
2015	206	103	216	0	525	0	0	0	0	0	305	305	220
2016	203	103	211	0	517	0	0	0	0	0	313	313	205
2017	221	103	228	0	552	0	0	0	0	0	320	320	231
2018	217	103	223	0	543	0	0	0	0	0	328	328	215
2019	237	103	239	0	579	0	0	0	0	0	337	337	242
2020	230	103	251	0	584	0	0	0	0	0	345	345	239
2021	232	103	240	0	575	0	0	0	0	0	354	354	221
2022	237	103	246	0	586	0	0	0	0	0	359	359	227
2023	242	103	252	0	597	0	0	0	0	0	372	372	225
2024	246	103	277	0	626	0	0	0	0	0	381	381	246
2025	248	103	265	0	616	0	0	0	0	0	390	390	226
2026	253	103	271	0	627	0	0	0	0	0	400	400	227
2027	256	103	258	0	617	0	0	0	0	0	410	410	206
2028	258	103	306	0	667	0	0	0	0	0	420	420	246
2029	258	103	289	0	651	0	0	0	0	0	431	431	220
2030	266	103	300	0	669	0	0	0	0	0	442	442	227
2031	266	103	304	0	673	0	0	0	0	0	453	453	220
2032	272	103	338	0	713	0	0	0	0	0	464	464	249
2033	274	103	319	0	696	0	0	0	0	0	476	476	220
NOMINAL	5,729	2,529	6,134	0	14,391	0	0	0	290	2,227	8,824	11,340	3,051
NPV	1,693	781	1,708	0	4,182	0	0	0	193	1,484	2,461	4,138	45

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.01

Measure Name: HVAC HP 11-14
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	29	10	0	0	39	495	0	0	0	29	524	-485
2006	40	21	0	0	60	495	0	0	0	29	524	-464
2007	89	31	43	0	164	495	0	0	0	29	524	-360
2008	119	41	61	0	221	495	0	0	0	29	524	-303
2009	143	52	74	0	268	495	0	0	0	29	524	-256
2010	102	62	172	0	336	495	0	0	0	29	524	-188
2011	107	72	163	0	343	495	0	0	0	29	524	-181
2012	151	83	169	0	403	495	0	0	0	29	524	-121
2013	148	93	219	0	459	495	0	0	0	29	524	-65
2014	182	103	201	0	486	495	0	0	0	29	524	-38
2015	206	103	216	0	525	0	0	0	0	0	0	525
2016	203	103	211	0	517	0	0	0	0	0	0	517
2017	221	103	228	0	552	0	0	0	0	0	0	552
2018	217	103	223	0	543	0	0	0	0	0	0	543
2019	237	103	239	0	579	0	0	0	0	0	0	579
2020	230	103	251	0	584	0	0	0	0	0	0	584
2021	232	103	240	0	575	0	0	0	0	0	0	575
2022	237	103	246	0	586	0	0	0	0	0	0	586
2023	242	103	252	0	597	0	0	0	0	0	0	597
2024	246	103	277	0	626	0	0	0	0	0	0	626
2025	248	103	265	0	616	0	0	0	0	0	0	616
2026	253	103	271	0	627	0	0	0	0	0	0	627
2027	256	103	258	0	617	0	0	0	0	0	0	617
2028	258	103	306	0	667	0	0	0	0	0	0	667
2029	258	103	289	0	651	0	0	0	0	0	0	651
2030	266	103	300	0	669	0	0	0	0	0	0	669
2031	266	103	304	0	673	0	0	0	0	0	0	673
2032	272	103	338	0	713	0	0	0	0	0	0	713
2033	274	103	319	0	696	0	0	0	0	0	0	696
NOMINAL	5,729	2,529	6,134	0	14,391	4,949	0	0	0	290	5,239	9,153
NPV	1,693	781	1,708	0	4,182	3,297	0	0	0	193	3,490	692

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.20**

Measure Name: HVAC HP 11-14
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	29	223	0	251	495	0	495	-244
2006	51	223	0	274	495	0	495	-221
2007	78	223	0	301	495	0	495	-194
2008	106	223	0	328	495	0	495	-167
2009	126	223	0	349	495	0	495	-146
2010	152	223	0	374	495	0	495	-121
2011	195	223	0	418	495	0	495	-77
2012	228	223	0	451	495	0	495	-44
2013	262	223	0	485	495	0	495	-10
2014	298	223	0	520	495	0	495	25
2015	305	0	0	305	0	0	0	305
2016	313	0	0	313	0	0	0	313
2017	320	0	0	320	0	0	0	320
2018	328	0	0	328	0	0	0	328
2019	337	0	0	337	0	0	0	337
2020	345	0	0	345	0	0	0	345
2021	354	0	0	354	0	0	0	354
2022	359	0	0	359	0	0	0	359
2023	372	0	0	372	0	0	0	372
2024	381	0	0	381	0	0	0	381
2025	390	0	0	390	0	0	0	390
2026	400	0	0	400	0	0	0	400
2027	410	0	0	410	0	0	0	410
2028	420	0	0	420	0	0	0	420
2029	431	0	0	431	0	0	0	431
2030	442	0	0	442	0	0	0	442
2031	453	0	0	453	0	0	0	453
2032	464	0	0	464	0	0	0	464
2033	476	0	0	476	0	0	0	476
NOMINAL	8,348	2,227	0	10,575	4,949	0	4,949	5,626
NPV	2,461	1,484	0	3,945	3,297	0	3,297	648

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.20**

Input Data

Measure Name: HVAC HP 13 to 14

Vintage: New

Incremental Participant Cost:	$400.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$115.00
Utility Non-recurring Cost per Participant:	$41.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	315
Peak Winter KW Reduction:	0.65
Peak Summer KW Reduction:	0.31

Year	Cumulative Participation
2005	197
2006	397
2007	599
2008	801
2009	1,004
2010	1,207
2011	1,411
2012	1,617
2013	1,825
2014	2,036

Measure Name: HVAC HP 13 to 14
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	23	0	0	57	0	0	0	82	200	37	319	-262
2006	49	47	0	0	95	0	0	0	82	200	68	350	-254
2007	109	70	50	0	229	0	0	0	82	200	103	385	-156
2008	145	93	71	0	309	0	0	0	82	200	140	422	-112
2009	175	116	85	0	376	0	0	0	82	200	169	451	-75
2010	132	140	163	0	435	0	0	0	82	200	204	486	-51
2011	139	163	184	0	486	0	0	0	82	200	258	540	-54
2012	190	186	196	0	572	0	0	0	82	200	301	583	-11
2013	190	209	248	0	648	0	0	0	82	200	347	629	19
2014	228	233	243	0	704	0	0	0	82	200	394	676	28
2015	257	233	248	0	738	0	0	0	0	0	403	403	335
2016	254	233	243	0	730	0	0	0	0	0	413	413	317
2017	271	233	263	0	767	0	0	0	0	0	420	420	347
2018	273	233	258	0	763	0	0	0	0	0	434	434	329
2019	295	233	279	0	807	0	0	0	0	0	445	445	362
2020	288	233	290	0	810	0	0	0	0	0	456	456	354
2021	291	233	280	0	803	0	0	0	0	0	468	468	335
2022	297	233	287	0	816	0	0	0	0	0	476	476	340
2023	302	233	294	0	829	0	0	0	0	0	492	492	337
2024	310	233	302	0	844	0	0	0	0	0	504	504	340
2025	311	233	309	0	852	0	0	0	0	0	516	516	336
2026	316	233	317	0	865	0	0	0	0	0	529	529	336
2027	321	233	304	0	857	0	0	0	0	0	543	543	315
2028	326	233	333	0	891	0	0	0	0	0	556	556	335
2029	325	233	337	0	895	0	0	0	0	0	570	570	325
2030	335	233	350	0	917	0	0	0	0	0	584	584	333
2031	334	233	354	0	921	0	0	0	0	0	598	598	323
2032	346	233	368	0	946	0	0	0	0	0	613	613	333
2033	345	233	372	0	950	0	0	0	0	0	629	629	321
NOMINAL	7,184	5,701	7,031	0	19,917	0	0	0	820	2,000	11,670	14,490	5,427
NPV	2,118	1,762	1,950	0	5,829	0	0	0	546	1,332	3,257	5,135	694

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.14

Measure Name: HVAC HP 13 to 14
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	23	0	0	57	1,120	0	0	0	82	1,202	-1,145
2006	49	47	0	0	95	1,120	0	0	0	82	1,202	-1,107
2007	109	70	50	0	229	1,120	0	0	0	82	1,202	-973
2008	145	93	71	0	309	1,120	0	0	0	82	1,202	-893
2009	175	116	85	0	376	1,120	0	0	0	82	1,202	-826
2010	132	140	163	0	435	1,120	0	0	0	82	1,202	-767
2011	139	163	184	0	486	1,120	0	0	0	82	1,202	-716
2012	190	186	196	0	572	1,120	0	0	0	82	1,202	-630
2013	190	209	248	0	648	1,120	0	0	0	82	1,202	-554
2014	228	233	243	0	704	1,120	0	0	0	82	1,202	-498
2015	257	233	248	0	738	0	0	0	0	0	0	738
2016	254	233	243	0	730	0	0	0	0	0	0	730
2017	271	233	263	0	767	0	0	0	0	0	0	767
2018	273	233	258	0	763	0	0	0	0	0	0	763
2019	295	233	279	0	807	0	0	0	0	0	0	807
2020	288	233	290	0	810	0	0	0	0	0	0	810
2021	291	233	280	0	803	0	0	0	0	0	0	803
2022	297	233	287	0	816	0	0	0	0	0	0	816
2023	302	233	294	0	829	0	0	0	0	0	0	829
2024	310	233	302	0	844	0	0	0	0	0	0	844
2025	311	233	309	0	852	0	0	0	0	0	0	852
2026	316	233	317	0	865	0	0	0	0	0	0	865
2027	321	233	304	0	857	0	0	0	0	0	0	857
2028	326	233	333	0	891	0	0	0	0	0	0	891
2029	325	233	337	0	895	0	0	0	0	0	0	895
2030	335	233	350	0	917	0	0	0	0	0	0	917
2031	334	233	354	0	921	0	0	0	0	0	0	921
2032	346	233	368	0	946	0	0	0	0	0	0	946
2033	345	233	372	0	950	0	0	0	0	0	0	950
NOMINAL	7,184	5,701	7,031	0	19,917	11,200	0	0	0	820	12,020	7,897
NPV	2,118	1,762	1,950	0	5,829	7,461	0	0	0	546	8,008	-2,178

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.73**

Measure Name: HVAC HP 13 to 14
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	37	200	0	237	1,120	0	1,120	-883
2006	68	200	0	268	1,120	0	1,120	-852
2007	103	200	0	303	1,120	0	1,120	-817
2008	140	200	0	340	1,120	0	1,120	-780
2009	169	200	0	369	1,120	0	1,120	-751
2010	204	200	0	404	1,120	0	1,120	-716
2011	258	200	0	458	1,120	0	1,120	-662
2012	301	200	0	501	1,120	0	1,120	-619
2013	347	200	0	547	1,120	0	1,120	-573
2014	394	200	0	594	1,120	0	1,120	-526
2015	403	0	0	403	0	0	0	403
2016	413	0	0	413	0	0	0	413
2017	420	0	0	420	0	0	0	420
2018	434	0	0	434	0	0	0	434
2019	445	0	0	445	0	0	0	445
2020	456	0	0	456	0	0	0	456
2021	468	0	0	468	0	0	0	468
2022	476	0	0	476	0	0	0	476
2023	492	0	0	492	0	0	0	492
2024	504	0	0	504	0	0	0	504
2025	516	0	0	516	0	0	0	516
2026	529	0	0	529	0	0	0	529
2027	543	0	0	543	0	0	0	543
2028	556	0	0	556	0	0	0	556
2029	570	0	0	570	0	0	0	570
2030	584	0	0	584	0	0	0	584
2031	598	0	0	598	0	0	0	598
2032	613	0	0	613	0	0	0	613
2033	629	0	0	629	0	0	0	629
NOMINAL	11,041	2,000	0	13,041	11,200	0	11,200	1,841
NPV	3,257	1,332	0	4,589	7,461	0	7,461	-2,872

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.62**

Input Data

Measure Name: HVAC HP 13-16

Vintage: New

Incremental Participant Cost:	$700.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$315.00
Utility Non-recurring Cost per Participant:	$35.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	701
Peak Winter KW Reduction:	1.1
Peak Summer KW Reduction:	0.65

Year	Cumulative Participation
2005	201
2006	402
2007	607
2008	813
2009	1,018
2010	1,225
2011	1,432
2012	1,642
2013	1,854
2014	2,066

Measure Name: HVAC HP 13-16

Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) TOTAL BENEFITS $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) TOTAL COSTS $(000)	(13) NET BENEFITS $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	21	10	0	0	31	0	0	0	18	150	22	189	-158
2006	27	20	0	0	47	0	0	0	18	150	38	205	-158
2007	59	31	26	0	115	0	0	0	18	150	57	225	-110
2008	78	41	37	0	156	0	0	0	18	150	78	245	-90
2009	96	51	44	0	191	0	0	0	18	150	97	265	-73
2010	68	61	86	0	215	0	0	0	18	150	109	276	-61
2011	78	71	97	0	245	0	0	0	18	150	144	311	-66
2012	106	81	87	0	275	0	0	0	18	150	168	335	-61
2013	106	92	130	0	327	0	0	0	18	150	193	360	-33
2014	128	102	119	0	349	0	0	0	18	150	219	387	-37
2015	141	102	129	0	372	0	0	0	0	0	225	225	147
2016	140	102	127	0	368	0	0	0	0	0	230	230	138
2017	151	102	137	0	390	0	0	0	0	0	236	236	154
2018	151	102	134	0	386	0	0	0	0	0	242	242	145
2019	162	102	145	0	408	0	0	0	0	0	248	248	160
2020	158	102	142	0	402	0	0	0	0	0	254	254	148
2021	160	102	145	0	406	0	0	0	0	0	260	260	146
2022	162	102	149	0	413	0	0	0	0	0	263	263	149
2023	166	102	152	0	420	0	0	0	0	0	274	274	147
2024	170	102	156	0	428	0	0	0	0	0	281	281	148
2025	171	102	160	0	433	0	0	0	0	0	288	288	145
2026	174	102	164	0	440	0	0	0	0	0	295	295	145
2027	178	102	148	0	427	0	0	0	0	0	302	302	125
2028	180	102	173	0	455	0	0	0	0	0	310	310	145
2029	180	102	175	0	457	0	0	0	0	0	317	317	139
2030	185	102	181	0	467	0	0	0	0	0	325	325	142
2031	186	102	184	0	471	0	0	0	0	0	333	333	138
2032	192	102	190	0	484	0	0	0	0	0	342	342	142
2033	192	102	193	0	487	0	0	0	0	0	350	350	137
NOMINAL	3,963	2,494	3,610	0	10,067	0	0	0	175	1,500	6,498	8,173	1,893
NPV	1,167	771	998	0	2,936	0	0	0	117	999	1,814	2,929	6

Utility Discount Rate: 8.16

Benefit Cost Ratio: 1.00

Measure Name: HVAC HP 13-16

Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	21	10	0	0	31	**420**	**0**	**0**	**0**	**18**	**438**	-406
2006	27	20	0	0	47	420	0	0	0	18	438	-390
2007	59	31	26	0	115	420	0	0	0	18	438	-322
2008	78	41	37	0	156	420	0	0	0	18	438	-282
2009	96	51	44	0	191	420	0	0	0	18	438	-246
2010	68	61	86	0	215	420	0	0	0	18	438	-223
2011	78	71	97	0	245	420	0	0	0	18	438	-192
2012	106	81	87	0	275	420	0	0	0	18	438	-163
2013	106	92	130	0	327	420	0	0	0	18	438	-110
2014	128	102	119	0	349	420	0	0	0	18	438	-88
2015	141	102	129	0	372	0	0	0	0	0	0	372
2016	140	102	127	0	368	0	0	0	0	0	0	368
2017	151	102	137	0	390	0	0	0	0	0	0	390
2018	151	102	134	0	386	0	0	0	0	0	0	386
2019	162	102	145	0	408	0	0	0	0	0	0	408
2020	158	102	142	0	402	0	0	0	0	0	0	402
2021	160	102	145	0	406	0	0	0	0	0	0	406
2022	162	102	149	0	413	0	0	0	0	0	0	413
2023	166	102	152	0	420	0	0	0	0	0	0	420
2024	170	102	156	0	428	0	0	0	0	0	0	428
2025	171	102	160	0	433	0	0	0	0	0	0	433
2026	174	102	164	0	440	0	0	0	0	0	0	440
2027	178	102	148	0	427	0	0	0	0	0	0	427
2028	180	102	173	0	455	0	0	0	0	0	0	455
2029	180	102	175	0	457	0	0	0	0	0	0	457
2030	185	102	181	0	467	0	0	0	0	0	0	467
2031	186	102	184	0	471	0	0	0	0	0	0	471
2032	192	102	190	0	484	0	0	0	0	0	0	484
2033	192	102	193	0	487	0	0	0	0	0	0	487
NOMINAL	3,963	2,494	3,610	0	10,067	4,200	0	0	0	175	4,375	5,692
NPV	1,167	771	998	0	2,936	2,798	0	0	0	117	2,915	21

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.01**

Measure Name: HVAC HP 13-16
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	22	150	0	172	420	0	420	-248
2006	38	150	0	188	420	0	420	-232
2007	57	150	0	207	420	0	420	-213
2008	78	150	0	228	420	0	420	-192
2009	97	150	0	247	420	0	420	-173
2010	109	150	0	259	420	0	420	-161
2011	144	150	0	294	420	0	420	-126
2012	168	150	0	318	420	0	420	-102
2013	193	150	0	343	420	0	420	-77
2014	219	150	0	369	420	0	420	-51
2015	225	0	0	225	0	0	0	225
2016	230	0	0	230	0	0	0	230
2017	236	0	0	236	0	0	0	236
2018	242	0	0	242	0	0	0	242
2019	248	0	0	248	0	0	0	248
2020	254	0	0	254	0	0	0	254
2021	260	0	0	260	0	0	0	260
2022	263	0	0	263	0	0	0	263
2023	274	0	0	274	0	0	0	274
2024	281	0	0	281	0	0	0	281
2025	288	0	0	288	0	0	0	288
2026	295	0	0	295	0	0	0	295
2027	302	0	0	302	0	0	0	302
2028	310	0	0	310	0	0	0	310
2029	317	0	0	317	0	0	0	317
2030	325	0	0	325	0	0	0	325
2031	333	0	0	333	0	0	0	333
2032	342	0	0	342	0	0	0	342
2033	350	0	0	350	0	0	0	350
NOMINAL	6,148	1,500	0	7,648	4,200	0	4,200	3,448
NPV	1,814	999	0	2,813	2,798	0	2,798	15

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.01**

Input Data

Measure Name: Insulation Existing Code

Vintage: New

Incremental Participant Cost:	$220.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$0.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	213
Peak Winter KW Reduction:	0.24
Peak Summer KW Reduction:	0.14

Year	Cumulative Participation
2005	595
2006	1,338
2007	2,237
2008	3,289
2009	4,475
2010	5,773
2011	7,158
2012	8,602
2013	10,080
2014	11,570

Measure Name: Insulation Existing Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	11	5	0	0	16	0	0	0	31	0	15	46	-30
2006	18	10	0	0	27	0	0	0	31	0	29	60	-32
2007	36	15	13	0	64	0	0	0	31	0	44	75	-11
2008	48	20	19	0	86	0	0	0	31	0	60	91	-4
2009	59	24	23	0	106	0	0	0	31	0	74	105	1
2010	53	29	44	0	126	0	0	0	31	0	92	123	3
2011	56	34	49	0	140	0	0	0	31	0	110	141	-1
2012	74	39	29	0	143	0	0	0	31	0	129	159	-17
2013	76	44	66	0	186	0	0	0	31	0	148	179	7
2014	91	49	61	0	201	0	0	0	31	0	168	199	2
2015	95	49	82	0	226	0	0	0	0	0	172	172	54
2016	95	49	80	0	224	0	0	0	0	0	176	176	48
2017	102	49	86	0	238	0	0	0	0	0	181	181	57
2018	101	49	85	0	235	0	0	0	0	0	185	185	50
2019	109	49	91	0	249	0	0	0	0	0	190	190	59
2020	107	49	73	0	229	0	0	0	0	0	195	195	34
2021	109	49	75	0	232	0	0	0	0	0	200	200	33
2022	110	49	76	0	235	0	0	0	0	0	201	201	34
2023	113	49	78	0	240	0	0	0	0	0	210	210	31
2024	116	49	80	0	245	0	0	0	0	0	215	215	30
2025	117	49	82	0	248	0	0	0	0	0	220	220	28
2026	120	49	84	0	253	0	0	0	0	0	226	226	27
2027	123	49	66	0	238	0	0	0	0	0	231	231	7
2028	124	49	89	0	261	0	0	0	0	0	237	237	24
2029	125	49	90	0	264	0	0	0	0	0	243	243	21
2030	128	49	93	0	270	0	0	0	0	0	249	249	21
2031	130	49	95	0	273	0	0	0	0	0	255	255	18
2032	133	49	98	0	280	0	0	0	0	0	262	262	18
2033	134	49	99	0	283	0	0	0	0	0	268	268	14
NOMINAL	2,710	1,200	1,907	0	5,817	0	0	0	310	0	4,984	5,294	523
NPV	790	371	531	0	1,692	0	0	0	206	0	1,393	1,599	92

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.06

Measure Name: Insulation Existing Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	11	5	0	0	16	443	0	0	0	31	473	-458
2006	18	10	0	0	27	443	0	0	0	31	473	-446
2007	36	15	13	0	64	442	0	0	0	31	473	-409
2008	48	20	19	0	86	443	0	0	0	31	473	-387
2009	59	24	23	0	106	443	0	0	0	31	473	-368
2010	53	29	44	0	126	443	0	0	0	31	473	-347
2011	56	34	49	0	140	443	0	0	0	31	473	-334
2012	74	39	29	0	143	442	0	0	0	31	473	-330
2013	76	44	66	0	186	443	0	0	0	31	473	-288
2014	91	49	61	0	201	443	0	0	0	31	473	-273
2015	95	49	82	0	226	0	0	0	0	0	0	226
2016	95	49	80	0	224	0	0	0	0	0	0	224
2017	102	49	86	0	238	0	0	0	0	0	0	238
2018	101	49	85	0	235	0	0	0	0	0	0	235
2019	109	49	91	0	249	0	0	0	0	0	0	249
2020	107	49	73	0	229	0	0	0	0	0	0	229
2021	109	49	75	0	232	0	0	0	0	0	0	232
2022	110	49	76	0	235	0	0	0	0	0	0	235
2023	113	49	78	0	240	0	0	0	0	0	0	240
2024	116	49	80	0	245	0	0	0	0	0	0	245
2025	117	49	82	0	248	0	0	0	0	0	0	248
2026	120	49	84	0	253	0	0	0	0	0	0	253
2027	123	49	66	0	238	0	0	0	0	0	0	238
2028	124	49	89	0	261	0	0	0	0	0	0	261
2029	125	49	90	0	264	0	0	0	0	0	0	264
2030	128	49	93	0	270	0	0	0	0	0	0	270
2031	130	49	95	0	273	0	0	0	0	0	0	273
2032	133	49	98	0	280	0	0	0	0	0	0	280
2033	134	49	99	0	283	0	0	0	0	0	0	283
NOMINAL	2,710	1,200	1,907	0	5,817	4,424	0	0	0	310	4,734	1,083
NPV	790	371	531	0	1,692	2,947	0	0	0	206	3,154	-1,462

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.54**

Measure Name: Insulation Existing Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	15	0	0	15	443	0	443	-428
2006	29	0	0	29	443	0	443	-414
2007	44	0	0	44	442	0	442	-398
2008	60	0	0	60	443	0	443	-383
2009	74	0	0	74	443	0	443	-369
2010	92	0	0	92	443	0	443	-350
2011	110	0	0	110	443	0	443	-332
2012	129	0	0	129	442	0	442	-313
2013	148	0	0	148	443	0	443	-295
2014	168	0	0	168	443	0	443	-275
2015	172	0	0	172	0	0	0	172
2016	176	0	0	176	0	0	0	176
2017	181	0	0	181	0	0	0	181
2018	185	0	0	185	0	0	0	185
2019	190	0	0	190	0	0	0	190
2020	195	0	0	195	0	0	0	195
2021	200	0	0	200	0	0	0	200
2022	201	0	0	201	0	0	0	201
2023	210	0	0	210	0	0	0	210
2024	215	0	0	215	0	0	0	215
2025	220	0	0	220	0	0	0	220
2026	226	0	0	226	0	0	0	226
2027	231	0	0	231	0	0	0	231
2028	237	0	0	237	0	0	0	237
2029	243	0	0	243	0	0	0	243
2030	249	0	0	249	0	0	0	249
2031	255	0	0	255	0	0	0	255
2032	262	0	0	262	0	0	0	262
2033	268	0	0	268	0	0	0	268
NOMINAL	4,716	0	0	4,716	4,424	0	4,424	292
NPV	1,393	0	0	1,393	2,947	0	2,947	-1,554

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.47**

Input Data

Measure Name: Insulation New Code

Vintage: New

		Year	Cumulative Participation
Incremental Participant Cost:	$220.00	2005	595
Incremental Annual O&M Cost:	$0.00	2006	1,338
Non-Recurring Incentive per Participant:	$0.00	2007	2,237
Utility Non-recurring Cost per Participant:	$30.00	2008	3.289
Utility Recurring Cost per Participant:	$0.00	2009	4,475
Annual kWh Reduction:	187	2010	5,773
Peak Winter KW Reduction:	0.23	2011	7,158
Peak Summer KW Reduction:	0.12	2012	8,602
		2013	10,080
		2014	11,570

Measure Name: Insulation New Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	5	0	0	14	0	0	0	31	0	13	44	-30
2006	15	9	0	0	25	0	0	0	31	0	25	56	-32
2007	31	14	11	0	56	0	0	0	31	0	39	70	-14
2008	41	19	16	0	76	0	0	0	31	0	52	83	-8
2009	51	23	19	0	93	0	0	0	31	0	65	96	-3
2010	46	28	37	0	111	0	0	0	31	0	81	112	-2
2011	49	33	41	0	123	0	0	0	31	0	97	128	-5
2012	65	37	20	0	122	0	0	0	31	0	113	144	-22
2013	66	42	56	0	164	0	0	0	31	0	130	161	3
2014	79	46	52	0	177	0	0	0	31	0	148	179	-2
2015	84	46	56	0	186	0	0	0	0	0	151	151	35
2016	82	46	70	0	199	0	0	0	0	0	155	155	44
2017	89	46	60	0	194	0	0	0	0	0	159	159	36
2018	90	46	58	0	194	0	0	0	0	0	163	163	31
2019	94	46	63	0	203	0	0	0	0	0	167	167	36
2020	92	46	79	0	217	0	0	0	0	0	171	171	46
2021	95	46	63	0	204	0	0	0	0	0	175	175	29
2022	94	46	83	0	223	0	0	0	0	0	176	176	47
2023	97	46	85	0	228	0	0	0	0	0	184	184	44
2024	100	46	87	0	233	0	0	0	0	0	189	189	44
2025	99	46	89	0	234	0	0	0	0	0	194	194	41
2026	103	46	71	0	221	0	0	0	0	0	198	198	22
2027	105	46	73	0	224	0	0	0	0	0	203	203	21
2028	106	46	96	0	248	0	0	0	0	0	209	209	39
2029	105	46	97	0	249	0	0	0	0	0	214	214	35
2030	112	46	79	0	237	0	0	0	0	0	219	219	18
2031	109	46	102	0	258	0	0	0	0	0	225	225	33
2032	113	46	106	0	265	0	0	0	0	0	230	230	35
2033	112	46	108	0	266	0	0	0	0	0	236	236	30
NOMINAL	2,332	1,138	1,774	0	5,244	0	0	0	310	0	4,381	4,691	553
NPV	683	352	465	0	1,500	0	0	0	206	0	1,224	1,431	69

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.05**

Measure Name: Insulation New Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	10	5	0	0	14	443	0	0	0	31	473	-459
2006	15	9	0	0	25	443	0	0	0	31	473	-449
2007	31	14	11	0	56	442	0	0	0	31	473	-417
2008	41	19	16	0	76	443	0	0	0	31	473	-398
2009	51	23	19	0	93	443	0	0	0	31	473	-381
2010	46	28	37	0	111	443	0	0	0	31	473	-363
2011	49	33	41	0	123	443	0	0	0	31	473	-350
2012	65	37	20	0	122	442	0	0	0	31	473	-351
2013	66	42	56	0	164	443	0	0	0	31	473	-309
2014	79	46	52	0	177	443	0	0	0	31	473	-297
2015	84	46	56	0	186	0	0	0	0	0	0	186
2016	82	46	70	0	199	0	0	0	0	0	0	199
2017	89	46	60	0	194	0	0	0	0	0	0	194
2018	90	46	58	0	194	0	0	0	0	0	0	194
2019	94	46	63	0	203	0	0	0	0	0	0	203
2020	92	46	79	0	217	0	0	0	0	0	0	217
2021	95	46	63	0	204	0	0	0	0	0	0	204
2022	94	46	83	0	223	0	0	0	0	0	0	223
2023	97	46	85	0	228	0	0	0	0	0	0	228
2024	100	46	87	0	233	0	0	0	0	0	0	233
2025	99	46	89	0	234	0	0	0	0	0	0	234
2026	103	46	71	0	221	0	0	0	0	0	0	221
2027	105	46	73	0	224	0	0	0	0	0	0	224
2028	106	46	96	0	248	0	0	0	0	0	0	248
2029	105	46	97	0	249	0	0	0	0	0	0	249
2030	112	46	79	0	237	0	0	0	0	0	0	237
2031	109	46	102	0	258	0	0	0	0	0	0	258
2032	113	46	106	0	265	0	0	0	0	0	0	265
2033	112	46	108	0	266	0	0	0	0	0	0	266
NOMINAL	2,332	1,138	1,774	0	5,244	4,424	0	0	0	310	4,734	510
NPV	683	352	465	0	1,500	2,947	0	0	0	206	3,154	-1,654

Utility Discount Rate: 8.16
Benefit Cost Ratio: 0.48

Measure Name: Insulation New Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	13	0	0	13	443	0	443	-429
2006	25	0	0	25	443	0	443	-417
2007	39	0	0	39	442	0	442	-403
2008	52	0	0	52	443	0	443	-390
2009	65	0	0	65	443	0	443	-378
2010	81	0	0	81	443	0	443	-361
2011	97	0	0	97	443	0	443	-346
2012	113	0	0	113	442	0	442	-329
2013	130	0	0	130	443	0	443	-313
2014	148	0	0	148	443	0	443	-295
2015	151	0	0	151	0	0	0	151
2016	155	0	0	155	0	0	0	155
2017	159	0	0	159	0	0	0	159
2018	163	0	0	163	0	0	0	163
2019	167	0	0	167	0	0	0	167
2020	171	0	0	171	0	0	0	171
2021	175	0	0	175	0	0	0	175
2022	176	0	0	176	0	0	0	176
2023	184	0	0	184	0	0	0	184
2024	189	0	0	189	0	0	0	189
2025	194	0	0	194	0	0	0	194
2026	198	0	0	198	0	0	0	198
2027	203	0	0	203	0	0	0	203
2028	209	0	0	209	0	0	0	209
2029	214	0	0	214	0	0	0	214
2030	219	0	0	219	0	0	0	219
2031	225	0	0	225	0	0	0	225
2032	230	0	0	230	0	0	0	230
2033	236	0	0	236	0	0	0	236
NOMINAL	4,145	0	0	4,145	4,424	0	4,424	-279
NPV	1,224	0	0	1,224	2,947	0	2,947	-1,723

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **0.42**

Input Data

Measure Name: Windows Existing Code

Vintage: New

Incremental Participant Cost:	$1,405.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$300.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1731
Peak Winter KW Reduction:	2.11
Peak Summer KW Reduction:	0.88

Year	Cumulative Participation
2005	350
2006	700
2007	1,050
2008	1,400
2009	1,750
2010	2,100
2011	2,450
2012	2,800
2013	3,150
2014	3,500

Measure Name: Windows Existing Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	16	0	0	51	0	0	0	9	90	43	142	-92
2006	49	32	0	0	82	0	0	0	9	90	80	179	-97
2007	98	49	33	0	179	0	0	0	9	90	122	221	-41
2008	131	65	47	0	242	0	0	0	9	90	165	264	-22
2009	165	81	56	0	302	0	0	0	9	90	208	307	-5
2010	139	97	108	0	343	0	0	0	9	90	243	342	1
2011	160	113	123	0	396	0	0	0	9	90	304	403	-7
2012	203	129	120	0	452	0	0	0	9	90	355	454	-3
2013	216	146	166	0	528	0	0	0	9	90	409	508	21
2014	255	162	153	0	570	0	0	0	9	90	464	563	7
2015	269	162	165	0	596	0	0	0	0	0	476	476	120
2016	271	162	163	0	595	0	0	0	0	0	485	485	110
2017	284	162	175	0	621	0	0	0	0	0	500	500	121
2018	287	162	173	0	622	0	0	0	0	0	512	512	109
2019	300	162	186	0	648	0	0	0	0	0	525	525	123
2020	302	162	183	0	646	0	0	0	0	0	538	538	108
2021	306	162	188	0	655	0	0	0	0	0	552	552	103
2022	311	162	192	0	665	0	0	0	0	0	562	562	103
2023	319	162	197	0	677	0	0	0	0	0	580	580	98
2024	321	162	202	0	685	0	0	0	0	0	586	586	99
2025	330	162	207	0	698	0	0	0	0	0	609	609	89
2026	336	162	212	0	710	0	0	0	0	0	624	624	86
2027	344	162	197	0	702	0	0	0	0	0	640	640	63
2028	349	162	223	0	733	0	0	0	0	0	656	656	78
2029	352	162	227	0	741	0	0	0	0	0	672	672	68
2030	362	162	234	0	757	0	0	0	0	0	689	689	68
2031	365	162	238	0	765	0	0	0	0	0	705	705	60
2032	376	162	246	0	784	0	0	0	0	0	724	724	60
2033	380	162	251	0	792	0	0	0	0	0	742	742	50
NOMINAL	7,610	3,963	4,665	0	16,238	0	0	0	90	900	13,771	14,761	1,477
NPV	2,214	1,224	1,287	0	4,725	0	0	0	60	600	3,847	4,507	218

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.05**

Measure Name: Windows Existing Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	OTHER PARTICIPANT BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASED T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	34	16	0	0	51	420	0	0	0	9	429	-378
2006	49	32	0	0	82	420	0	0	0	9	429	-347
2007	98	49	33	0	179	420	0	0	0	9	429	-250
2008	131	65	47	0	242	420	0	0	0	9	429	-187
2009	165	81	56	0	302	420	0	0	0	9	429	-127
2010	139	97	108	0	343	420	0	0	0	9	429	-86
2011	160	113	123	0	396	420	0	0	0	9	429	-33
2012	203	129	120	0	452	420	0	0	0	9	429	23
2013	216	146	166	0	528	420	0	0	0	9	429	99
2014	255	162	153	0	570	420	0	0	0	9	429	141
2015	269	162	165	0	596	0	0	0	0	0	0	596
2016	271	162	163	0	595	0	0	0	0	0	0	595
2017	284	162	175	0	621	0	0	0	0	0	0	621
2018	287	162	173	0	622	0	0	0	0	0	0	622
2019	300	162	186	0	648	0	0	0	0	0	0	648
2020	302	162	183	0	646	0	0	0	0	0	0	646
2021	306	162	188	0	655	0	0	0	0	0	0	655
2022	311	162	192	0	665	0	0	0	0	0	0	665
2023	319	162	197	0	677	0	0	0	0	0	0	677
2024	321	162	202	0	685	0	0	0	0	0	0	685
2025	330	162	207	0	698	0	0	0	0	0	0	698
2026	336	162	212	0	710	0	0	0	0	0	0	710
2027	344	162	197	0	702	0	0	0	0	0	0	702
2028	349	162	223	0	733	0	0	0	0	0	0	733
2029	352	162	227	0	741	0	0	0	0	0	0	741
2030	362	162	234	0	757	0	0	0	0	0	0	757
2031	365	162	238	0	765	0	0	0	0	0	0	765
2032	376	162	246	0	784	0	0	0	0	0	0	784
2033	380	162	251	0	792	0	0	0	0	0	0	792
NOMINAL	7,610	3,963	4,665	0	16,238	4,200	0	0	0	90	4,290	11,948
NPV	2,214	1,224	1,287	0	4,725	2,798	0	0	0	60	2,858	1,867

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.65

Measure Name: Windows Existing Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	43	90	0	133	420	0	420	-287
2006	80	90	0	170	420	0	420	-250
2007	122	90	0	212	420	0	420	-208
2008	165	90	0	255	420	0	420	-165
2009	208	90	0	298	420	0	420	-122
2010	243	90	0	333	420	0	420	-87
2011	304	90	0	394	420	0	420	-26
2012	355	90	0	445	420	0	420	25
2013	409	90	0	499	420	0	420	79
2014	464	90	0	554	420	0	420	134
2015	476	0	0	476	0	0	0	476
2016	485	0	0	485	0	0	0	485
2017	500	0	0	500	0	0	0	500
2018	512	0	0	512	0	0	0	512
2019	525	0	0	525	0	0	0	525
2020	538	0	0	538	0	0	0	538
2021	552	0	0	552	0	0	0	552
2022	562	0	0	562	0	0	0	562
2023	580	0	0	580	0	0	0	580
2024	586	0	0	586	0	0	0	586
2025	609	0	0	609	0	0	0	609
2026	624	0	0	624	0	0	0	624
2027	640	0	0	640	0	0	0	640
2028	656	0	0	656	0	0	0	656
2029	672	0	0	672	0	0	0	672
2030	689	0	0	689	0	0	0	689
2031	705	0	0	705	0	0	0	705
2032	724	0	0	724	0	0	0	724
2033	742	0	0	742	0	0	0	742
NOMINAL	13,029	900	0	13,929	4,200	0	4,200	9,729
NPV	3,847	600	0	4,447	2,798	0	2,798	1,649

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.59**

Input Data

Measure Name: Windows New Code

Vintage: New

Incremental Participant Cost:	$1,405.00
Incremental Annual O&M Cost:	$0.00
Non-Recurring Incentive per Participant:	$300.00
Utility Non-recurring Cost per Participant:	$30.00
Utility Recurring Cost per Participant:	$0.00
Annual kWh Reduction:	1485
Peak Winter KW Reduction:	1.9
Peak Summer KW Reduction:	0.73

Year	Cumulative Participation
2005	350
2006	700
2007	1,050
2008	1,400
2009	1,750
2010	2,100
2011	2,450
2012	2,800
2013	3,150
2014	3,500

Measure Name: Windows New Code
Vintage: New

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	30	15	0	0	45	0	0	0	9	90	38	137	-92
2006	42	29	0	0	71	0	0	0	9	90	69	168	-96
2007	83	44	28	0	155	0	0	0	9	90	104	203	-48
2008	111	58	39	0	208	0	0	0	9	90	141	240	-32
2009	140	73	47	0	260	0	0	0	9	90	178	277	-17
2010	117	88	90	0	295	0	0	0	9	90	207	306	-11
2011	137	102	103	0	343	0	0	0	9	90	261	360	-17
2012	170	117	127	0	413	0	0	0	9	90	305	404	9
2013	186	131	139	0	456	0	0	0	9	90	351	450	7
2014	219	146	128	0	493	0	0	0	9	90	398	497	-4
2015	230	146	139	0	515	0	0	0	0	0	408	408	106
2016	230	146	152	0	528	0	0	0	0	0	418	418	110
2017	243	146	147	0	536	0	0	0	0	0	429	429	107
2018	245	146	145	0	536	0	0	0	0	0	440	440	97
2019	257	146	157	0	560	0	0	0	0	0	450	450	109
2020	258	146	154	0	558	0	0	0	0	0	462	462	96
2021	261	146	158	0	565	0	0	0	0	0	473	473	92
2022	266	146	162	0	574	0	0	0	0	0	481	481	92
2023	272	146	166	0	584	0	0	0	0	0	497	497	86
2024	279	146	170	0	595	0	0	0	0	0	510	510	85
2025	281	146	174	0	602	0	0	0	0	0	522	522	79
2026	287	146	179	0	612	0	0	0	0	0	536	536	76
2027	294	146	163	0	602	0	0	0	0	0	549	549	54
2028	299	146	188	0	632	0	0	0	0	0	563	563	70
2029	302	146	191	0	639	0	0	0	0	0	577	577	62
2030	309	146	197	0	652	0	0	0	0	0	591	591	61
2031	313	146	201	0	659	0	0	0	0	0	605	605	55
2032	322	146	207	0	675	0	0	0	0	0	621	621	54
2033	326	146	211	0	683	0	0	0	0	0	637	637	46
NOMINAL	6,506	3,578	3,963	0	14,047	0	0	0	90	900	11,820	12,810	1,237
NPV	1,890	1,106	1,101	0	4,097	0	0	0	60	600	3,302	3,961	136

Utility Discount Rate: 8.16
Benefit Cost Ratio: 1.03

Measure Name: Windows New Code
Vintage: New

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	30	15	0	0	45	420	0	0	0	9	429	-384
2006	42	29	0	0	71	420	0	0	0	9	429	-358
2007	83	44	28	0	155	420	0	0	0	9	429	-274
2008	111	58	39	0	208	420	0	0	0	9	429	-221
2009	140	73	47	0	260	420	0	0	0	9	429	-169
2010	117	88	90	0	295	420	0	0	0	9	429	-134
2011	137	102	103	0	343	420	0	0	0	9	429	-86
2012	170	117	127	0	413	420	0	0	0	9	429	-16
2013	186	131	139	0	456	420	0	0	0	9	429	27
2014	219	146	128	0	493	420	0	0	0	9	429	64
2015	230	146	139	0	515	0	0	0	0	0	0	515
2016	230	146	152	0	528	0	0	0	0	0	0	528
2017	243	146	147	0	536	0	0	0	0	0	0	536
2018	245	146	145	0	536	0	0	0	0	0	0	536
2019	257	146	157	0	560	0	0	0	0	0	0	560
2020	258	146	154	0	558	0	0	0	0	0	0	558
2021	261	146	158	0	565	0	0	0	0	0	0	565
2022	266	146	162	0	574	0	0	0	0	0	0	574
2023	272	146	166	0	584	0	0	0	0	0	0	584
2024	279	146	170	0	595	0	0	0	0	0	0	595
2025	281	146	174	0	602	0	0	0	0	0	0	602
2026	287	146	179	0	612	0	0	0	0	0	0	612
2027	294	146	163	0	602	0	0	0	0	0	0	602
2028	299	146	188	0	632	0	0	0	0	0	0	632
2029	302	146	191	0	639	0	0	0	0	0	0	639
2030	309	146	197	0	652	0	0	0	0	0	0	652
2031	313	146	201	0	659	0	0	0	0	0	0	659
2032	322	146	207	0	675	0	0	0	0	0	0	675
2033	326	146	211	0	683	0	0	0	0	0	0	683
NOMINAL	6,506	3,578	3,963	0	14,047	4,200	0	0	0	90	4,290	9,757
NPV	1,890	1,106	1,101	0	4,097	2,798	0	0	0	60	2,858	1,239

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.43**

Measure Name: Windows New Code
Vintage: New

PARTICIPANT TEST

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	38	90	0	128	420	0	420	-292
2006	69	90	0	159	420	0	420	-261
2007	104	90	0	194	420	0	420	-226
2008	141	90	0	231	420	0	420	-189
2009	178	90	0	268	420	0	420	-152
2010	207	90	0	297	420	0	420	-123
2011	261	90	0	351	420	0	420	-69
2012	305	90	0	395	420	0	420	-25
2013	351	90	0	441	420	0	420	21
2014	398	90	0	488	420	0	420	68
2015	408	0	0	408	0	0	0	408
2016	418	0	0	418	0	0	0	418
2017	429	0	0	429	0	0	0	429
2018	440	0	0	440	0	0	0	440
2019	450	0	0	450	0	0	0	450
2020	462	0	0	462	0	0	0	462
2021	473	0	0	473	0	0	0	473
2022	481	0	0	481	0	0	0	481
2023	497	0	0	497	0	0	0	497
2024	510	0	0	510	0	0	0	510
2025	522	0	0	522	0	0	0	522
2026	536	0	0	536	0	0	0	536
2027	549	0	0	549	0	0	0	549
2028	563	0	0	563	0	0	0	563
2029	577	0	0	577	0	0	0	577
2030	591	0	0	591	0	0	0	591
2031	605	0	0	605	0	0	0	605
2032	621	0	0	621	0	0	0	621
2033	637	0	0	637	0	0	0	637
NOMINAL	11,183	900	0	12,083	4,200	0	4,200	7,883
NPV	3,302	600	0	3,901	2,798	0	2,798	1,103

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.39**

AVOIDABLE GENERATION ASSUMPTIONS

COMBUSTION TURBINE (4 Units)	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2007
(3) WINTER CAPACITY	752 MW
(4) BASE YEAR AVOIDED GENERATING UNIT COST	302 $/KW
(5) GENERATOR COST ESCALATION RATE	2.50 %
(6) GENERATOR FIXED O&M COST	27.09 $/KW-YR
(7) GENERATOR FIXED O&M ESCALATION RATE	2.50 %
(8) AVOIDED GEN UNIT VARIABLE O&M COSTS	1.12 ¢/KWH
(9) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.50 %
(10) GENERATOR CAPACITY FACTOR	12 %
(11) AVOIDED GENERATING UNIT FUEL COST	4.92 ¢/KWH
(12) AVOIDED GEN UNIT FUEL ESCALATION RATE	2.50 %

COMBINED CYCLE	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2012
(3) WINTER CAPACITY	536 MW
(4) BASE YEAR AVOIDED GENERATING UNIT COST	464 $/KW
(5) GENERATOR COST ESCALATION RATE	2.50 %
(6) GENERATOR FIXED O&M COST	34.55 $/KW-YR
(7) GENERATOR FIXED O&M ESCALATION RATE	2.50 %
(8) AVOIDED GEN UNIT VARIABLE O&M COSTS	0.293 ¢/KWH
(9) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.50 %
(10) GENERATOR CAPACITY FACTOR	50 %
(11) AVOIDED GENERATING UNIT FUEL COST	3.40 ¢/KWH
(12) AVOIDED GEN UNIT FUEL ESCALATION RATE	2.50 %

COMBINED CYCLE	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2007
(3) WINTER CAPACITY	517 MW
(4) BASE YEAR AVOIDED GENERATING UNIT COST	428 $/KW
(5) GENERATOR COST ESCALATION RATE	2.50 %
(6) GENERATOR FIXED O&M COST	29.51 $/KW-YR
(7) GENERATOR FIXED O&M ESCALATION RATE	2.50 %
(8) AVOIDED GEN UNIT VARIABLE O&M COSTS	0.299 ¢/KWH
(9) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.50 %
(10) GENERATOR CAPACITY FACTOR	40 %
(11) AVOIDED GENERATING UNIT FUEL COST	3.34 ¢/KWH
(12) AVOIDED GEN UNIT FUEL ESCALATION RATE	2.50 %

COMBINED CYCLE	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2014
(3) WINTER CAPACITY	536 MW
(4) BASE YEAR AVOIDED GENERATING UNIT COST	368 $/KW
(5) GENERATOR COST ESCALATION RATE	2.50 %
(6) GENERATOR FIXED O&M COST	34.78 $/KW-YR
(7) GENERATOR FIXED O&M ESCALATION RATE	2.50 %
(8) AVOIDED GEN UNIT VARIABLE O&M COSTS	0.308 ¢/KWH
(9) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.50 %
(10) GENERATOR CAPACITY FACTOR	50 %
(11) AVOIDED GENERATING UNIT FUEL COST	3.55 ¢/KWH
(12) AVOIDED GEN UNIT FUEL ESCALATION RATE	2.50 %

COMBINED CYCLE (2 Units)	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT	2010
(3) WINTER CAPACITY	1072 MW
(4) BASE YEAR AVOIDED GENERATING UNIT COST	416 $/KW
(5) GENERATOR COST ESCALATION RATE	2.50 %
(6) GENERATOR FIXED O&M COST	34.40 $/KW-YR
(7) GENERATOR FIXED O&M ESCALATION RATE	2.50 %
(8) AVOIDED GEN UNIT VARIABLE O&M COSTS	0.279 ¢/KWH
(9) GENERATOR VARIABLE O&M COST ESCALATION RATE	2.50 %
(10) GENERATOR CAPACITY FACTOR	50 %
(11) AVOIDED GENERATING UNIT FUEL COST	3.33 ¢/KWH
(12) AVOIDED GEN UNIT FUEL ESCALATION RATE	2.50 %

AVOIDABLE TRANSMISSION & DISTRIBUTION COST ASSUMPTIONS	
(1) BASE YEAR	2004
(2) IN-SERVICE YEAR FOR AVOIDED T&D	2004
(3) AVOIDED TRANSMISSION AND DISTRIBUTION COST	
-- NONDISPATCHABLE PROGRAMS	29.72 $/KW-YR
-- DISPATCHABLE PROGRAMS	0 $/KW-YR
(4) T&D COST ESCALATION RATE	0 %

ELECTRIC RATE INFORMATION BY CUSTOMER CLASS

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL
(1) TOTAL 2004 ELECTRICITY PRICE (¢/KWH)	8.45 ¢/KWH	6.30 ¢/KWH	5.00 ¢/KWH
(2a) ELECTRIC PRICE ESCALATION RATE 2004-2014	0.56 %	0.52 %	0.70 %
(2b) ELECTRIC PRICE ESCALATION RATE 2014+	2.50 %	2.50 %	2.50 %

Progress Energy Florida
Docket No. 040031-EG
Witness: Masiello
Exhibit No. ___ (JAM-4)

Exhibits to the Direct Testimony of John A. Masiello

PROPOSED DSM PLAN

TABLE OF CONTENTS

INTRODUCTION

In accordance with Sections 25-17.001-.005, Florida Administrative Code, the Florida Public Service Commission (FPSC) requested numeric conservation goals, testimony and Plan for Progress Energy Florida (PEF), in Docket No. 040031-EG. In response to this Order, Progress Energy submits this Demand Side Management (DSM) Plan to the FPSC for approval.

Progress Energy has designed its DSM Plan to achieve the conservation goals set forth by the FPSC. This plan provides Progress Energy's customers with comprehensive DSM services while resulting in electric rates that are lower than they would have been if this Plan were not implemented. The DSM Plan consists of five (5) residential programs, seven (7) commercial and industrial (C/I) programs, a technology research and development program, and a qualifying (small power production or cogeneration) facilities program.

This document is organized into seven sections:

Section I presents an overview of Progress Energy's proposed DSM Plan, summarizing the goals and cumulative impacts of the plan.

Section II discusses some general issues associated with demand-side management planning and implementation, including program operation, cost-effectiveness, program monitoring and evaluation, and cost-recovery.

Section III presents Progress Energy's proposed residential programs.

Section IV presents Progress Energy's proposed commercial/industrial programs.

Section V presents Progress Energy's Technology Development program.

Section VI presents Progress Energy's Qualifying Facilities program.

I. PROGRAM GOALS

AND

CUMULATIVE IMPACT

I. PROGRAM GOALS AND CUMULATIVE IMPACT

Progress Energy Florida's DSM Plan has specifically been designed to efficiently acquire all cost-effective DSM resources necessary to meet the conservation goals proposed in FPSC Docket 040031-EG. The DSM Plan consists of five (5) residential programs, seven (7) commercial and industrial (C/I) programs, a technology research and development program, and a qualifying (small power production or cogeneration) facilities program:

RESIDENTIAL PROGRAMS	COMMERCIAL/INDUSTRIAL PROGRAMS
Home Energy Check	Business Energy Check
Home Energy Improvement	Better Business
New Construction	C/I New Construction
Low Income Weatherization Assistance	Innovation Incentive
Residential Energy Management	Standby Generation
	Interruptible Service
	Curtailable Service
Technology Development	
Qualifying Facilities	

These DSM programs have been designed to achieve the conservation goals proposed in Docket 040031 while minimizing the rate impacts on all PEF customers. In designing these DSM programs, the following multiple objectives were addressed:

- Achieve the annual conservation goals established in Docket 040031-EG for 2005-2014
- Minimize rate impacts to all PEF customers
- Base program designs on customer needs
- Implement mechanisms to minimize free ridership
- Capture all cost-effective DSM resources, including cost-effective lost opportunities
- Provide customers with added value -- efficiency, convenience, productivity, comfort and reliability
- Utilize market involvement, such as dealers and home builders, where appropriate.

Tables I-1 and I-2 present the cumulative demand and energy impacts projected to be achieved by this DSM Plan as compared to the Commission-established goals for each year during the planning period 2005-2014, for the residential and C/I sectors, respectively. PEF's DSM Plan is designed to meet or exceed the Commission-established energy and demand goals.

Table I-1
Progress Energy Florida, Inc.
Residential Market Segment Demand and Energy Data

Proposed Residential Plan 2004 DSM Filing						
	Projected Summer Demand Savings (MW)		Projected Winter Demand Savings (MW)		Projected Annual Energy Savings (GWh)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2005	13	13	43	43	21	21
2006	8	21	33	75	14	35
2007	9	30	33	108	15	50
2008	8	38	33	142	15	65
2009	9	47	34	175	15	80
2010	8	55	35	210	15	95
2011	10	65	38	248	17	112
2012	9	74	38	287	17	128
2013	9	83	38	324	16	144
2014	9	92	42	366	16	161

Table I-2
Progress Energy Florida, Inc.
Commercial/Industrial Segment Demand and Energy Data

Proposed Commercial Plan 2004 DSM Filing						
	Projected Summer Demand Savings (MW)		Projected Winter Demand Savings (MW)		Projected Annual Energy Savings (GWh)	
Year	Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
2005	4	4	3	3	3	3
2006	3	7	4	7	3	6
2007	4	11	4	10	3	9
2008	4	14	3	14	3	12
2009	3	18	3	17	3	15
2010	3	21	3	20	3	18
2011	4	25	4	24	3	20
2012	3	29	3	28	3	23
2013	3	32	3	31	3	26
2014	4	36	3	34	3	29

II. PROGRAM INTRODUCTION

II. PROGRAM INTRODUCTION

A. PROGRAM OPERATION

The focal point for both the residential and the C/I sector programs is an energy audit program (Home Energy Check for residential and Business Energy Check for C/I). The energy audit programs serve multiple purposes to satisfy the needs of PEF, its customers, and the Commission:

1. Educate customers by providing an overview of typical energy use.
2. Identify opportunities for improving energy efficiency at the customer's home or facility.
3. Serve as the marketing tool to introduce customers to PEF's other conservation programs.
4. Assist PEF in minimizing free ridership in the other DSM programs.
5. Satisfy the Commission's mandate to offer energy audit services to all customers.

For the residential sector, PEF has consolidated most measures into two "umbrella" programs -- the Home Energy Improvement program for existing customers and the New Construction program for new home builders. The creation of these comprehensive programs provides significant benefits over implementing measure-specific programs, including the following:

- Increased program cost-effectiveness through lower program administration, implementation, monitoring, and evaluation costs by minimizing redundant functions.
- More efficient program delivery because each customer can be more comprehensively addressed.
- Improved marketability to customers through concise, consistent, and comprehensive program packaging.

For the C/I sector, PEF has also consolidated most of the measures into "umbrella" programs -- the Better Business program for existing customers and the C/I New Construction program for new commercial buildings. These "umbrella" programs provide the same benefits as described above. But in the commercial and industrial sectors, because the facilities and systems are more complex than in the residential sector, there are additional opportunities for conservation from customer-specific technology improvements, as well as from alternative rates. Thus, for the C/I sector, PEF's DSM Plan also includes the Innovation Incentive program for customized efficiency improvements, as well as the Standby Generation, Interruptible Service, and Curtailable Service programs.

Technology Development pursues research, development and demonstration projects, individual projects as well as partnerships, of potential energy saving technologies to help determine new possible cost-effective measures.

Under the Qualifying Facilities program, Progress Energy develops standard offer contracts, negotiates, enters into, amends and restructures firm energy and capacity contracts entered into with qualifying cogeneration and small power production facilities, and administers all such contracts.

B. COST-EFFECTIVENESS

All programs submitted in this DSM Plan have been analyzed for cost-effectiveness using the Commission-approved tests described in Rule 25-17.008, Florida Administrative Code. PEF's DSM Plan has specifically been designed to efficiently acquire all cost-effective DSM resources necessary to meet the Commission-established goals for PEF. The programs were evaluated based on the Rate Impact Measure (RIM) test to ensure that the DSM programs result in lower electric rates than supply-side alternatives.

In order to conduct the cost-effectiveness analysis, the DSView model (produced by New Energy Associates) was used to evaluate the DSM programs against potentially avoidable supply-side capacity. In contrast to static models such as the Florida Integrated Resource Evaluator (FIRE) model, DSView is a more sophisticated dynamic model which more nearly simulates the operation of the power system. For example, DSView is directly integrated with other supply-side planning models, thereby allowing variables such as marginal fuel costs, hourly production costs, and generation equivalency to be computed and applied more accurately than under the FIRE model. Because of this fundamental modeling concept difference, DSView will produce different results from the FIRE model.

A summary of the cost-effectiveness results for each of the DSM programs included in this DSM Plan are shown in Table II-1. In addition, detailed program cost-effectiveness results are presented at the end of each program discussion in Sections III and IV of this document. These detailed results consist of one page each for the RIM, Participant, and Total Resource Cost (TRC) Tests.

Table II-1
Summary of Demand Side Management Programs
Included in Proposed Plan
Period 2005-2014

DSM Measure	Rate Impact Measure Test			Participant Test			Total Resource Cost Test			
	PV Total Benefits ($000)	PV Total Costs ($000)	B / C Ratio	PV Total Benefits ($000)	PV Total Costs ($000)	B / C Ratio	PV Total Benefits ($000)	PV Total Costs ($000)	B / C Ratio	Program Status
Home Energy Check	NA	NA	NA	NA	NA	NA	NA	NA	NA	Existing
Home Energy Improvement	95,438	90,520	1.05	86,790	20,377	4.26	95,438	24,107	3.96	Modified
Residential New Construction	33,885	26,410	1.28	22,269	10,891	2.04	33,885	15,032	2.25	Modified
Low Income Weatherization	1,484	1,472	1.01	1,292	NA	NA	1,484	180	8.24	Existing
Residential Winter-Only Energy Management	31,320	20,728	1.51	10,050	360	28	30,960	10,678	2.90	Existing
Business Energy Check	NA	NA	NA	NA	NA	NA	NA	NA	NA	Existing
Better Business	8,283	6,904	1.20	6,826	4,414	1.55	8,283	4,492	1.84	Modified
C/I New Construction	7,129	5,944	1.20	5,899	3,866	1.53	7,129	3,911	1.82	Modified
Innovation Incentive	NA	NA	NA	NA	NA	NA	NA	NA	NA	Existing
Standby Generation	6,602	5,403	1.22	4,768	0	NA	6,602	634	10.40	Existing
Interruptible Service	253	242	1.04	170	0	NA	253	72	3.51	Existing
Curtailable Service	466	367	1.27	145	0	NA	466	222	2.09	Existing
Technology Development	NA	NA	NA	NA	NA	NA	NA	NA	NA	Existing
Qualifying Facilities	NA	NA	NA	NA	NA	NA	NA	NA	NA	Existing

NOTES:

(1) Home Energy Check and Business Energy Check are FPSC mandated programs; therefore, no cost-effectiveness analysis was conducted for these programs.
(2) Innovation Incentive projects are individually evaluated for cost-effectiveness; only projects that pas both the RIM and Participant tests are approved.
(3) Technology Development projects are individually evaluated for cost-effectiveness.

C. PROGRAM MONITORING AND EVALUATION

Program monitoring and evaluation are important components of DSM implementation. They serve the purpose of ensuring that all DSM resources are acquired in a cost-effective manner. Specifically, program monitoring includes tracking program data and ensuring quality control. Program evaluation results document the energy and demand impacts and cost-effectiveness of the program, as well as suggest ways that the program can be improved by increasing savings, reducing costs, or increasing participation.

While there is a great need to regularly evaluate programs to ensure their cost-effectiveness, there is an equally great need to utilize the evaluation method that is most cost-effective. Imprudent expenditures on evaluation can significantly affect the overall cost-effectiveness of a program to its detriment. Just as PEF's DSM Plan is limited to cost-effective programs, only cost-effective evaluation efforts should be used to evaluate these programs. The level of evaluation effort must be balanced with the need for evaluation. For example, the programs that provide the largest portion of the total DSM impact should be given the greatest evaluation emphasis. Programs (or measures) that provide small per unit impacts or which have had relatively low levels of participation should be evaluated using approaches that can be justified given their relative contribution to the total net benefits.

Therefore, while there are many methods available to evaluate the impacts of these programs, PEF will determine on a program-by-program basis the most cost-effective evaluation method based on factors such as participation levels, program performance, dollars invested, the level of uncertainty of measure performance, etc.

D. COST-RECOVERY

PEF submits the programs herein described for approval and for inclusion as cost recoverable Conservation and Energy Efficiency Programs under current FPSC-approved procedures pursuant to Rule 25-17.015, and requests permission to recover all costs associated with the development and administration of this DSM Plan.

In addition, PEF intends to maintain its work toward administering and negotiating cogeneration contracts, and will continue to seek recovery of all associated administrative costs through the Energy Conservation Cost Recovery (ECCR) Clause.

PEF will make every effort toward the most appropriate transition from its existing DSM programs to any new or modified programs submitted in this Plan. As such, PEF seeks to recover all costs incurred through the implementation of those existing programs during the transition period. This is in accordance with approved Program Participation Standards which allow, in the event of program discontinuance, the extension of current recommendations and rebate amounts for up to two years from the date of program discontinuance or until the rebate is paid, whichever is sooner.

PEF has designed each of the DSM programs to pass the RIM test; therefore, each program is cost-effective on its own merit. This should not rule out the possibility that the Company may request incentives or recovery of lost revenues in the future.

III. RESIDENTIAL

CONSERVATION PROGRAMS

III. RESIDENTIAL CONSERVATION PROGRAMS

Progress Energy Florida's DSM Plan includes five (5) residential programs:

A. **Home Energy Check** - residential energy audits

B. **Home Energy Improvement** - "umbrella" program for existing homes

C. **New Construction** - "umbrella" program for new residential construction, multi-family, and manufactured homes

D. **Low Income Weatherization Assistance Program** - "umbrella" program for the weatherization of low income family homes

E. **Residential Energy Management** - residential load control

Each program is described in detail in the following sections.

A. HOME ENERGY CHECK PROGRAM

Program Start Date: ▸ 1995

Policies and Procedures

The Home Energy Check is PEF's residential energy audit program, which provides its customers with an analysis of their current energy use and recommendations on how they can save on their electricity bill through low-cost or no-cost energy-saving practices and measures. It also serves as the foundation of the Home Energy Improvement program in that it serves as a prerequisite for participation in any of the retrofit-type components of the Home Energy Improvement program. The exception is an emergency replacement of high efficient heat pump(s). This requirement exists so that PEF can: 1) provide the customer with an overview of typical energy use, 2) verify that the action requested (e.g., additional attic insulation) will address the customer's problem, and 3) help to minimize free ridership in the Home Energy Improvement program.

The Home Energy Check program offers PEF customers the following types of audits:

Type 1: Free Walk-Through Audit (Home Energy Check)

Type 2: Customer-completed Mail In Audit (Do It Yourself Home Energy Check)

Type 3: Online Home Energy Check (Internet Option)-a customer-completed audit

Type 4: Phone Assisted Audit –A customer assisted survey of structure and appliance use

Type 5: Paid Walk-Through Audit (Computer Assisted Audit)

Type 6: Home Energy Rating Audit (Class I, II, III).

All residential customers of PEF are eligible to receive any of the above energy audits. There is no charge for Type 1 through Type 4 audits, while there is a $15 customer charge for the Type 5 audit. When a customer requests a Home Energy Check, they will be given the option of either receiving a Type 2 audit survey in the mail or scheduling a Type 1 or Type 5 walk-through audit. A PEF auditor will usually conduct the audit, although PEF may also work with other agencies and/or utilities as an extension of PEF's services, in which case an approved auditor from another organization may conduct the audit. The Home Energy Rating as outlined in PEF's "Florida Energy Gauge Ratings" rate tariff (Section II, sheet number 2.6) is available to all eligible PEF customers upon request.

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers [1]	Total Number of Eligible Customers	Annual Number of Program Participants [2]	Cumulative Penetration Level (%) Calculated
2005	1,382,699	1,382,699	27,500	2%
2006	1,406,712	1,406,712	54,500	4%
2007	1,431,102	1,431,102	81,500	6%
2008	1,455,971	1,455,971	108,000	7%
2009	1,481,124	1,481,124	134,000	9%
2010	1,505,866	1,505,866	154,000	10%
2011	1,529,665	1,529,665	174,000	11%
2012	1,552,660	1,552,660	194,500	13%
2013	1,575,153	1,575,153	216,000	14%
2014	1,597,449	1,597,449	238,000	15%

1. *Total Number of Customers is the forecast of all residential customers, from the November 2003 Forecast.*
2. *Annual Number of Program Participants is the projected number of cumulative energy audits that will be conducted.*

Savings Estimates

The total program savings were developed by estimating impacts for each audit level and for low-cost energy efficiency measures promoted through the program. The total program savings are shown in the following table.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	155	0.047	0.047	4,258,500	1,304	1,304
2006	156	0.048	0.048	8,475,500	2,595	2,595
2007	156	0.048	0.048	12,692,500	3,886	3,886
2008	155	0.047	0.047	16,744,500	5,126	5,126
2009	154	0.047	0.047	20,631,500	6,315	6,315
2010	155	0.048	0.048	23,897,000	7,315	7,315
2011	156	0.048	0.048	27,162,500	8,316	8,316
2012	156	0.048	0.048	30,346,000	9,290	9,290
2013	155	0.047	0.047	33,489,000	10,251	10,251
2014	154	0.047	0.047	36,550,000	11,186	11,186

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	165	0.051	0.051	4,550,509	1,393	1,393
2006	166	0.051	0.051	9,056,672	2,772	2,772
2007	166	0.051	0.051	13,562,835	4,152	4,152
2008	166	0.051	0.051	17,892,684	5,477	5,477
2009	165	0.051	0.051	22,046,219	6,747	6,747
2010	166	0.051	0.051	25,535,637	7,817	7,817
2011	167	0.051	0.051	29,025,055	8,886	8,886
2012	167	0.051	0.051	32,426,851	9,927	9,927
2013	166	0.051	0.051	35,785,369	10,954	10,954
2014	164	0.051	0.051	39,056,264	11,953	11,953

Per customer impacts vary from year to year because of the changing mix of audit participants in the various audit levels, as well as the mix of low-cost measures assumed to be installed in any given year.

Impact Evaluation Plan

The range of possible recommendations resulting from the audit, and the inclusion of both technological and behavioral recommendations suggests the need to survey Home Energy Check participants to determine what specific conservation actions have been implemented within each market segment due to the completed audit. These impacts are currently being evaluated, and these survey results, combined with the participant-specific data gathered during the audit, will be used to determine the savings that can be directly attributable to the Home Energy Check program.

B. HOME ENERGY IMPROVEMENT PROGRAM

Program Start Date:
- 1995
- Program modified in 2000
- Proposed modification for 2005

Policies and Procedures

The Home Energy Improvement program is the umbrella program to increase energy efficiency for existing residential homes. It combines efficiency improvements to the thermal envelope with upgraded electric appliances. The program seeks to meet the following overall goals:

- Improve customer comfort levels through efficient equipment and home thermal integrity upgrades.
- Obtain energy and demand impacts that are accurate, sustainable, and measurable.
- Enhance contractor awareness of new technologies.
- Educate customers about additional opportunities associated with an energy efficient home.
- Obtain cost effective resources from the marketplace.
- Minimize "lost opportunities" in the existing home market.

The program provides incentives for attic insulation upgrades, duct testing and repair, and high efficiency heat pumps. The program eligibility requirements to qualify for participation are as follows:

- The home must be metered by Progress Energy Florida, Inc.
- The home is required to have a residential energy audit prior to participation for the attic insulation and duct test and repair.
- Duct repairs must be sealed with mastic meeting UL 181 specifications consistent with duct manufacturer's requirements.
- New construction homes do not qualify under this program.
- High efficiency heat pump incentives will be paid for replacing existing electric heat pumps and/or electric resistance heat.

Incentive Levels and specific eligibility requirements for each measure promoted in this program will be presented in the "Program Participation Standards."

Attic Insulation Upgrade

This portion of the program encourages customers to add insulation to the ceiling area by paying a portion of the installed cost. The home must have an existing insulation level of less than R-12 to participate. The customer must have either whole house electric cooling or whole house electric heating to be eligible for this program. The maximum incentive available will be $100 per residence; the specific incentive is determined by the resulting insulation level.

Duct Test and Repair

This portion of the program is designed to encourage eligible customers to improve their central duct system by reducing the air leakage rate. This is accomplished by performing a duct leakage test, then offering to repair the leakage that is discovered by the duct test. The home must have centrally-ducted electric cooling and electric heat to participate in this measure. For a duct test, PEF will pay up to a maximum of $30 for the first unit and $20 for each additional unit at the same address. For the duct repair, PEF will pay an incentive of up to $100 per unit. For multi-family rental units, PEF will pay all the costs up to $100 per unit (top floor only) and no test is required.

High Efficiency Electric Heat Pumps

For high efficiency electric heat pumps, PEF will provide an incentive up to $350 per unit. The specific incentive available is dependent upon the efficiency level of the unit installed and the type of electric heat the new equipment is replacing. In order to qualify for an incentive both the air handler and the outdoor condensing unit shall be replaced, and both units shall be new. This program seeks to accommodate emergency replacement situations by allowing a participant to have a Home Energy Check conducted after the installation and still be eligible for the incentive.

High Efficiency Alternate Water Heating

Progress Energy has determined that it is no longer cost-effective under the RIM test to continue offering incentives for alternate water heating. These measures have relatively low rates of participation and have small overall impacts.

Supplemental Incentive Bonus

To maximize the implementation of energy efficiency measures per participant, an incentive bonus is provided to high efficiency electric heat pump participants who also implement ceiling insulation upgrade, duct leakage repair, or both, within 90 days, before or after, of the installation date of the high efficiency electric heat pump. The purpose of this incentive is to offset some of the customer's large capital outlay to install more than one energy efficiency measure. The maximum incentive bonus a customer can receive is $50.

Financing

PEF is offering as an alternative to the incentives, a financing option. The financing option is an interest free (12 Month) installment-billing plan. As an alternative to receiving an incentive, the customer may choose to finance their energy efficient measure for up to one-year interest free.

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers [1]	Total Number of Eligible Customers [2]	Annual Number of Measure Participants [3]	Cumulative Penetration Level (%)
2005	1,382,699	69,135	14,530	21%
2006	1,406,712	139,471	24,475	18%
2007	1,431,102	211,026	34,746	16%
2008	1,455,971	283,824	45,669	16%
2009	1,481,124	357,880	59,985	17%
2010	1,505,866	433,174	69,279	16%
2011	1,529,665	509,657	83,203	16%
2012	1,552,660	587,290	97,127	17%
2013	1,575,153	666,048	110,531	17%
2014	1,597,449	745,920	123,935	17%

1. *Total Number of Customers is the forecast of all residential customers, from the November 2003 Forecast.*
2. *Total number of Eligible Customers is based on an estimate of the cumulative number of central heat pumps and air conditioners that are replaced each year.*
3. *Annual number of Measure Participants is the projected number of cumulative measure installations from all measures promoted through this program. Because customers can install multiple measures, the actual number of participants will be less.*

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's (1) per customer savings and, (2) annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	824	1.311	0.580	11,971,615	19,052	8,424
2006	656	1.234	0.422	16,048,091	30,211	10,335
2007	643	1.202	0.427	22,352,961	41,780	14,820
2008	640	1.194	0.428	29,227,729	54,522	19,531
2009	643	1.202	0.427	36,648,374	68,503	24,330
2010	648	1.216	0.425	44,923,866	84,243	29,468
2011	657	1.237	0.423	54,624,103	102,912	35,171
2012	662	1.252	0.421	64,324,340	121,582	40,875
2013	666	1.262	0.420	73,622,097	139,440	46,411
2014	669	1.269	0.419	82,919,854	157,298	51,948

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	880	1.4011	0.6195	12,792,519	20,358	9,002
2006	701	1.3190	0.4512	17,148,522	32,282	11,043
2007	687	1.2849	0.4558	23,885,722	44,645	15,836
2008	684	1.2757	0.4570	31,231,899	58,261	20,870
2009	687	1.2846	0.4562	39,161,384	73,201	25,998
2010	693	1.2994	0.4545	48,004,333	90,019	31,488
2011	702	1.3217	0.4517	58,369,723	109,969	37,583
2012	708	1.3376	0.4497	68,735,114	129,919	43,678
2013	712	1.3481	0.4487	78,670,426	149,002	49,594
2014	715	1.3562	0.4479	88,605,738	168,085	55,510

Impact Evaluation Plan

The impact evaluation plan for an "umbrella" program such as this requires a varied approach given the number and type of measures being promoted. Some measures provide large per unit impacts while other yield relatively smaller impacts. The total impact from all smaller-impact measures could be potentially less than the uncertainty around an impact estimate of just one large measure. Consequently, the impact evaluation will place greater emphasis on the larger impact measures. The method of impact evaluation may vary depending on the participation levels actually achieved for each measure. Engineering analysis and statistical billing analysis represents the primary methods that will be used to estimate demand and energy impacts. These analyses will be supported by residential end-use metering data.

Cost-Effectiveness

The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits $(000)	NPV Costs $(000)	NPV Net Benefits $(000)	B/C Ratio
Rate Impact Measure	95,438	90,520	4,917	1.05
Participant	86,790	20,377	66,414	4.26
Total Resource Cost	95,438	24,107	71,331	3.96

PROGRAM: HOME ENERGY IMPROVEMENT PROGRAM

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	576	370	0	0	946	0	0	0	590	2,579	795	3,964	-3,018
2006	830	614	0	0	1,445	0	0	0	381	1,698	1,292	3,372	-1,927
2007	1,478	860	579	0	2,916	0	0	0	380	1,700	1,719	3,799	-882
2008	1,920	1,118	813	0	3,850	0	0	0	389	1,778	2,251	4,418	-568
2009	2,635	1,526	1,033	0	5,194	0	0	0	631	2,818	3,107	6,556	-1,362
2010	2,391	1,959	2,328	0	6,677	0	0	0	652	2,968	4,122	7,742	-1,064
2011	2,620	2,440	2,497	0	7,557	0	0	0	703	3,286	5,191	9,181	-1,623
2012	3,540	2,925	3,201	0	9,666	0	0	0	707	3,312	6,373	10,392	-727
2013	3,848	3,398	3,561	0	10,807	0	0	0	692	3,228	7,509	11,429	-622
2014	4,698	3,871	3,337	0	11,905	0	0	0	692	3,227	8,739	12,659	-754
2015	5,064	3,871	3,614	0	12,548	0	0	0	0	0	8,964	8,964	3,584
2016	5,058	3,871	3,546	0	12,474	0	0	0	0	0	9,181	9,181	3,292
2017	5,371	3,871	3,840	0	13,081	0	0	0	0	0	9,406	9,406	3,675
2018	5,376	3,871	3,765	0	13,012	0	0	0	0	0	9,657	9,657	3,355
2019	5,677	3,871	4,087	0	13,634	0	0	0	0	0	9,860	9,860	3,775
2020	5,624	3,871	3,984	0	13,478	0	0	0	0	0	10,112	10,112	3,366
2021	5,723	3,871	4,084	0	13,678	0	0	0	0	0	10,393	10,393	3,284
2022	5,869	3,871	4,186	0	13,925	0	0	0	0	0	10,655	10,655	3,271
2023	5,972	3,871	4,291	0	14,133	0	0	0	0	0	10,923	10,923	3,210
2024	6,067	3,871	4,398	0	14,335	0	0	0	0	0	11,156	11,156	3,180
2025	6,169	3,871	4,508	0	14,547	0	0	0	0	0	11,474	11,474	3,073
2026	6,291	3,871	4,621	0	14,782	0	0	0	0	0	11,762	11,762	3,020
2027	6,350	3,871	4,735	0	14,956	0	0	0	0	0	12,058	12,058	2,898
2028	6,489	3,871	4,854	0	15,214	0	0	0	0	0	12,327	12,327	2,887
2029	6,543	3,871	4,957	0	15,370	0	0	0	0	0	12,656	12,656	2,714
2030	6,722	3,871	5,100	0	15,693	0	0	0	0	0	12,968	12,968	2,725
2031	6,779	3,871	5,208	0	15,857	0	0	0	0	0	13,312	13,312	2,545
2032	6,967	3,871	5,358	0	16,195	0	0	0	0	0	13,643	13,643	2,553
2033	7,020	3,871	5,471	0	16,362	0	0	0	0	0	13,988	13,988	2,374
NOMINAL	139,663	92,621	101,955	0	334,239	0	0	0	5,817	26,596	255,593	288,006	46,233
NPV	39,721	27,803	27,913	0	95,438	0	0	0	3,730	16,969	69,821	90,520	4,917

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.05**

PROGRAM: HOME ENERGY IMPROVEMENT PROGRAM

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	576	370	0	0	946	3,169	0	0	0	590	3,759	-2,813
2006	830	614	0	0	1,445	1,859	0	0	0	381	2,240	-796
2007	1,478	860	579	0	2,916	1,867	0	0	0	380	2,247	670
2008	1,920	1,118	813	0	3,850	1,973	0	0	0	389	2,362	1,488
2009	2,635	1,526	1,033	0	5,194	3,502	0	0	0	631	4,133	1,061
2010	2,391	1,959	2,328	0	6,677	3,686	0	0	0	652	4,338	2,340
2011	2,620	2,440	2,497	0	7,557	4,038	0	0	0	703	4,742	2,816
2012	3,540	2,925	3,201	0	9,666	4,061	0	0	0	707	4,769	4,897
2013	3,848	3,398	3,561	0	10,807	3,970	0	0	0	692	4,662	6,145
2014	4,698	3,871	3,337	0	11,905	3,970	0	0	0	692	4,662	7,244
2015	5,064	3,871	3,614	0	12,548	0	0	0	0	0	0	12,548
2016	5,058	3,871	3,546	0	12,474	0	0	0	0	0	0	12,474
2017	5,371	3,871	3,840	0	13,081	0	0	0	0	0	0	13,081
2018	5,376	3,871	3,765	0	13,012	0	0	0	0	0	0	13,012
2019	5,677	3,871	4,087	0	13,634	0	0	0	0	0	0	13,634
2020	5,624	3,871	3,984	0	13,478	0	0	0	0	0	0	13,478
2021	5,723	3,871	4,084	0	13,678	0	0	0	0	0	0	13,678
2022	5,869	3,871	4,186	0	13,925	0	0	0	0	0	0	13,925
2023	5,972	3,871	4,291	0	14,133	0	0	0	0	0	0	14,133
2024	6,067	3,871	4,398	0	14,335	0	0	0	0	0	0	14,335
2025	6,169	3,871	4,508	0	14,547	0	0	0	0	0	0	14,547
2026	6,291	3,871	4,621	0	14,782	0	0	0	0	0	0	14,782
2027	6,350	3,871	4,735	0	14,956	0	0	0	0	0	0	14,956
2028	6,489	3,871	4,854	0	15,214	0	0	0	0	0	0	15,214
2029	6,543	3,871	4,957	0	15,370	0	0	0	0	0	0	15,370
2030	6,722	3,871	5,100	0	15,693	0	0	0	0	0	0	15,693
2031	6,779	3,871	5,208	0	15,857	0	0	0	0	0	0	15,857
2032	6,967	3,871	5,358	0	16,195	0	0	0	0	0	0	16,195
2033	7,020	3,871	5,471	0	16,362	0	0	0	0	0	0	16,362
NOMINAL	139,663	92,621	101,955	0	334,239	32,096	0	0	0	5,817	37,913	296,325
NPV	39,721	27,803	27,913	0	95,438	20,377	0	0	0	3,730	24,107	71,331

Utility Discount Rate: 8.16
Benefit Cost Ratio: 3.96

PROGRAM: HOME ENERGY IMPROVEMENT PROGRAM

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	795	2,579	0	3,374	3,169	0	3,169	205
2006	1,292	1,698	0	2,991	1,859	0	1,859	1,132
2007	1,719	1,700	0	3,419	1,867	0	1,867	1,552
2008	2,251	1,778	0	4,029	1,973	0	1,973	2,056
2009	3,107	2,818	0	5,925	3,502	0	3,502	2,423
2010	4,122	2,968	0	7,090	3,686	0	3,686	3,404
2011	5,191	3,286	0	8,477	4,038	0	4,038	4,439
2012	6,373	3,312	0	9,685	4,061	0	4,061	5,624
2013	7,509	3,228	0	10,737	3,970	0	3,970	6,767
2014	8,739	3,227	0	11,967	3,970	0	3,970	7,997
2015	8,964	0	0	8,964	0	0	0	8,964
2016	9,181	0	0	9,181	0	0	0	9,181
2017	9,406	0	0	9,406	0	0	0	9,406
2018	9,657	0	0	9,657	0	0	0	9,657
2019	9,860	0	0	9,860	0	0	0	9,860
2020	10,112	0	0	10,112	0	0	0	10,112
2021	10,393	0	0	10,393	0	0	0	10,393
2022	10,655	0	0	10,655	0	0	0	10,655
2023	10,923	0	0	10,923	0	0	0	10,923
2024	11,156	0	0	11,156	0	0	0	11,156
2025	11,474	0	0	11,474	0	0	0	11,474
2026	11,762	0	0	11,762	0	0	0	11,762
2027	12,058	0	0	12,058	0	0	0	12,058
2028	12,327	0	0	12,327	0	0	0	12,327
2029	12,656	0	0	12,656	0	0	0	12,656
2030	12,968	0	0	12,968	0	0	0	12,968
2031	13,312	0	0	13,312	0	0	0	13,312
2032	13,643	0	0	13,643	0	0	0	13,643
2033	13,988	0	0	13,988	0	0	0	13,988
NOMINAL	241,605	26,596	0	268,201	32,096	0	32,096	236,105
NPV	69,821	16,969	0	86,790	20,377	0	20,377	66,414

Utility Discount Rate 8.16
Benefit Cost Ratio: 4.26

C. NEW CONSTRUCTION

Program Start Date:
- 1995
- Program modified in 2000
- Program modified in 2004

Policies and Procedures

The New Construction program is an "umbrella" program for the New Construction, Multi-family, and Manufactured Home building segments.

The New Construction program promotes energy efficient construction in order to provide customers with more efficient dwellings combined with improved environmental comfort.

The objectives of the program include the following goals:

- Educate builders and builder/owners and property managers[1] about energy efficient construction design to increase the supply of energy efficient homes.
- Educate customers and realtors about energy efficient construction design to increase the demand for energy efficient homes.
- Obtain energy and demand impacts that are accurate, sustainable, and measurable.
- Enhance contractor awareness of new technologies.
- Obtain cost effective resources from the marketplace.
- Minimize "lost opportunities" in the new home market.

The program provides education and information to the design community on energy efficient equipment and construction. The program provides the following:

- Financial incentives for energy efficient equipment.
- "Third party" endorsement/certification and PEF's seal of approval.
- Cooperative advertising for the most energy efficient builders.

[1] Contractors, builders, builder/owners, and property managers are synonymous.

The program facilitates the design and construction of energy efficient homes by working directly with the builders to comply with program requirements. Builders that express interest in participating in this program will be required to fulfill pre-qualification requirements. Then, as builders inform PEF regarding their plans to design and build additional homes, PEF representatives will provide assistance to ensure that the design and construction of the home(s) meet program requirements. Home certification criteria include the following:

- The home must be metered by Progress Energy Florida, Inc. .
- The builder must meet requirements listed in the Program Participation Standards.
- The heating source must be an all electric heat pump. No resistance heat is allowed except as back up heat. Straight air with electric strip is not allowed to participate.[2]
- Duct sealing integrity, insulation levels, and equipment efficiencies, sizing and installations must meet specific program requirements.

This program has three levels of participation with various options within each level. The builder is offered a choice of energy efficiency measures that more closely meet the home's design criteria. Program details such as builder qualification criteria, home certification requirements and incentive levels for high efficient equipment promoted by this program will be presented in the Program Participation Standards.

High Efficiency Electric Heat Pumps

For electric heat pumps, PEF will provide an incentive up to a maximum of $300 per unit. The specific incentive amount is dependent on the energy efficiency of the equipment. The Program Participation Standards will specify additional qualifying criteria for incentive eligibility.

High Efficiency Alternate Electric Water Heating

Progress Energy has determined that it is no longer cost-effective under the RIM test to continue offering incentives for alternate water heating. These measures have relatively low rates of participation and have small overall impacts.

[2] Exception would be for multi-family housing above three stories in height.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers [1]	Total Number of Eligible Customers [2]	Annual Number of Measure Participants [3]	Cumulative Penetration Level (%)
2005	1,382,699	27,654	11,718	42%
2006	1,406,712	55,788	22,927	41%
2007	1,431,102	84,410	34,286	41%
2008	1,455,971	113,530	44,796	39%
2009	1,481,124	143,152	55,311	39%
2010	1,505,866	173,270	65,832	38%
2011	1,529,665	203,863	76,358	37%
2012	1,552,660	234,916	86,891	37%
2013	1,575,153	266,419	97,430	37%
2014	1,597,449	298,368	107,972	36%

1. *Total Number of Customers is the forecast of all residential customers, from the November 2003 Forecast.*
2. *Total number of eligible new homes constructed in PEF's territory.*
3. *Annual Number of Measure Participants is the projected number of cumulative measure applications from all measures promoted by this program. Because customer can install multiple measures, the actual number of participants will be less.*

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's (1) per customer savings and, (2) annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	401	0.963	0.283	4,704,138	11,287	3,314
2006	408	0.982	0.278	9,350,301	22,523	6,370
2007	410	0.986	0.279	14,067,143	33,796	9,579
2008	416	1.000	0.283	18,638,492	44,785	12,691
2009	419	1.007	0.285	23,172,852	55,676	15,777
2010	421	1.011	0.287	27,708,806	66,568	18,864
2011	423	1.017	0.288	32,307,809	77,626	21,995
2012	426	1.023	0.290	36,984,156	88,887	25,181
2013	428	1.029	0.292	41,718,930	100,300	28,407
2014	431	1.037	0.294	46,548,436	111,962	31,700

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
----	429	1.0292	0.3022	5,026,705	12,061	3,542
2006	436	1.0497	0.2969	9,991,459	24,067	6,807
2007	438	1.0533	0.2985	15,031,739	36,114	10,236
2008	445	1.0683	0.3027	19,916,549	47,856	13,561
2009	448	1.0756	0.3048	24,761,834	59,493	16,858
2010	450	1.0805	0.3062	29,608,822	71,133	20,157
2011	452	1.0863	0.3078	34,523,183	82,949	23,503
2012	455	1.0931	0.3097	39,520,191	94,982	26,907
2013	458	1.1000	0.3116	44,579,632	107,177	30,355
2014	461	1.1081	0.3137	49,740,301	119,640	33,874

Impact Evaluation Plan

The Residential New Construction program includes the installation of varied types of measures. As such, the impact evaluation plan should address interactive effects of multiple measures. In order to capture the impacts of these measures, engineering simulations and statistical billing analysis will represent the primary methods used to estimate demand and energy impacts, although the specific method may vary depending on measure-specific participation levels. These analyses may be supported by residential end-use metering data, where feasible.

Cost-Effectiveness

The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits $(000)	NPV Costs $(000)	NPV Net Benefits $(000)	B/C Ratio
Rate Impact Measure	33,885	26,410	7,475	1.28
Participant	22,269	10,891	11,379	2.04
Total Resource Cost	33,885	15,032	18,854	2.25

PROGRAM: RESIDENTIAL NEW CONSTRUCTION PROGRAM

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	206	210	0	0	416	0	0	0	662	192	279	1,132
2006	344	389	0	0	733	0	0	0	640	200	516	1,355
2007	610	567	238	0	1,415	0	0	0	644	198	712	1,553
2008	786	737	318	0	1,840	0	0	0	604	198	935	1,737
2009	962	906	367	0	2,235	0	0	0	604	198	1,147	1,949
2010	819	1,075	670	0	2,565	0	0	0	604	198	1,406	2,209
2011	854	1,245	761	0	2,860	0	0	0	604	199	1,655	2,458
2012	1,088	1,414	919	0	3,421	0	0	0	605	200	1,933	2,738
2013	1,139	1,584	1,021	0	3,744	0	0	0	605	201	2,189	2,995
2014	1,348	1,754	969	0	4,070	0	0	0	605	201	2,489	3,295
2015	1,449	1,754	1,058	0	4,260	0	0	0	0	0	2,550	2,550
2016	1,447	1,754	1,036	0	4,237	0	0	0	0	0	2,612	2,612
2017	1,540	1,754	1,111	0	4,405	0	0	0	0	0	2,680	2,680
2018	1,539	1,754	1,090	0	4,383	0	0	0	0	0	2,748	2,748
2019	1,625	1,754	1,183	0	4,561	0	0	0	0	0	2,803	2,803
2020	1,610	1,754	1,158	0	4,521	0	0	0	0	0	2,875	2,875
2021	1,637	1,754	1,188	0	4,578	0	0	0	0	0	2,955	2,955
2022	1,680	1,754	1,217	0	4,651	0	0	0	0	0	3,029	3,029
2023	1,710	1,754	1,248	0	4,711	0	0	0	0	0	3,107	3,107
2024	1,739	1,754	1,278	0	4,770	0	0	0	0	0	3,177	3,177
2025	1,766	1,754	1,311	0	4,830	0	0	0	0	0	3,264	3,264
2026	1,802	1,754	1,344	0	4,900	0	0	0	0	0	3,348	3,348
2027	1,821	1,754	1,356	0	4,931	0	0	0	0	0	3,431	3,431
2028	1,861	1,754	1,411	0	5,026	0	0	0	0	0	3,516	3,516
2029	1,874	1,754	1,428	0	5,055	0	0	0	0	0	3,603	3,603
2030	1,923	1,754	1,483	0	5,160	0	0	0	0	0	3,690	3,690
2031	1,939	1,754	1,501	0	5,193	0	0	0	0	0	3,786	3,786
2032	1,992	1,754	1,557	0	5,303	0	0	0	0	0	3,880	3,880
2033	2,009	1,754	1,577	0	5,339	0	0	0	0	0	3,979	3,979
NOMINAL	41,117	43,199	29,796	0	114,113	0	0	0	6,177	1,984	74,295	82,456
NPV	12,165	13,451	8,269	0	33,885	0	0	0	4,141	1,319	20,950	26,410

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.28**

PROGRAM: RESIDENTIAL NEW CONSTRUCTION PROGRAM

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	206	210	0	0	416	1,630	0	0	0	662	2,292	-1,876
2006	344	389	0	0	733	1,697	0	0	0	640	2,336	-1,603
2007	610	567	238	0	1,415	1,727	0	0	0	644	2,371	-956
2008	786	737	318	0	1,840	1,602	0	0	0	604	2,206	-365
2009	962	906	367	0	2,235	1,602	0	0	0	604	2,207	29
2010	819	1,075	670	0	2,565	1,604	0	0	0	604	2,208	356
2011	854	1,245	761	0	2,860	1,605	0	0	0	604	2,209	650
2012	1,088	1,414	919	0	3,421	1,607	0	0	0	605	2,212	1,209
2013	1,139	1,584	1,021	0	3,744	1,609	0	0	0	605	2,214	1,530
2014	1,348	1,754	969	0	4,070	1,610	0	0	0	605	2,215	1,855
2015	1,449	1,754	1,058	0	4,260	0	0	0	0	0	0	4,260
2016	1,447	1,754	1,036	0	4,237	0	0	0	0	0	0	4,237
2017	1,540	1,754	1,111	0	4,405	0	0	0	0	0	0	4,405
2018	1,539	1,754	1,090	0	4,383	0	0	0	0	0	0	4,383
2019	1,625	1,754	1,183	0	4,561	0	0	0	0	0	0	4,561
2020	1,610	1,754	1,158	0	4,521	0	0	0	0	0	0	4,521
2021	1,637	1,754	1,188	0	4,578	0	0	0	0	0	0	4,578
2022	1,680	1,754	1,217	0	4,651	0	0	0	0	0	0	4,651
2023	1,710	1,754	1,248	0	4,711	0	0	0	0	0	0	4,711
2024	1,739	1,754	1,278	0	4,770	0	0	0	0	0	0	4,770
2025	1,766	1,754	1,311	0	4,830	0	0	0	0	0	0	4,830
2026	1,802	1,754	1,344	0	4,900	0	0	0	0	0	0	4,900
2027	1,821	1,754	1,356	0	4,931	0	0	0	0	0	0	4,931
2028	1,861	1,754	1,411	0	5,026	0	0	0	0	0	0	5,026
2029	1,874	1,754	1,428	0	5,055	0	0	0	0	0	0	5,055
2030	1,923	1,754	1,483	0	5,160	0	0	0	0	0	0	5,160
2031	1,939	1,754	1,501	0	5,193	0	0	0	0	0	0	5,193
2032	1,992	1,754	1,557	0	5,303	0	0	0	0	0	0	5,303
2033	2,009	1,754	1,577	0	5,339	0	0	0	0	0	0	5,339
NOMINAL	41,117	43,199	29,796	0	114,113	16,292	0	0	0	6,177	22,469	91,644
NPV	12,165	13,451	8,269	0	33,885	10,891	0	0	0	4,141	15,032	18,854

Utility Discount Rate: 8.16
Benefit Cost Ratio: 2.25

PROGRAM: RESIDENTIAL NEW CONSTRUCTION PROGRAM

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	279	192	0	471	1,630	0	1,630	-1,160
2006	516	200	0	716	1,697	0	1,697	-981
2007	712	198	0	909	1,727	0	1,727	-817
2008	935	198	0	1,134	1,602	0	1,602	-468
2009	1,147	198	0	1,345	1,602	0	1,602	-257
2010	1,406	198	0	1,605	1,604	0	1,604	1
2011	1,655	199	0	1,854	1,605	0	1,605	249
2012	1,933	200	0	2,133	1,607	0	1,607	526
2013	2,189	201	0	2,390	1,609	0	1,609	781
2014	2,489	201	0	2,690	1,610	0	1,610	1,080
2015	2,550	0	0	2,550	0	0	0	2,550
2016	2,612	0	0	2,612	0	0	0	2,612
2017	2,680	0	0	2,680	0	0	0	2,680
2018	2,748	0	0	2,748	0	0	0	2,748
2019	2,803	0	0	2,803	0	0	0	2,803
2020	2,875	0	0	2,875	0	0	0	2,875
2021	2,955	0	0	2,955	0	0	0	2,955
2022	3,029	0	0	3,029	0	0	0	3,029
2023	3,107	0	0	3,107	0	0	0	3,107
2024	3,177	0	0	3,177	0	0	0	3,177
2025	3,264	0	0	3,264	0	0	0	3,264
2026	3,348	0	0	3,348	0	0	0	3,348
2027	3,431	0	0	3,431	0	0	0	3,431
2028	3,516	0	0	3,516	0	0	0	3,516
2029	3,603	0	0	3,603	0	0	0	3,603
2030	3,690	0	0	3,690	0	0	0	3,690
2031	3,786	0	0	3,786	0	0	0	3,786
2032	3,880	0	0	3,880	0	0	0	3,880
2033	3,979	0	0	3,979	0	0	0	3,979
NOMINAL	70,316	1,984	0	72,300	16,292	0	16,292	56,008
NPV	20,950	1,319	0	22,269	10,891	0	10,891	11,379

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.04**

D. LOW INCOME WEATHERIZATION ASSISTANCE PROGRAM

Program Start Date: ▸ 2000

Policies and Procedures

The Low-Income Weatherization Assistance program (LIWAP) is the umbrella program to improve energy efficiency for low-income customers in existing residential housing. It combines efficiency improvements to the thermal envelope with upgraded electric appliances. The program seeks to meet the following goals:

- Integrate PEF's LIWAP procedures with the Department of Community Affairs (DCA) and local weatherization providers to deliver energy efficiency measures to low-income families.
- Identify and educate contractors and low income customers about energy saving opportunities to improve home energy efficiency.
- Increase low-income families' participation in PEF's DSM programs.
- Minimize "lost opportunities" in the existing marketplace.

The program provides incentives for attic insulation upgrades, duct testing and repair, reduced air infiltration, water heater wrap, HVAC maintenance, high efficiency heat pumps, heat recovery units, and dedicated heat pump water heaters. The program eligibility requirements to qualify for participation are as follows:

- The residence must be in PEF's service area and be a residential PEF metered customer.
- Must meet Florida's weatherization low-income criteria in addition to income requirements required by DCA.
- Homes must be greater than two years old.
- Homes having previously received PEF incentives for listed measures are not eligible for the same measure. Attic insulation and duct repairs have special exemptions as outlined in the Home Energy Improvement Program.
- A DCA approved provider or their approved contractors must perform all work. PEF approved contractors may be used.

Incentive levels and specific eligibility requirements for each measure promoted in this program will be presented in the Program Participation Standards.

Attic Insulation Upgrade

This portion of the program encourages customers to add insulation to the ceiling area by paying a portion of the installed cost. The home must have an existing insulation level of less than R-12 to participate. The customer must have either whole house electric cooling or electric heating to be eligible for this program. The maximum incentive available will be $100 per residence, the specific incentive is determined by the resulting insulation level.

Duct Test and Repair

This portion of the program is designed to encourage eligible customers to improve their central duct system by reducing the air leakage rate. This is accomplished by performing a duct leakage test, then offering to repair the leakage that is discovered by the duct test. The home must have central ducted electric cooling and electric heat to participate in this measure. For a duct test, PEF will pay up to a maximum of $30 for the first unit and $20 for each additional unit at the same address. For the duct repair, PEF will pay an incentive of up to $100 per unit.

Reduced Air Infiltration

The weatherization provider must demonstrate a minimum reduction of air infiltration into the home of 1500 cfm at 50 pascals to receive a $75 incentive. The home must not exceed ASHRAE Standard 92.2-1989 for acceptable indoor air quality.

Water Heater Wrap/Replacement

The weatherization provider will wrap the water heater with an insulation value of at least R-6 side and R-8 top and insulate the pipes a minimum of 3 feet extending from the tank. The temperature will be set down to 120 degrees. To defray the cost of purchasing a high efficiency water heater, in lieu of installing an insulating jacket, the same $25 incentive would apply.

High Efficiency Electric Heat Pumps

For high efficient electric heat pumps, PEF will provide an incentive up to $350 per unit. The specific incentive available is dependent upon the efficiency level of the unit installed and the type of electric heat the new equipment is replacing. In order to qualify for an incentive, both the air handler and the outdoor condensing unit shall be replaced, and both units shall be new. This program seeks to accommodate emergency replacement situations by allowing a participant to have a home energy audit conducted after the installation and still be eligible for the incentive.

High Efficiency Alternate Water Heating

The high efficiency water heating portion of this program promotes technologies that heat water more efficiently than a standard electric water heater and save energy. The incentive depends on the type of technology being installed. For heat recovery units, PEF will provide an incentive of $100 per residence. For dedicated heat pump water heaters, PEF will provide an incentive of $200 per unit.

Heating and Air Conditioning Maintenance

To maximize efficiency a $40 incentive will be provided for a Heating & Air Conditioning contractor to perform service/tune-up maintenance on existing electric central heating and air conditioning systems.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers [1]	Total Number of Eligible Customers [2]	Annual Number of Measure Participants [3]	Cumulative Penetration Level (%)
2005	1,382,699	1500	416	28%
2006	1,406,712	3026	832	27%
2007	1,431,102	4579	1248	27%
2008	1,455,971	6158	1664	27%
2009	1,481,124	7765	2080	27%
2010	1,505,866	9398	2496	27%
2011	1,529,665	11058	2912	26%
2012	1,552,660	12742	3328	26%
2013	1,575,153	14451	3744	26%
2014	1,597,449	16184	4160	26%

1. *Total Number of Customers is the forecast of all residential customers, from the November 2003 Forecast.*
2. *Total number of Eligible Customers that are weatherized by local weatherization assistance providers.*
3. *Annual Number of Measure Participants is the projected number of cumulative measure installations from all measures promoted by this program. Because customers can install multiple measures, the actual number of participants will be less.*

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's (1) per customer savings and, (2) annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	473	0.677	0.248	196,669	281	103
2006	473	0.677	0.248	393,338	563	206
2007	473	0.677	0.248	590,007	844	310
2008	473	0.677	0.248	786,676	1,126	413
2009	473	0.677	0.248	983,345	1,407	516
2010	473	0.677	0.248	1,180,014	1,689	619
2011	473	0.677	0.248	1,376,683	1,970	723
2012	473	0.677	0.248	1,573,352	2,252	826
2013	473	0.677	0.248	1,770,021	2,533	929
2014	473	0.677	0.248	1,966,690	2,814	1,032

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	505	0.7229	0.2652	210,155	301	110
2006	505	0.7229	0.2652	420,310	601	221
2007	505	0.7229	0.2652	630,464	902	331
2008	505	0.7229	0.2652	840,619	1,203	441
2009	505	0.7229	0.2652	1,050,774	1,504	552
2010	505	0.7229	0.2652	1,260,929	1,804	662
2011	505	0.7229	0.2652	1,471,083	2,105	772
2012	505	0.7229	0.2652	1,681,238	2,406	883
2013	505	0.7229	0.2652	1,891,393	2,707	993
2014	505	0.7229	0.2652	2,101,548	3,007	1,103

Impact Evaluation Plan

The impact evaluation plan for an "umbrella" program such as this requires a varied approach given the number and type of measures being promoted. Some measures provide large per unit impacts while other yield relatively smaller impacts. The total impact from all smaller-impact measures could be potentially less than the uncertainty around an impact estimate of just one large measure. Consequently, the impact evaluation will place greater emphasis on the larger impact measures. The method of impact evaluation may vary depending on the participation levels actually achieved for each measure. Engineering analysis and statistical billing analysis represents the primary methods that will be used to estimate demand and energy impacts. These analyses will be supported by residential end-use metering data.

Cost-Effectiveness

The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits $(000)	NPV Costs $(000)	NPV Net Benefits $(000)	B/C Ratio
Rate Impact Measure	1,484	1,472	12	1.01
Participant	1,292	0	1,292	NA
Total Resource Cost	1,484	1,180	1,304	8.24

PROGRAM: LOW INCOME WEATHERIZATION PROGRAM

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
YEAR	TOTAL FUEL & O&M SAVINGS $(000)	AVOIDED T&D CAP. COSTS $(000)	AVOIDED GEN. CAP. COSTS $(000)	REVENUE GAINS $(000)	**TOTAL BENEFITS** $(000)	TOTAL FUEL & O&M INCREASE $(000)	INCREASE T&D CAP. COSTS $(000)	INCREASED GEN. CAP. COSTS $(000)	UTILITY PROGRAM COSTS $(000)	INCENTIVE PAYMENTS $(000)	REVENUE LOSSES $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	6	0	0	14	0	0	0	27	34	11	73	-59
2006	14	12	0	0	26	0	0	0	27	34	22	84	-58
2007	29	18	11	0	58	0	0	0	27	34	34	95	-38
2008	38	24	15	0	78	0	0	0	27	34	46	107	-30
2009	46	30	18	0	94	0	0	0	27	34	57	118	-24
2010	32	36	34	0	102	0	0	0	27	34	59	121	-18
2011	44	42	39	0	125	0	0	0	27	34	85	146	-21
2012	55	48	48	0	152	0	0	0	27	34	99	160	-8
2013	59	54	52	0	165	0	0	0	27	34	114	175	-10
2014	71	60	48	0	180	0	0	0	27	34	129	191	-11
2015	75	60	53	0	189	0	0	0	0	0	132	132	56
2016	71	60	52	0	183	0	0	0	0	0	129	129	53
2017	80	60	56	0	197	0	0	0	0	0	139	139	58
2018	80	60	55	0	195	0	0	0	0	0	143	143	53
2019	85	60	60	0	205	0	0	0	0	0	146	146	59
2020	84	60	58	0	203	0	0	0	0	0	150	150	53
2021	85	60	60	0	205	0	0	0	0	0	154	154	51
2022	87	60	61	0	209	0	0	0	0	0	157	157	51
2023	88	60	63	0	211	0	0	0	0	0	160	160	51
2024	91	60	65	0	216	0	0	0	0	0	165	165	50
2025	92	60	66	0	218	0	0	0	0	0	170	170	48
2026	93	60	68	0	221	0	0	0	0	0	174	174	47
2027	94	60	69	0	224	0	0	0	0	0	178	178	46
2028	96	60	71	0	228	0	0	0	0	0	183	183	45
2029	97	60	72	0	230	0	0	0	0	0	187	187	43
2030	100	60	75	0	235	0	0	0	0	0	192	192	43
2031	101	60	76	0	237	0	0	0	0	0	197	197	41
2032	104	60	79	0	243	0	0	0	0	0	201	201	41
2033	105	60	80	0	245	0	0	0	0	0	207	207	39
NOMINAL	2,101	1,480	1,505	0	5,086	0	0	0	270	344	3,819	4,433	653
NPV	610	457	417	0	1,484	0	0	0	180	229	1,062	1,472	12

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.01**

PROGRAM: LOW INCOME WEATHERIZATION PROGRAM

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	6	0	0	14	0	0	0	0	27	27	-13
2006	14	12	0	0	26	0	0	0	0	27	27	-1
2007	29	18	11	0	58	0	0	0	0	27	27	31
2008	38	24	15	0	78	0	0	0	0	27	27	51
2009	46	30	18	0	94	0	0	0	0	27	27	67
2010	32	36	34	0	102	0	0	0	0	27	27	75
2011	44	42	39	0	125	0	0	0	0	27	27	98
2012	55	48	48	0	152	0	0	0	0	27	27	125
2013	59	54	52	0	165	0	0	0	0	27	27	138
2014	71	60	48	0	180	0	0	0	0	27	27	153
2015	75	60	53	0	189	0	0	0	0	0	0	189
2016	71	60	52	0	183	0	0	0	0	0	0	183
2017	80	60	56	0	197	0	0	0	0	0	0	197
2018	80	60	55	0	195	0	0	0	0	0	0	195
2019	85	60	60	0	205	0	0	0	0	0	0	205
2020	84	60	58	0	203	0	0	0	0	0	0	203
2021	85	60	60	0	205	0	0	0	0	0	0	205
2022	87	60	61	0	209	0	0	0	0	0	0	209
2023	88	60	63	0	211	0	0	0	0	0	0	211
2024	91	60	65	0	216	0	0	0	0	0	0	216
2025	92	60	66	0	218	0	0	0	0	0	0	218
2026	93	60	68	0	221	0	0	0	0	0	0	221
2027	94	60	69	0	224	0	0	0	0	0	0	224
2028	96	60	71	0	228	0	0	0	0	0	0	228
2029	97	60	72	0	230	0	0	0	0	0	0	230
2030	100	60	75	0	235	0	0	0	0	0	0	235
2031	101	60	76	0	237	0	0	0	0	0	0	237
2032	104	60	79	0	243	0	0	0	0	0	0	243
2033	105	60	80	0	245	0	0	0	0	0	0	245
NOMINAL	2,101	1,480	1,505	0	5,086	0	0	0	0	270	270	4,816
NPV	610	457	417	0	1,484	0	0	0	0	180	180	1,304

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **8.24**

PROGRAM: LOW INCOME WEATHERIZATION PROGRAM

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S **BILL** INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	11	34	0	46	0	0	0	46
2006	22	34	0	57	0	0	0	57
2007	34	34	0	68	0	0	0	68
2008	46	34	0	80	0	0	0	80
2009	57	34	0	91	0	0	0	91
2010	59	34	0	94	0	0	0	94
2011	85	34	0	119	0	0	0	119
2012	99	34	0	133	0	0	0	133
2013	114	34	0	148	0	0	0	148
2014	129	34	0	164	0	0	0	164
2015	132	0	0	132	0	0	0	132
2016	129	0	0	129	0	0	0	129
2017	139	0	0	139	0	0	0	139
2018	143	0	0	143	0	0	0	143
2019	146	0	0	146	0	0	0	146
2020	150	0	0	150	0	0	0	150
2021	154	0	0	154	0	0	0	154
2022	157	0	0	157	0	0	0	157
2023	160	0	0	160	0	0	0	160
2024	165	0	0	165	0	0	0	165
2025	170	0	0	170	0	0	0	170
2026	174	0	0	174	0	0	0	174
2027	178	0	0	178	0	0	0	178
2028	183	0	0	183	0	0	0	183
2029	187	0	0	187	0	0	0	187
2030	192	0	0	192	0	0	0	192
2031	197	0	0	197	0	0	0	197
2032	201	0	0	201	0	0	0	201
2033	207	0	0	207	0	0	0	207
NOMINAL	3,613	344	0	3,957	0	0	0	3,957
NPV	1,062	229	0	1,292	0	0	0	1,292

Utility Discount Rate: 8.16
Benefit Cost Ratio: NA

E. RESIDENTIAL ENERGY MANAGEMENT PROGRAM

Program Start Date:

- 1981
- Program modified in 1995
- Program modified in 2000

Policies and Procedures

Residential Energy Management is a voluntary customer program that allows PEF to reduce peak demand and defer generation construction. Peak demand is reduced by interrupting service to selected electrical equipment with radio controlled switches installed on the customers' premises. These controlled interruptions are at PEF's option, during specified time periods, and coincident with hours of peak demand.

Winter-Only Energy Management

The Winter-Only Energy Management component of the program represents a modified, cost-effective version of the previous year-round Residential Energy Management program. It provides for winter only (November through March) direct load control of customer's electric water heating and central electric heating appliances. Eligible participants must have both appliances on the program and will receive monthly credits during the potential control months. The amount of the credits are identical to those under the previous year-round Residential Energy Management program (rate schedule RSL-1) except that they are payable only during the winter months.

The winter Only Energy Management component will enable PEF to continue to provide customers a cost-effective alternative to standard residential service that can help lower their electric bills as well as reduce PEF's winter peak demand.

Program Participation

Cumulative program participation estimates beginning in the year 2000 are shown in the following table, and reflect new equipment installations under the Winter-Only Energy Management component of the program. There are no new participants (i.e., new Energy Management installations) projected for the Year-Round Energy Management component.

Year	Total Number of Customers [1]	Total Number of Eligible Customers [2]	Annual Number of Program Participants	Cumulative Penetration Level (%)
2005	1,382,699	1,030,016	5,000	0.49%
2006	1,406,712	1,065,266	9,500	0.89%
2007	1,431,102	1,098,861	14,000	1.27%
2008	1,455,971	1,131,190	18,300	1.62%
2009	**1,481,124**	**1,162,301**	**22,600**	**1.94%**
2010	1,505,866	1,191,704	26,900	2.26%
2011	**1,529,665**	**1,219,697**	**31,200**	**2.56%**
2012	1,552,660	1,246,468	**35,500**	**2.85%**
2013	1,575,153	1,272,359	39,800	3.13%
2014	1,597,449	1,297,713	44,800	3.45%

1. *Total Number of Customers is the forecast of all residential customers, from the November 2003 Forecast.*
2. *Total numbers of eligible customers are all residential customers not already on the Residential Energy Management program.*

Savings Estimates

The total program savings shown in the following tables reflect the demand and energy savings associated with the new program participants projected for the Winter-Only Energy Management Program.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	2.14	0.000	0.000	10,700	0	
2006	2.14	0.000	0.000	21,400	0	
2007	2.14	0.000	0.000	31,030	0	
2008	2.14	0.000	0.000	40,660	0	
2009	2.14	0.000	0.000	49,862	0	
2010	2.14	0.000	0.000	59,064	0	
2011	2.14	0.000	0.000	68,266	0	
2012	2.14	0.000	0.000	77,468	0	
2013	2.14	0.000	0.000	86,670	0	
2014	2.14	0.000	0.000	95,872	0	

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	2.29	0.0000	0.0000	11,434	0	0
2006	2.29	0.0000	0.0000	22,867	0	0
2007	2.29	0.0000	0.0000	33,158	0	0
2008	2.29	0.0000	0.0000	43,448	0	0
2009	2.29	0.0000	0.0000	53,281	0	0
2010	2.29	0.0000	0.0000	63,114	0	0
2011	2.29	0.0000	0.0000	72,947	0	0
2012	2.29	0.0000	0.0000	82,780	0	0
2013	2.29	0.0000	0.0000	92,613	0	0
2014	2.29	0.0000	0.0000	102,446	0	0

Impact Evaluation Plan

PEF is in the process of conducting a residential end-use metering study that will be used to estimate the appliance level, and duty-cycle impacts of residential load control. This end-use metering data will be used to perform engineering and statistical analysis to estimate the impacts of the program.

Cost-Effectiveness

The following economic results for the current winter-only Residential Energy Management program:

Cost-Effectiveness Test	NPV Benefits $(000)	NPV Costs $(000)	NPV Net Benefits $(000)	B/C Ratio
Rate Impact Measure	31,320	20,728	10,591	1.51
Participant	10,050	360	9,690	28
Total Resource Cost	30,960	10,678	20,281	2.90

Residential Energy Management - Winter Only DLC
Vintage: Existing

RATE IMPACT MEASURE TEST

	BENEFITS					COSTS							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	TOTAL FUEL & O&M SAVINGS	AVOIDED T&D CAP. COSTS	AVOIDED GEN. CAP. COSTS	REVENUE GAINS	**TOTAL BENEFITS**	TOTAL FUEL & O&M INCREASE	INCREASED T&D CAP. COSTS	INCREASED GEN. CAP. COSTS	UTILITY PROGRAM COSTS	INCENTIVE PAYMENTS	REVENUE LOSSES	**TOTAL COSTS**	**NET BENEFITS**
YEAR	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)	$(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	0	0	0	8	0	0	0	500	124	4	627	-620
2006	15	0	0	0	15	0	0	0	523	248	9	780	-765
2007	617	0	822	0	1,439	0	0	0	548	372	29	949	490
2008	722	0	1,009	0	1,731	0	0	0	574	496	23	1,092	638
2009	1,013	0	1,369	0	2,382	0	0	0	600	620	123	1,342	1,040
2010	0	0	2,350	74	2,424	253	0	0	627	744	0	1,624	800
2011	0	0	2,825	0	2,825	866	0	0	655	868	72	2,461	364
2012	0	0	3,292	111	3,403	534	0	0	684	992	0	2,210	1,194
2013	0	0	3,923	0	3,923	1,068	0	0	714	1,116	98	2,996	927
2014	0	0	3,519	0	3,519	777	0	0	745	1,240	117	2,879	640
2015	10	0	3,510	0	3,520	0	0	0	569	1,240	229	2,039	1,481
2016	0	0	3,617	0	3,617	455	0	0	580	1,240	74	2,348	1,268
2017	189	0	3,885	0	4,075	0	0	0	591	1,240	240	2,072	2,003
2018	0	0	3,773	87	3,860	481	0	0	603	1,240	0	2,324	1,537
2019	333	0	4,091	0	4,424	0	0	0	615	1,240	217	2,072	2,352
2020	0	0	3,964	134	4,098	513	0	0	628	1,240	0	2,381	1,718
2021	0	0	4,063	143	4,207	584	0	0	641	1,240	0	2,465	1,741
2022	0	0	4,165	144	4,309	558	0	0	655	1,240	0	2,453	1,856
2023	0	0	4,269	146	4,415	604	0	0	669	1,240	0	2,513	1,903
2024	0	0	4,383	161	4,544	639	0	0	684	1,240	0	2,563	1,981
2025	0	0	4,485	132	4,617	706	0	0	699	1,240	0	2,646	1,972
2026	0	0	4,605	70	4,676	634	0	0	715	1,240	0	2,589	2,087
2027	0	0	4,720	61	4,782	758	0	0	732	1,240	0	2,730	2,052
2028	0	0	4,830	0	4,830	652	0	0	750	1,240	9	2,651	2,179
2029	0	0	5,173	0	5,173	738	0	0	770	1,240	172	2,919	2,254
2030	0	0	5,195	0	5,195	679	0	0	790	1,240	128	2,837	2,358
2031	0	0	5,409	0	5,409	877	0	0	811	1,240	182	3,110	2,300
2032	0	0	5,508	0	5,508	781	0	0	833	1,240	168	3,022	2,487
2033	0	0	5,723	0	5,723	992	0	0	856	1,240	238	3,326	2,397
NOMINAL	2,906	0	104,479	1,263	108,649	14,146	0	0	19,362	30,380	2,130	66,018	42,631
NPV	1,894	0	29,066	360	31,320	3,827	0	0	6,852	9,387	662	20,728	10,591

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.51**

Residential Energy Management - Winter Only DLC
Vintage: Existing

TOTAL RESOURCE COST TEST

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	8	0	0	0	8	0	0	0	0	500	500	-492
2006	15	0	0	0	15	0	0	0	0	523	523	-509
2007	617	0	822	0	1,439	0	0	0	0	548	548	891
2008	722	0	1,009	0	1,731	0	0	0	0	574	574	1,157
2009	1,013	0	1,369	0	2,382	0	0	0	0	600	600	1,782
2010	0	0	2,350	0	2,350	0	253	0	0	627	880	1,470
2011	0	0	2,825	0	2,825	0	866	0	0	655	1,521	1,303
2012	0	0	3,292	0	3,292	0	534	0	0	684	1,218	2,075
2013	0	0	3,923	0	3,923	0	1,068	0	0	714	1,782	2,141
2014	0	0	3,519	0	3,519	0	777	0	0	745	1,522	1,997
2015	10	0	3,510	0	3,520	0	0	0	0	569	569	2,951
2016	0	0	3,617	0	3,617	0	455	0	0	580	1,035	2,582
2017	189	0	3,885	0	4,075	0	0	0	0	591	591	3,483
2018	0	0	3,773	0	3,773	0	481	0	0	603	1,084	2,690
2019	333	0	4,091	0	4,424	0	0	0	0	615	615	3,809
2020	0	0	3,964	0	3,964	0	513	0	0	628	1,141	2,824
2021	0	0	4,063	0	4,063	0	584	0	0	641	1,225	2,838
2022	0	0	4,165	0	4,165	0	558	0	0	655	1,213	2,952
2023	0	0	4,269	0	4,269	0	604	0	0	669	1,273	2,997
2024	0	0	4,383	0	4,383	0	639	0	0	684	1,323	3,060
2025	0	0	4,485	0	4,485	0	706	0	0	699	1,406	3,080
2026	0	0	4,605	0	4,605	0	634	0	0	715	1,349	3,256
2027	0	0	4,720	0	4,720	0	758	0	0	732	1,490	3,231
2028	0	0	4,830	0	4,830	0	652	0	0	750	1,402	3,428
2029	0	0	5,173	0	5,173	0	738	0	0	770	1,507	3,665
2030	0	0	5,195	0	5,195	0	679	0	0	790	1,469	3,726
2031	0	0	5,409	0	5,409	0	877	0	0	811	1,687	3,722
2032	0	0	5,508	0	5,508	0	781	0	0	833	1,614	3,894
2033	0	0	5,723	0	5,723	0	992	0	0	856	1,847	3,875
NOMINAL	2,906	0	104,479	0	107,385	0	**14,146**	0	0	**19,362**	**33,507**	73,878
NPV	1,894	0	29,066	0	30,960	0	3,827	0	0	6,852	10,678	20,281

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **2.90**

Residential Energy Management - Winter Only DLC
Vintage: Existing

PARTICIPANT TEST

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST **$(000)**	(6) PARTICIPANT'S BILL INCREASE **$(000)**	(7) **TOTAL COSTS** **$(000)**	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	4	124	0	128	0	0	0	128
2006	9	248	0	257	0	0	0	257
2007	29	372	0	401	0	0	0	401
2008	23	496	0	519	0	0	0	519
2009	123	620	0	743	0	0	0	743
2010	0	744	0	744	0	74	74	670
2011	72	868	0	940	0	0	0	940
2012	0	992	0	992	0	111	111	881
2013	98	1,116	0	1,214	0	0	0	1,214
2014	117	1,240	0	1,357	0	0	0	1,357
2015	229	1,240	0	1,469	0	0	0	1,469
2016	**74**	**1,240**	**0**	**1,314**	0	0	0	1,314
2017	**240**	**1,240**	**0**	**1,480**	0	0	0	1,480
2018	0	1,240	0	1,240	0	87	87	1,153
2019	217	1,240	0	1,457	0	0	0	1,457
2020	0	1,240	0	1,240	0	134	134	1,106
2021	0	1,240	0	1,240	0	143	143	1,097
2022	0	1,240	0	1,240	0	144	144	1,096
2023	0	1,240	0	1,240	0	146	146	1,094
2024	0	1,240	0	1,240	0	161	161	1,079
2025	0	1,240	0	1,240	0	132	132	1,108
2026	0	1,240	0	1,240	0	70	70	1,170
2027	**0**	**1,240**	**0**	**1,240**	0	61	61	1,179
2028	**9**	**1,240**	**0**	**1,249**	0	0	0	1,249
2029	**172**	**1,240**	**0**	**1,412**	0	0	0	1,412
2030	128	1,240	0	1,368	0	0	0	1,368
2031	182	1,240	0	1,422	0	0	0	1,422
2032	168	1,240	0	1,408	0	0	0	1,408
2033	238	1,240	0	1,478	0	0	0	1,478
NOMINAL	1,892	29,140	0	31,032	0	1,263	1,263	29,768
NPV	662	9,387	0	10,050	0	360	360	9,690

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **27.94**

IV. COMMERCIAL/INDUSTRIAL

CONSERVATION PROGRAMS

IV. COMMERCIAL/INDUSTRIAL CONSERVATION PROGRAMS

Progress Energy Florida, Inc.'s (PEF) DSM Plan includes seven (7) commercial/industrial programs:

A. **Business Energy Check** - C/I energy audits

B. **Better Business** - "umbrella" program for existing facilities

C. **C/I New Construction** - "umbrella" program for new construction facilities

D. **Innovation Incentive** - custom measures

E. **Standby Generation** - Rate Tariff GSLM-2

F. **Interruptible Service** - Rate Tariff IS-2

G. **Curtailable Service** - Rate Tariff CS-2

Each program is described in detail in the following sections.

A. BUSINESS ENERGY CHECK PROGRAM

Program Start Date: ▸ 1995

Policies and Procedures

The Business Energy Check is Progress Energy Florida's (PEF) energy audit program. It provides commercial and industrial (C/I) customers with an assessment of the current energy usage at their facility and information on low-cost energy efficiency measures. This program serves as the foundation for PEF's other DSM programs targeted toward existing C/I construction and, in most cases, it is a prerequisite for participation in the other C/I programs.

The Business Energy Check consists of the following types of audits:

Type 1: **Free On-site Walk-Through Audit (Inspection)**

Type 2: **Paid Walk-Through Audit (Energy Analysis)**

Type 3: On-line Business Energy Check (A Customer-completed Internet audit)

All commercial, industrial, and governmental retail customers of PEF are eligible to have either type conducted on any of their buildings located in PEF's service territory. There is no charge for Type 1 or Type 3 audits, while there is a nominal customer charge for the Type 2 energy analysis. When a customer requests a Business Energy Check, they will be given the option of scheduling a Type 1 inspection or a Type 2 energy analysis, and will be informed of the On-line audit option. The specific details on the procedures for each type of audit will be presented in the Program Participation Standards.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of On-site Audit Participants	Annual Number of On-line Audit Participants	Cumulative Penetration Level (%)
2005	184,973	166,476	1,500	150	1%
2006	188,338	169,504	3,000	300	2%
2007	191,917	172,725	4,500	450	3%
2008	195,622	176,060	6,000	600	4%
2009	199,361	179,425	7,500	750	5%
2010	203,048	182,743	9,000	900	5%
2011	206,613	185,952	10,500	1,050	6%
2012	210,080	189,072	12,000	1,200	7%
2013	213,480	192,132	13,500	1,350	8%
2,014	216,855	195,170	15,000	1,500	8%

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*

Savings Estimates

The total program savings were developed based on historical PEF audits and a review of C/I audit impacts. These estimates include impacts directly resulting from the standard audit recommendations, including the installation of low-cost energy efficiency measures. In addition, customer-specific savings may result from site-specific recommendations that the auditor makes at the time of the audit, but which are not included in the standard audit form. These impacts will be calculated on a case-by-case basis and added to the standard impacts. The total program savings are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	291	0.136	0.136	480,000	225	225
2006	291	0.136	0.136	960,000	450	450
2007	291	0.136	0.136	1,440,000	675	675
2008	291	0.136	0.136	1,920,000	900	900
2009	291	0.136	0.136	2,400,000	1,125	1,125
2010	291	0.136	0.136	2,920,000	1,369	1,369
2011	290	0.136	0.136	3,440,000	1,613	1,613
2012	290	0.136	0.136	3,960,000	1,857	1,857
2013	290	0.136	0.136	4,480,000	2,101	2,101
2014	290	0.136	0.136	5,000,000	2,345	2,345

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	311	0.1457	0.1457	512,914	240	240
2006	311	0.1457	0.1457	1,025,828	481	481
2007	311	0.1457	0.1457	1,538,742	721	721
2008	311	0.1457	0.1457	2,051,656	962	962
2009	311	0.1457	0.1457	2,564,570	1,202	1,202
2010	310	0.1456	0.1456	3,120,227	1,463	1,463
2011	310	0.1455	0.1455	3,675,884	1,724	1,724
2012	310	0.1454	0.1454	4,231,541	1,984	1,984
2013	310	0.1453	0.1453	4,787,197	2,245	2,245
2014	310	0.1453	0.1453	5,342,854	2,506	2,506

mpact Evaluation Plan

The range of possible recommendations resulting from the audit, and the inclusion of both technological and behavioral recommendations suggests the need to carefully survey participants to determine what specific actions have been undertaken due to the completed audit. Initially, the use of site-specific engineering estimates is likely to be the most cost-effective method of estimating program impacts, although the use of statistical analysis technique may also be considered, depending on the participation levels actually achieved.

B. BETTER BUSINESS PROGRAM

Program Start Date:

- 1995
- Proposed modification for 2005

Policies and Procedures

The Better Business program is the umbrella efficiency program for existing commercial and industrial customers. Better Business builds on the Business Energy Check by using the audit to initiate PEF involvement in the customer's facility (participating in Business Energy Check is a prerequisite for receiving most of the incentives). This program provides customers with information, education, and advice on energy-related issues and incentives on efficiency measures that are cost-effective to PEF and its customers. Better Business promotes energy efficient heating, ventilation, air conditioning, high efficiency energy recovery ventilation, and some building retrofit measures (in particular, ceiling insulation upgrade, duct leakage test and repair, and cool roof coatings).

The general eligibility requirements are as follows:

- The participant must be a PEF commercial, industrial, or governmental customer.
- Equipment must be installed in facilities located in the PEF service territory and served by a metered PEF account.
- A Business Energy Check audit (Type 1, 2, or 3) must be completed prior to the purchase or installation of all measures (with the exception of emergency HVAC replacements).
- The participant must be willing to allow PEF to inspect the installation of all measures and equipment prior to receiving any incentive payments.
- All equipment installations shall meet manufacturers' instructions and specifications.

Incentive levels and specific eligibility requirements for each measure promoted in this program will be presented in the Program Participation Standards and will be subject to revision based on changes in market conditions, such as baseline or code revisions, evaluation findings, or technological advances.

HVAC Equipment

The HVAC equipment component of Better Business provides customers with information on high efficiency HVAC equipment and financial incentives for the purchase of high efficiency unitary heat pumps and air conditioners, packaged rooftop units, packaged terminal heat pumps (PTHP's), and water-cooled and air-cooled chillers. The incentive is calculated for each unit based on the kW difference between the high efficiency unit and the program-specified baseline efficiency (at ARI Standard Test Rating Conditions) and is calculated using a dollar per kW reduced incentive up to a maximum of $100/kW reduced. The maximum incentive is $50,000 per installation for a chiller project.

Energy Recovery Ventilation

The program promotes the installation of high efficiency energy recovery ventilation (ERV) units in the conditioned air stream for customers using electric cooling and heating. These units are capable of removing over 70% of the sensible heat and over 60% of the latent heat when properly sized and installed. To qualify for PEF's incentive of $0.75 per CFM, the ERV must be at least a 450 cfm unit and have a total efficiency greater than 65% per ARI 1060-2000 test standards. As an example, a qualifying 450 cfm ERV will earn a $337 incentive. The maximum incentive is $1,500 per installation.

Duct Leakage Test and Repair

This portion of the program is designed to promote energy efficiency through improved duct system sealing. Through the use of an inspection tool, such as a blower-door, duct leaks can be identified and repaired. This program component applies to HVAC equipment and systems that are no larger than 65,000 Btu/h. A customer must have electric heating and a centrally-ducted cooling system, either air conditioning or heat pump, to be eligible for this program. If a building has excess ventilation such that the building can not be pressurized, the building may not be eligible for participation. For the duct test, PEF will pay an incentive of up to a maximum of $30 for the first unit tested and $20 for each additional unit tested. For the duct repair, PEF will pay an incentive of up to a maximum of $100 per unit. The duct repair incentive amount is dependent on the type of electric heating system.

Ceiling Insulation Upgrade

This portion of the program encourages customers who have electric space heat to add insulation to the ceiling area by paying for a portion of the installed cost. The facility must have an existing ceiling insulation level less than R-12 to participate and must be heated by electricity in order to receive the incentive. Heat loss and heat gain calculations must show that the additional insulation would result in heating and/or cooling energy use reductions in order to be eligible for an incentive. The maximum incentive amount will be $100 per customer and the specific incentive amount that a customer is eligible to receive will be a function of the resulting insulation level.

Cool Roof

This program will provide customers with an incentive to install an Energy Star Roof Products approved "*cool roof*" coating providing the facility has electric cooling. Energy Star allows manufacturers to use the Energy Star label on reflective roof products that meet the US EPA's specifications for solar reflectance and reliability, having an initial reflectance greater than or equal to .65. The incentive will be $ 50 per 1,000 square-foot of *cool roof* coating installed with a maximum incentive of $1,000 per installation.

Motors and Window Film removed

Progress Energy has determined that it is no longer cost-effective under the RIM test to continue offering incentives for motors and window film. These measures have low rates of participation and have small overall impacts.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Measure Participants [2]	Cumulative Penetration Level (%)
2005	184,973	166,476	489	0.3%
2006	188,338	169,504	987	0.6%
2007	191,917	172,725	1,467	0.9%
2008	195,622	176,060	1,956	1.1%
2009	199,361	179,425	2,445	1.4%
2010	203,048	182,743	2,934	1.6%
2011	206,613	185,952	3,423	1.9%
2012	210,080	189,072	3,912	2.1%
2013	213,480	192,132	4,401	2.3%
2,014	216,855	195,170	4,890	2.5%

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*
2. *This total is larger than the number of actual customers anticipated installing eligible measures and earning an incentive since many customers install multiple measures at one account.*

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's (1) per customer savings and, (2) annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	2414	1.197	1.396	1,194,756	593	691
2006	2414	1.197	1.396	2,389,512	1,185	1,382
2007	2414	1.197	1.396	3,584,268	1,778	2,074
2008	2414	1.197	1.396	4,779,024	2,371	2,765
2009	2414	1.197	1.396	5,973,780	2,963	3,456
2010	2414	1.197	1.396	7,168,536	3,556	4,147
2011	2414	1.197	1.396	8,363,292	4,148	4,839
2012	2414	1.197	1.396	9,558,049	4,741	5,530
2013	2414	1.197	1.396	10,752,805	5,334	6,221
2014	2414	1.197	1.396	11,947,561	5,926	6,912

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	2579	1.2793		1,276,681	633	739
2006	2579	1.2793		2,553,363	1,267	1,477
2007	2579	1.2793		3,830,044	1,900	2,216
2008	2579	1.2793		5,106,726	2,533	2,955
2009	2579	1.2793	1.4922	6,383,407	3,166	3,693
2010	2579	1.2793	1.4922	7,660,089	3,800	4,432
2011	2579	1.2793	1.4922	8,936,770	4,433	5,170
2012	2579	1.2793	1.4922	10,213,452	5,066	5,909
2013	2579	1.2793	1.4922	11,490,133	5,699	6,648
2014	2579	1.2793	1.4922	12,766,815	6,333	7,386

Per measure impacts for 2005-2014., assuming no overlap.

Per measure impacts vary from year to year because of the changing mix of measures assumed to be installed in any given year.

Impact Evaluation Plan

The impact evaluation plan for an "umbrella" program such as this requires a varied approach given the number and type of measures being promoted. Some measures provide large per unit impacts while others yield relatively smaller impacts. The total impact from all smaller-impact measures could potentially be less than the uncertainty around an impact estimate of just one large-impact measure. Consequently, the impact evaluation will place greater emphasis on the larger-impact measures. The method of impact evaluation may vary depending on the participation levels actually achieved for each measure. Engineering analysis and statistical billing analysis will represent the primary methods used to estimate demand and energy impacts. On-site metering may also be used where feasible and cost-effective.

Cost Effectiveness

The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits (000$)	NPV Costs (000$)	NPV Net Benefits (000$)	B/C Ratio
Rate Impact	8,283	6,904	1,379	1.20
Participant	6,826	4,414	2,412	1.55
Total Resource Cost	8,283	4,492	3,791	1.84

Program: **Better Business**

Existing **Rate Impact Measure Test**

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	60	22	0	0	82	**0**	**0**	**0**	**12**	**136**	**65**	**213**	-131
2006	93	44	0	0	138	**0**	**0**	**0**	**12**	**136**	**121**	**269**	-131
2007	185	66	61	0	312	0	0	0	12	136	186	333	-21
2008	244	88	85	0	417	0	0	0	12	136	252	400	18
2009	307	110	104	0	522	0	0	0	12	136	313	460	62
2010	271	132	231	0	635	0	0	0	12	136	381	529	106
2011	304	155	232	0	691	0	0	0	12	136	469	616	75
2012	380	177	284	0	840	0	0	0	12	136	548	695	145
2013	413	199	311	0	923	0	0	0	12	136	630	777	145
2014	486	221	285	0	991	0	0	0	12	136	715	863	128
2015	514	221	304	0	1,039	0	0	0	0	0	733	733	306
2016	513	221	299	0	1,032	0	0	0	0	0	745	745	287
2017	542	221	320	0	1,083	0	0	0	0	0	770	770	313
2018	544	221	315	0	1,080	0	0	0	0	0	789	789	291
2019	571	221	335	0	1,126	0	0	0	0	0	809	809	317
2020	572	221	330	0	1,123	0	0	0	0	0	829	829	293
2021	581	221	338	0	1,140	0	0	0	0	0	850	850	290
2022	593	221	346	0	1,161	0	0	0	0	0	868	868	293
2023	604	221	355	0	1,180	0	0	0	0	0	890	890	290
2024	619	221	364	0	1,204	0	0	0	0	0	915	915	288
2025	628	221	373	0	1,222	0	0	0	0	0	938	938	284
2026	640	221	382	0	1,243	0	0	0	0	0	962	962	281
2027	650	221	392	0	1,262	0	0	0	0	0	986	986	277
2028	664	221	402	0	1,287	0	0	0	0	0	**1,010**	**1,010**	276
2029	673	221	408	0	1,301	0	0	0	0	0	1,036	1,036	266
2030	689	221	422	0	1,332	0	0	0	0	0	1,062	1,062	271
2031	698	221	429	0	1,347	0	0	0	0	0	1,087	1,087	260
2032	716	221	444	0	1,380	0	0	0	0	0	1,115	1,115	265
2033	725	221	450	0	1,396	0	0	0	0	0	1,143	1,143	253
NOMINAL	14,477	5,409	8,601	0	28,487	0	0	0	118	1,357	21,216	22,691	5,796
NPV	4,201	1,671	2,411	0	8,283	0	0	0	78	904	5,922	6,904	1,379

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.20**

Program: **Better Business**

Existing **Total Resource Cost Test**

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST **$(000)**	(7) TOTAL FUEL & O&M INCREASE **$(000)**	(8) INCREASED T&D CAP. COSTS **$(000)**	(9) INCREASED GEN. CAP. COSTS **$(000)**	(10) UTILITY PROGRAM COSTS **$(000)**	(11) **TOTAL COSTS** **$(000)**	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	60	22	0	0	82	663	0	0	0	12	674	-592
2006	93	44	0	0	138	663	0	0	0	12	674	-537
2007	185	66	61	0	312	663	0	0	0	12	674	-362
2008	244	88	85	0	417	663	0	0	0	12	674	-257
2009	307	110	104	0	522	663	0	0	0	12	674	-152
2010	271	132	231	0	635	663	0	0	0	12	674	-40
2011	304	155	232	0	691	663	0	0	0	12	674	17
2012	380	177	284	0	840	663	0	0	0	12	674	165
2013	413	199	311	0	923	663	0	0	0	12	674	248
2014	486	221	285	0	991	663	0	0	0	12	674	317
2015	514	221	304	0	1,039	0	0	0	0	0	0	1,039
2016	513	221	299	0	1,032	0	0	0	0	0	0	1,032
2017	542	221	320	0	1,083	0	0	0	0	0	0	1,083
2018	544	221	315	0	1,080	0	0	0	0	0	0	1,080
2019	571	221	335	0	1,126	0	0	0	0	0	0	1,126
2020	572	221	330	0	1,123	0	0	0	0	0	0	1,123
2021	581	221	338	0	1,140	0	0	0	0	0	0	1,140
2022	593	221	346	0	1,161	0	0	0	0	0	0	1,161
2023	604	221	355	0	1,180	0	0	0	0	0	0	1,180
2024	619	221	364	0	1,204	0	0	0	0	0	0	1,204
2025	628	221	373	0	1,222	0	0	0	0	0	0	1,222
2026	640	221	382	0	1,243	0	0	0	0	0	0	1,243
2027	650	221	392	0	1,262	0	0	0	0	0	0	1,262
2028	664	221	402	0	1,287	0	0	0	0	0	0	1,287
2029	673	221	408	0	1,301	0	0	0	0	0	0	1,301
2030	689	221	422	0	1,332	0	0	0	0	0	0	1,332
2031	698	221	429	0	1,347	0	0	0	0	0	0	1,347
2032	716	221	444	0	1,380	0	0	0	0	0	0	1,380
2033	725	221	450	0	1,396	0	0	0	0	0	0	1,396
NOMINAL	14,477	5,409	8,601	0	28,487	6,625	0	0	0	118	6,743	21,744
NPV	4,201	1,671	2,411	0	8,283	4,414	0	0	0	78	4,492	3,791

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.84**

Program: **Better Business**

Existing **Participant Test**

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	65	136	0	201	663	0	663	-462
2006	121	136	0	257	663	0	663	-405
2007	186	136	0	321	663	0	663	-341
2008	252	136	0	388	663	0	663	-275
2009	313	136	0	449	663	0	663	-214
2010	381	136	0	517	663	0	663	-146
2011	469	136	0	605	663	0	663	-58
2012	548	136	0	683	663	0	663	21
2013	630	136	0	765	663	0	663	103
2014	715	136	0	851	663	0	663	188
2015	733	0	0	733	0	0	0	733
2016	745	0	0	745	0	0	0	745
2017	770	0	0	770	0	0	0	770
2018	789	0	0	789	0	0	0	789
2019	809	0	0	809	0	0	0	809
2020	829	0	0	829	0	0	0	829
2021	850	0	0	850	0	0	0	850
2022	868	0	0	868	0	0	0	868
2023	890	0	0	890	0	0	0	890
2024	915	0	0	915	0	0	0	915
2025	938	0	0	938	0	0	0	938
2026	962	0	0	962	0	0	0	962
2027	986	0	0	986	0	0	0	986
2028	1,010	0	0	1,010	0	0	0	1,010
2029	1,036	0	0	1,036	0	0	0	1,036
2030	1,062	0	0	1,062	0	0	0	1,062
2031	1,087	0	0	1,087	0	0	0	1,087
2032	1,115	0	0	1,115	0	0	0	1,115
2033	1,143	0	0	1,143	0	0	0	1,143
NOMINAL	20,073	1,357	0	21,430	6,625	0	6,625	14,805
NPV	5.922	904	0	6,826	4,414	0	4,414	2,412

Utility Discount Rate: **8.16**
Benefit Cost Ratio: **1.55**

C. COMMERCIAL/INDUSTRIAL NEW CONSTRUCTION PROGRAM

Program Start Date:

- 1995
- Program modified in 2000
- Proposed modification for 2005

Policies and Procedures

The primary goal of the PEF's Commercial/Industrial (C/I) New Construction program is to foster the design and construction of energy efficient buildings. The new construction program will: 1) provide education and information to the design community on all aspects of energy efficient building design; 2) require that the building design, at a minimum, surpass the state energy code; 3) provide financial incentives for specific energy efficient equipment; and 4) provide energy design awards to building design teams. The program will simultaneously target building developers/owners and the building design community and will work one-on-one with them throughout a new construction project. PEF will focus on developing relationships with the key decision-makers of commercial and industrial new construction so as to be able to get involved early in the design process.

The general eligibility requirements are as follows:

- The new construction project location must be established within PEF's service territory.
- The new construction building must be served by a PEF account prior to the issuance of any incentive payment.
- The participant must be willing to allow PEF to inspect the installation of all measures and equipment prior to receiving any incentive payments.
- All equipment installations shall meet manufacturers' instructions and specifications.

Incentives will be provided for high efficiency HVAC equipment, high efficiency energy recovery ventilation, and cool roof coatings. Incentive levels and specific eligibility requirements for each of the measures promoted in this program will be presented in the Program Participation Standards and will be subject to revision based on changes in market conditions, such as baseline or code revisions, evaluation findings, or technological advances.

HVAC Equipment

The HVAC equipment component of C/I New Construction provides customers with information on high efficiency HVAC equipment and financial incentives for the purchase of high efficiency unitary heat pumps and air conditioners, packaged rooftop units, packaged terminal heat pumps (PTHPs), and water-cooled and air-cooled chillers. The incentive is calculated for each unit based on the kW difference between the high efficiency unit and the program-specified baseline efficiency (at ARI Standard Test Rating Conditions) and is calculated using a dollar per kW reduced incentive up to $100/kW reduced. The maximum incentive is $50,000 per installation for a chiller project.

Energy Recovery Ventilation

The program promotes the installation of high efficiency energy recovery ventilation (ERV) units in the conditioned air stream for customers using electric cooling and heating. These units are capable of removing over 70% of the sensible heat and over 60% of the latent heat when properly sized and installed. To qualify for PEF's incentive of $0.75 per CFM, the ERV must be at least a 450 cfm unit and have a total efficiency greater than 65% per ARI 1060-2000 test standards. As an example, a 450 cfm ERV will earn a $337 incentive and there is a maximum incentive of $1,500 per installation.

Cool Roof

This program will provide customers with an incentive to install an Energy Star Roof Products approved "*cool roof*" coating providing the facility has electric cooling. Energy Star allows manufacturers to use the Energy Star label on reflective roof products that meet the US EPA's specifications for solar reflectance and reliability, having an initial reflectance greater than or equal to .65. The incentive will be $ 50 per 1,000 square-foot of *cool roof* coating installed with a maximum incentive of $1,000 per installation.

Motors and Heat Recovery removed

Progress Energy has determined that it is no longer cost-effective under the RIM test to continue offering incentives for motors and heat recovery. These measures have low rates of participation and have small overall impacts.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Measure Participants [2]	Cumulative Penetration Level (%)
2005	184,973	3,365	189	0.6%
2006	188,338	6,944	368	0.5%
2007	191,917	10,649	547	0.5%
2008	195,622	14,388	726	0.5%
2009	199,361	18,075	905	0.5%
2010	203,048	21,640	1,084	0.5%
2011	206,613	25,107	1,263	0.5%
2012	210,080	28,500	1,442	0.5%
2013	213,480	31,882	1,621	0.5%
2,014	216,855	35,182	1,800	0.5%

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*
2. *This total is larger than the number of actual customers anticipated installing eligible measures and earning an incentive since many customers install multiple measures at one account.*

Savings Estimates

Total program savings were developed by first estimating the total savings for each individual measure based on each measure's (1) per customer savings and, (2) annual projected participation. The total program savings were then computed as the sum of the individual measure savings, and are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	4248	2.580	1.912	1,040,735	632	468
2006	4248	2.580	1.912	2,081,469	1,264	937
2007	4248	2.580	1.912	3,122,204	1,896	1,405
2008	4248	2.580	1.912	4,162,938	2,528	1,874
2009	4248	2.580	1.912	5,203,673	3,160	2,342
2010	4248	2.580	1.912	6,244,408	3,792	2,811
2011	4248	2.580	1.912	7,285,142	4,424	3,279
2012	4248	2.580	1.912	8,325,877	5,057	3,748
2013	4248	2.580	1.912	9,366,612	5,689	4,216
2014	4248	2.580	1.912	10,407,346	6,321	4,685

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	4539	2.7568	2.0434	1,112,099	675	501
2006	4539	2.7568	2.0434	2,224,197	1,351	1,001
2007	4539	2.7568	2.0434	3,336,296	2,026	1,502
2008	4539	2.7568	2.0434	4,448,395	2,702	2,002
2009	4539	2.7568	2.0434	5,560,493	3,377	2,503
2010	4539	2.7568	2.0434	6,672,592	4,052	3,004
2011	4539	2.7568	2.0434	7,784,691	4,728	3,504
2012	4539	2.7568	2.0434	8,896,789	5,403	4,005
2013	4539	2.7568	2.0434	10,008,888	6,079	4,506
2014	4539	2.7568	2.0434	11,120,987	6,754	5,006

Per measure impacts for 2005-2014., assuming no overlap.

Per measure impacts vary from year to year because of the changing mix of measures assumed to be installed in any given year.

Impact Evaluation Plan

The impact evaluation plan for an "umbrella" program such as this requires a varied approach, given the number and type of measures being promoted. Some measures provide large per unit impacts while others yield relatively smaller impacts. The total impact from all smaller-impact measures could potentially be less than the uncertainty around an impact estimate of just one large-impact measure. Consequently, the impact evaluation will place greater emphasis on the larger-impact measures. The method of impact evaluation may vary depending on the participation levels actually achieved for each measure. Engineering analysis and statistical billing analysis will represent the primary methods used to estimate demand and energy impacts. On-site metering may also be used, where feasible and cost-effective.

Cost Effectiveness

The economic results of the program are as follows:

Cost-Effectiveness Test	NPV Benefits (000$)	NPV Costs (000$)	NPV Net Benefits (000$)	B/C Ratio
Rate Impact Measure	7,129	5,944	1,185	1.20
Participant	5,899	3,866	2,033	1.53
Total Resource Cost	7,129	3,911	3,218	1.82

Program: **Commercial New Construction**

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	54	18	0	0	72	0	0	0	7	104	58	169	-96
2006	83	37	0	0	120	0	0	0	7	104	106	218	-98
2007	162	55	51	0	267	0	0	0	7	104	163	274	-7
2008	214	73	70	0	358	0	0	0	7	104	221	333	25
2009	269	92	87	0	448	0	0	0	7	104	274	385	62
2010	243	110	170	0	523	0	0	0	7	104	334	445	78
2011	276	128	193	0	596	0	0	0	7	104	412	523	73
2012	340	147	235	0	722	0	0	0	7	104	481	593	129
2013	374	165	258	0	796	0	0	0	7	104	553	665	132
2014	436	183	236	0	856	0	0	0	7	104	629	740	116
2015	460	183	252	0	895	0	0	0	0	0	644	644	250
2016	459	183	248	0	890	0	0	0	0	0	654	654	236
2017	484	183	265	0	932	0	0	0	0	0	677	677	255
2018	488	183	262	0	933	0	0	0	0	0	694	694	239
2019	509	183	278	0	969	0	0	0	0	0	711	711	258
2020	511	183	274	0	968	0	0	0	0	0	729	729	239
2021	520	183	281	0	983	0	0	0	0	0	747	747	236
2022	530	183	288	0	1,000	0	0	0	0	0	762	762	238
2023	540	183	295	0	1,018	0	0	0	0	0	782	782	237
2024	553	183	302	0	1,039	0	0	0	0	0	805	805	234
2025	563	183	310	0	1,056	0	0	0	0	0	825	825	231
2026	573	183	318	0	1,074	0	0	0	0	0	845	845	229
2027	583	183	325	0	1,092	0	0	0	0	0	867	867	225
2028	596	183	334	0	1,113	0	0	0	0	0	888	888	225
2029	603	183	339	0	1,125	0	0	0	0	0	910	910	215
2030	619	183	350	0	1,152	0	0	0	0	0	933	933	219
2031	626	183	356	0	1,166	0	0	0	0	0	955	955	210
2032	644	183	369	0	1,195	0	0	0	0	0	980	980	215
2033	652	183	374	0	1,209	0	0	0	0	0	1,005	1,005	204
NOMINAL	12,960	4,491	7,117	0	24,568	0	0	0	68	1,045	18,645	19,758	4,810
NPV	3,755	1,388	1,987	0	7,129	0	0	0	45	696	5,203	5,944	1,185

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.20**

Program: Commercial New Construction

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S **COST** $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	54	18	0	0	72	580	0	0	0	7	587	-515
2006	83	37	0	0	120	580	0	0	0	7	587	-467
2007	162	55	51	0	267	580	0	0	0	7	587	-320
2008	214	73	70	0	358	580	0	0	0	7	587	-229
2009	269	92	87	0	448	580	0	0	0	7	587	-140
2010	243	110	170	0	523	580	0	0	0	7	587	-64
2011	276	128	193	0	596	580	0	0	0	7	587	9
2012	340	147	235	0	722	580	0	0	0	7	587	135
2013	374	165	258	0	796	580	0	0	0	7	587	209
2014	436	183	236	0	856	580	0	0	0	7	587	269
2015	460	183	252	0	895	0	0	0	0	0	0	895
2016	459	183	248	0	890	0	0	0	0	0	0	890
2017	484	183	265	0	932	0	0	0	0	0	0	932
2018	488	183	262	0	933	0	0	0	0	0	0	933
2019	509	183	278	0	969	0	0	0	0	0	0	969
2020	511	183	274	0	968	0	0	0	0	0	0	968
2021	520	183	281	0	983	0	0	0	0	0	0	983
2022	530	183	288	0	1,000	0	0	0	0	0	0	1,000
2023	540	183	295	0	1,018	0	0	0	0	0	0	1,018
2024	553	183	302	0	1,039	0	0	0	0	0	0	1,039
2025	563	183	310	0	1,056	0	0	0	0	0	0	1,056
2026	573	183	318	0	1,074	0	0	0	0	0	0	1,074
2027	583	183	325	0	1,092	0	0	0	0	0	0	1,092
2028	596	183	334	0	1,113	0	0	0	0	0	0	1,113
2029	603	183	339	0	1,125	0	0	0	0	0	0	1,125
2030	619	183	350	0	1,152	0	0	0	0	0	0	1,152
2031	626	183	356	0	1,166	0	0	0	0	0	0	1,166
2032	644	183	369	0	1,195	0	0	0	0	0	0	1,195
2033	652	183	374	0	1,209	0	0	0	0	0	0	1,209
NOMINAL	12,960	4,491	7,117	0	24,568	5,803	0	0	0	68	5,870	18,698
NPV	3,755	1,388	1,987	0	7,129	3,866	0	0	0	45	3,911	3,218

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.82**

Program: Commercial New Construction

Participant Test

	BENEFITS				COSTS			
YEAR	(1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	(5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	58	104	0	162	580	0	580	-418
2006	106	104	0	211	580	0	580	-369
2007	163	104	0	267	580	0	580	-313
2008	221	104	0	326	580	0	580	-254
2009	274	104	0	378	580	0	580	-202
2010	334	104	0	438	580	0	580	-142
2011	412	104	0	517	580	0	580	-64
2012	481	104	0	586	580	0	580	6
2013	553	104	0	658	580	0	580	78
2014	629	104	0	733	580	0	580	153
2015	644	0	0	644	0	0	0	644
2016	654	0	0	654	0	0	0	654
2017	677	0	0	677	0	0	0	677
2018	694	0	0	694	0	0	0	694
2019	711	0	0	711	0	0	0	711
2020	729	0	0	729	0	0	0	729
2021	747	0	0	747	0	0	0	747
2022	762	0	0	762	0	0	0	762
2023	782	0	0	782	0	0	0	782
2024	805	0	0	805	0	0	0	805
2025	825	0	0	825	0	0	0	825
2026	845	0	0	845	0	0	0	845
2027	867	0	0	867	0	0	0	867
2028	888	0	0	888	0	0	0	888
2029	910	0	0	910	0	0	0	910
2030	933	0	0	933	0	0	0	933
2031	955	0	0	955	0	0	0	955
2032	980	0	0	980	0	0	0	980
2033	1,005	0	0	1,005	0	0	0	1,005
NOMINAL	17,640	1,045	0	18,685	5,803	0	5,803	12,882
NPV	5,203	696	0	5,899	3,866	0	3,866	2,033

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.53**

D. INNOVATION INCENTIVE PROGRAM

Program Start Date:

- 1992
- Modified in 1995

Policies and Procedures

The Innovation Incentive program promotes a reduction in kW and kWh by subsidizing energy conservation projects for customers in the PEF service territory. The intent of the program is to encourage legitimate energy efficiency measures that reduce peak kW demand and/or kWh energy, but which are not addressed by other programs.

Energy efficiency opportunities are identified by PEF representatives during a Business Energy Check audit and are presented to the customer as part of the Business Energy Check report. Requirements for participation in this program are also explained to the customer at that time. If the customer chooses to implement modifications to effect energy efficiency improvements that are not addressed in other PEF energy efficiency programs, the modifications would be eligible for consideration under this program.

Representative examples of energy efficient technologies that would be considered under this program include, but are not limited to, refrigeration equipment replacements to improve efficiency, thermal energy storage systems, microwave drying systems, and inductive heating systems to replace resistance heating systems.

The program is available to all business customers in PEF's territory for projects that reduce peak demand by a minimum of 10 kW.

Program eligibility requirements to qualify for participation are as follows:

- Participant must be located in the PEF service territory and be a metered business customer.
- The customer is required to have an audit (any level) completed by PEF prior to participation in the program, except in the case of new construction projects.
- Projects must reduce or shift peak demand by a minimum of 10 kW.
- The participant must be willing to allow PEF to inspect the installations of all measures and equipment.

If the described project meets the program specifications, PEF will provide project approval and projected incentive payment amounts. Engineering designs, cost estimates, and energy savings projections must be submitted under a professional seal, when necessary. The customer may be required to monitor the project after completion to verify kW and kWh savings. Monitoring methods shall be approved by PEF. Costs for monitoring equipment should be included in the overall project cost estimate.

PEF will perform a customer-specific cost-effectiveness analysis for each project being considered under the Innovation Incentive program, using the Commission-approved cost-effectiveness tests described in Rule 25-17.008, Florida Administrative Code. To receive an incentive, each project must pass the Rate Impact Measure (RIM) and Participant tests of cost-effectiveness. The customer's incentive shall be based upon the RIM results, with the maximum allowable rebate being $150 per peak kW reduced or shifted to an off peak period.

After PEF has reviewed and approved the project, a contract will be executed between PEF and the customer, in which PEF agrees to subsidize the customer upon completion of the project.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Measure Participants [2]	Cumulative Penetration Level (%)
2005	184,973	166,476	1	0%
2006	188,338	169,504	2	0%
2007	191,917	172,725	3	0%
2008	195,622	176,060	4	0%
2009	199,361	179,425	5	0%
2010	203,048	182,743	6	0%
2011	206,613	185,952	7	0%
2012	210,080	189,072	8	0%
2013	213,480	192,132	9	0%
2,014	216,855	195,170	10	0%

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*
2. *This total is larger than the number of actual customers anticipated installing eligible measures and earning an incentive since many customers install multiple measures at one account.*

Savings Estimates

The total program savings are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	120,047	70	70	120,047	70	70
2006	120,047	70	70	360,141	210	210
2007	120,047	70	70	480,188	280	280
2008	120,047	70	70	720,282	420	420
2009	120,047	70	70	840,329	490	490
2010	120,047	70	70	960,376	560	560
2011	120,047	70	70	1,080,423	630	630
2012	120,047	70	70	1,200,470	700	700
2013	120,047	70	70	1,320,517	770	770
2014	120,047	70	70	1,440,564	840	840

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	126,157	73	73	126,157	73	74
2006	126,157	73	73	378,472	220	222
2007	126,157	73	73	504,630	293	295
2008	126,157	73	73	456,944	439	443
2009	126,157	73	73	883,102	513	517
2010	126,157	73	73	1,009,259	586	591
2011	126,157	73	73	1,135,417	659	665
2012	126,157	73	73	1,261,574	732	739
2013	126,157	73	73	1,387,731	806	813
2014	126,157	73	73	1,513,889	879	886

Impact Evaluation Plan

To verify the estimated savings for each project, an engineering/billing analysis based on customer-specific site and usage data will be performed. Monitoring will continue until PEF has reasonable assurance that the project will remain in place and produce cost-effective energy savings for its estimated life. An incentive will not be issued to the customer until PEF is reasonably sure of the projected savings.

Cost Effectiveness

Each individual project will be analyzed for cost-effectiveness at the time of project submittal to PEF, using the Commission-approved tests of cost-effectiveness. Therefore, total program cost-effectiveness results are not shown. All projects must achieve a benefit-cost ratio of at least 1.0 on the RIM and Participant tests to receive an incentive under this program.

E. STANDBY GENERATION PROGRAM

Program Start Date:
- 1993
- Modified in 1995

Policies and Procedures

The Standby Generation program is a demand control program that will reduce PEF's demand based upon the indirect control of customer equipment. The program is a voluntary program available to all commercial and industrial customers who have on-site generation capability and are willing to reduce their PEF demand when PEF deems it necessary. The program is offered through the General Service Load Management-2 (GSLM-2) rate schedule.

PEF will have no direct control of the customer's equipment, but will rely upon the customer to initiate the generation upon being notified by PEF and continue running it until PEF notifies the customer that the generation is no longer needed. PEF does not restrict other use of the equipment by the customer.

Standby Generation program participants will receive a monthly credit on their energy bill according to the demonstrated ability of the customer to reduce demand at PEF's request. The credit will be based upon the load served by the customer's generator, which would have been served by PEF if the Standby Generation program were not in operation. By compensating the customer for the use of their on-site generation, PEF can impact the commercial and industrial market while minimizing rate impacts.

The general program eligibility requirements to qualify for participation are as follows:

- Customer must be eligible for service under the GS-1, GST-1, GSD-1 or GSDT-1 Rate Schedules.
- Customer must have standby generation that will allow facility demand reduction at the request of PEF.
- Customer's Standby Generation Capacity calculation must be at least 50 kW.
- Customer must be within the range of PEF's load management system.

Program Participation

Cumulative participation estimates for the program are shown in the following table

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Program Participants	Cumulative Penetration Level (%)
2005	184,973	590	4	0.7%
2006	188,338	599	8	1.3%
2007	191,917	608	12	2.0%
2008	195,622	618	16	2.6%
2009	199,361	627	20	3.2%
2010	203,048	636	24	3.8%
2011	206,613	645	28	4.3%
2012	210,080	654	32	4.9%
2013	213,480	663	36	5.4%
2,014	216,855	672	40	6.0%

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*
2. *Total Number of Eligible Customers is based on the total number of customers having on-site generation.*

Savings Estimates

The kW and kWh savings estimates for this program were determined from historical data and are presented below.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	6260	444.000	465.000	25,040	1,776	1,860
2006	6260	444.000	465.000	50,080	3,552	3,720
2007	6260	444.000	465.000	75,120	5,328	5,580
2008	6260	444.000	465.000	100,160	7,104	7,440
2009	6260	444.000	465.000	125,200	8,880	9,300
2010	6260	444.000	465.000	150,240	10,656	11,160
2011	6260	444.000	465.000	175,280	12,432	13,020
2012	6260	444.000	465.000	200,320	14,208	14,880
2013	6260	444.000	465.000	225,360	15,984	16,740
2014	6260	444.000	465.000	250,400	17,760	18,600

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	6689	474.4455	496.8854	26,757	1,898	1,988
2006	6689	474.4455	496.8854	53,514	3,796	3,975
2007	6689	474.4455	496.8854	80,271	5,693	5,963
2008	6689	474.4455	496.8854	107,028	7,591	7,950
2009	6689	474.4455	496.8854	133,785	9,489	9,938
2010	6689	474.4455	496.8854	160,542	11,387	11,925
2011	6689	474.4455	496.8854	187,299	13,284	13,913
2012	6689	474.4455	496.8854	214,056	15,182	15,900
2013	6689	474.4455	496.8854	240,813	17,080	17,888
2014	6689	474.4455	496.8854	267,570	18,978	19,875

Impact Evaluation Plan

PEF uses on-site metering to measure the generation capability of each Standby Generation program participant to reduce load at the time they join the program. The customer and a PEF representative will observe the metering tests to determine the load that the standby generator carries. This system testing will also determine the initial readings that will be recorded in order to determine the incentive that the customer will receive on their bill each month. Engineering analysis is used to estimate on-going program savings for each participant based upon monitoring their generator usage.

Cost Effectiveness

The economic results of the program are as follows.

Cost-Effectiveness Test	NPV Benefits (000$)	NPV Costs (000$)	NPV Net Benefits (000$)	B/C Ratio
Rate Impact Measure	6,602	5,403	1,200	1.22
Participant	4,768	0	4,768	NA
Total Resource Cost	6,602	634	5,968	10.40

Program: **Standby Generation**

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	7	0	0	0	7	0	0	0	10	59	4	72	-65
2006	11	0	0	0	11	0	0	0	10	117	7	134	-123
2007	133	0	163	0	296	0	0	0	10	176	10	196	100
2008	184	0	231	0	415	0	0	0	10	235	14	259	156
2009	218	0	272	0	489	0	0	0	10	293	18	321	168
2010	0	0	494	0	494	29	0	0	10	352	21	412	82
2011	0	0	595	0	595	138	0	0	10	410	27	585	11
2012	0	0	692	0	692	75	0	0	10	469	31	585	106
2013	0	0	840	0	840	164	0	0	10	528	36	737	103
2014	0	0	744	0	744	98	0	0	10	586	41	735	10
2015	72	0	795	0	867	0	0	0	10	586	43	640	227
2016	0	0	756	0	756	76	0	0	10	586	43	715	41
2017	90	0	780	0	870	0	0	0	10	586	42	638	232
2018	0	0	788	0	788	63	0	0	10	586	45	704	84
2019	115	0	814	0	929	0	0	0	10	586	44	640	289
2020	0	0	828	0	828	31	0	0	10	586	47	674	153
2021	0	0	848	0	848	56	0	0	10	586	46	698	150
2022	0	0	869	0	869	45	0	0	10	586	47	688	182
2023	0	0	891	0	891	48	0	0	10	586	48	692	199
2024	0	0	921	0	921	103	0	0	10	586	49	749	172
2025	0	0	936	0	936	118	0	0	10	586	51	765	171
2026	0	0	967	0	967	99	0	0	10	586	52	747	221
2027	0	0	992	0	992	175	0	0	10	586	53	824	167
2028	0	0	1,008	0	1,008	91	0	0	10	586	54	741	267
2029	0	0	1,097	0	1,097	86	0	0	10	586	58	740	357
2030	0	0	1,098	0	1,098	78	0	0	10	586	56	731	367
2031	0	0	1,158	0	1,158	109	0	0	10	586	61	766	392
2032	0	0	1,113	0	1,113	120	0	0	10	586	59	775	338
2033	0	0	1,227	0	1,227	123	0	0	10	586	64	783	444
NOMINAL	830	0	21,916	0	22,746	1,922	0	0	290	14,364	1,170	17,746	5,000
NPV	501	0	6,101	0	6,602	524	0	0	110	4,438	330	5,403	1,200

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.22**

Program: Standby Generation

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	7	0	0	0	7	0	0	0	0	10	10	-3
2006	11	0	0	0	11	0	0	0	0	10	10	1
2007	133	0	163	0	296	0	0	0	0	10	10	286
2008	184	0	231	0	415	0	0	0	0	10	10	405
2009	218	0	272	0	489	0	0	0	0	10	10	479
2010	0	0	494	0	494	0	29	0	0	10	39	455
2011	0	0	595	0	595	0	138	0	0	10	148	448
2012	0	0	692	0	692	0	75	0	0	10	85	606
2013	0	0	840	0	840	0	164	0	0	10	174	667
2014	0	0	744	0	744	0	98	0	0	10	108	636
2015	72	0	795	0	867	0	0	0	0	10	10	857
2016	0	0	756	0	756	0	76	0	0	10	86	670
2017	90	0	780	0	870	0	0	0	0	10	10	860
2018	0	0	788	0	788	0	63	0	0	10	73	715
2019	115	0	814	0	929	0	0	0	0	10	10	919
2020	0	0	828	0	828	0	31	0	0	10	41	786
2021	0	0	848	0	848	0	56	0	0	10	66	782
2022	0	0	869	0	869	0	45	0	0	10	55	815
2023	0	0	891	0	891	0	48	0	0	10	58	833
2024	0	0	921	0	921	0	103	0	0	10	113	808
2025	0	0	936	0	936	0	118	0	0	10	128	808
2026	0	0	967	0	967	0	99	0	0	10	109	859
2027	0	0	992	0	992	0	175	0	0	10	185	807
2028	0	0	1,008	0	1,008	0	91	0	0	10	101	907
2029	0	0	1,097	0	1,097	0	86	0	0	10	96	1,001
2030	0	0	1,098	0	1,098	0	78	0	0	10	88	1,010
2031	0	0	1,158	0	1,158	0	109	0	0	10	119	1,040
2032	0	0	1,113	0	1,113	0	120	0	0	10	130	983
2033	0	0	1,227	0	1,227	0	123	0	0	10	133	1,094
NOMINAL	830	0	21,916	0	22,746	0	1,922	0	0	290	2,212	20,534
NPV	501	0	6,101	0	6,602	0	524	0	0	110	634	5,968

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **10.41**

Program: **Standby Generation**

Participant Test

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) TOTAL BENEFITS $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) TOTAL COSTS $(000)	(8) NET BENEFITS TO PARTICIPANTS $(000)
2004	0	0	0	0	0	0	0	0
2005	4	59	0	62	0	0	0	62
2006	7	117	0	124	0	0	0	124
2007	10	176	0	186	0	0	0	186
2008	14	235	0	249	0	0	0	249
2009	18	293	0	311	0	0	0	311
2010	21	352	0	373	0	0	0	373
2011	27	410	0	437	0	0	0	437
2012	31	469	0	500	0	0	0	500
2013	36	528	0	563	0	0	0	563
2014	41	586	0	627	0	0	0	627
2015	43	586	0	630	0	0	0	630
2016	43	586	0	629	0	0	0	629
2017	42	586	0	628	0	0	0	628
2018	45	586	0	631	0	0	0	631
2019	44	586	0	630	0	0	0	630
2020	47	586	0	633	0	0	0	633
2021	46	586	0	632	0	0	0	632
2022	47	586	0	633	0	0	0	633
2023	48	586	0	634	0	0	0	634
2024	49	586	0	636	0	0	0	636
2025	51	586	0	637	0	0	0	637
2026	52	586	0	638	0	0	0	638
2027	53	586	0	639	0	0	0	639
2028	54	586	0	640	0	0	0	640
2029	58	586	0	644	0	0	0	644
2030	56	586	0	643	0	0	0	643
2031	61	586	0	647	0	0	0	647
2032	59	586	0	646	0	0	0	646
2033	64	586	0	650	0	0	0	650
NOMINAL	1,106	13,778	0	14,884	0	0	0	14,884
NPV	330	4,438	0	4,768	0	0	0	4,768

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **#DIV/0!**

F. INTERRUPTIBLE SERVICE PROGRAM

Program Start Date: • 1996 for the IS-2 and IST-2 rate schedules.

Policies and Procedures

The Interruptible Service (IS) program is a direct load control program that reduces PEF's demand at times of capacity shortage during peak or emergency conditions. The program is available throughout the entire territory served by PEF to any non-residential customer who is willing to have their power interrupted. The program is currently offered through the Interruptible General Service (IS-2) and Interruptible General Service Time of Use (IST-2) rate schedules. The IS-1 and IST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand fathered onto the rate.

PEF will have remote control of the circuit breaker or disconnect switch supplying the customer's equipment. If purchased power is available at the time of potential interruption, customers who choose not to have their load interrupted will be assessed at the price of that purchased power supplied. Customers participating in the Interruptible Service program will receive a monthly interruptible demand credit based on their billing demand and billing load factor. The general program eligibility requirements to qualify for participation are as follows:

- Customer must be eligible for service under the IS-2 or IST-2 Rate Schedules.
- Average billing demand must be 500 kW or more.
- Available at primary, transmission and secondary service voltages.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Program Participants	Cumulative Penetration Level (%)
2005	184,973	983	0	0
2006	188,338	1,008	0	0
2007	191,917	1,033	1	0
2008	195,622	1,059	1	0
2009	199,361	1,086	1	0
2010	203,048	1,113	1	0
2011	206,613	1,141	2	0
2012	210,080	1,169	2	0
2013	213,480	1,198	2	0
2,014	216,855	1,228	2	0

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*

Savings Estimates

Savings estimate for the Interruptible Service program are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	na	na	na	na	na	na
2006	na	na	na	na	na	na
2007	4250	500.000	440.000	4,250	500	440
2008	4250	500.000	440.000	4,250	500	440
2009	4250	500.000	440.000	4,250	500	440
2010	4250	500.000	440.000	4,250	500	440
2011	4250	500.000	440.000	8,500	1,000	880
2012	4250	500.000	440.000	8,500	1,000	880
2013	4250	500.000	440.000	8,500	1,000	880
2014	4250	500.000	440.000	8,500	1,000	880

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	na	na	na	na	na	na
2006	na	na	na	na	na	na
2007	4541	534.2854	470.1712	4,541	534	470
2008	4541	534.2854	470.1712	4,541	534	470
2009	4541	534.2854	470.1712	4,541	534	470
2010	4541	534.2854	470.1712	4,541	534	470
2011	4541	534.2854	470.1712	9,083	1,069	940
2012	4541	534.2854	470.1712	9,083	1,069	940
2013	4541	534.2854	470.1712	9,083	1,069	940
2014	4541	534.2854	470.1712	9,083	1,069	940

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Interruptible Service customers.

Cost-Effectiveness

The cost-effectiveness results of the Interruptible Service program are as follows:

Cost-Effectiveness Test	NPV Benefits (000$)	NPV Costs (000$)	NPV Net Benefits (000$)	B/C Ratio
Rate Impact Measure	253	242	11	1.04
Participant	170	0	170	NA
Total Resource Cost	253	72	181	3.51

Program: IS2

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	5	0	0	5	-5
2006	0	0	0	0	0	0	0	0	5	0	0	5	-5
2007	8	0	10	0	19	0	0	0	6	10	0	17	2
2008	8	0	11	0	19	0	0	0	5	10	0	16	3
2009	8	0	11	0	18	0	0	0	5	10	0	16	3
2010	0	0	16	0	16	1	0	0	5	10	0	16	-1
2011	0	0	21	0	21	4	0	0	6	21	1	31	-10
2012	0	0	34	0	34	2	0	0	5	21	1	28	6
2013	0	0	33	0	33	8	0	0	5	21	1	34	-1
2014	0	0	27	0	27	5	0	0	5	21	1	32	-5
2015	0	0	30	0	30	0	0	0	5	21	1	27	3
2016	0	0	36	0	36	3	0	0	5	21	1	30	6
2017	0	0	28	0	28	3	0	0	5	21	1	29	-1
2018	0	0	25	0	25	0	0	0	5	21	1	27	-2
2019	3	0	33	0	36	0	0	0	5	21	1	27	9
2020	1	0	27	0	28	0	0	0	5	21	1	27	1
2021	4	0	27	0	31	0	0	0	5	21	2	27	4
2022	1	0	27	0	28	0	0	0	5	21	2	27	1
2023	0	0	27	0	27	1	0	0	5	21	2	28	-1
2024	0	0	37	0	37	0	0	0	5	21	2	27	9
2025	0	0	30	0	30	1	0	0	5	21	2	28	2
2026	0	0	38	0	38	2	0	0	5	21	2	30	9
2027	0	0	47	0	47	4	0	0	5	21	2	31	16
2028	0	0	40	0	40	2	0	0	5	21	2	29	11
2029	0	0	40	0	40	5	0	0	5	21	1	32	7
2030	0	0	32	0	32	3	0	0	5	21	1	30	2
2031	0	0	42	0	42	5	0	0	5	21	2	33	9
2032	0	0	33	0	33	4	0	0	5	21	1	30	3
2033	0	0	52	0	52	0	0	0	5	21	1	27	25
NOMINAL	33	0	813	0	846	51	0	0	147	515	34	747	99
NPV	20	0	233	0	253	15	0	0	56	161	9	242	11

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.04**

Program: IS2

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	5	5	-5
2006	0	0	0	0	0	0	0	0	0	5	5	-5
2007	8	0	10	0	19	0	0	0	0	6	6	13
2008	8	0	11	0	19	0	0	0	0	5	5	14
2009	8	0	11	0	18	0	0	0	0	5	5	13
2010	0	0	16	0	16	0	1	0	0	5	6	10
2011	0	0	21	0	21	0	4	0	0	6	10	12
2012	0	0	34	0	34	0	2	0	0	5	7	28
2013	0	0	33	0	33	0	8	0	0	5	13	20
2014	0	0	27	0	27	0	5	0	0	5	10	17
2015	0	0	30	0	30	0	0	0	0	5	5	25
2016	0	0	36	0	36	0	3	0	0	5	8	28
2017	0	0	28	0	28	0	3	0	0	5	8	21
2018	0	0	25	0	25	0	0	0	0	5	5	20
2019	3	0	33	0	36	0	0	0	0	5	5	31
2020	1	0	27	0	28	0	0	0	0	5	5	23
2021	4	0	27	0	31	0	0	0	0	5	5	26
2022	1	0	27	0	28	0	0	0	0	5	5	23
2023	0	0	27	0	27	0	1	0	0	5	6	21
2024	0	0	37	0	37	0	0	0	0	5	5	31
2025	0	0	30	0	30	0	1	0	0	5	6	24
2026	0	0	38	0	38	0	2	0	0	5	7	31
2027	0	0	47	0	47	0	4	0	0	5	9	39
2028	0	0	40	0	40	0	2	0	0	5	7	34
2029	0	0	40	0	40	0	5	0	0	5	10	29
2030	0	0	32	0	32	0	3	0	0	5	8	24
2031	0	0	42	0	42	0	5	0	0	5	10	31
2032	0	0	33	0	33	0	4	0	0	5	9	25
2033	0	0	52	0	52	0	0	0	0	5	5	47
NOMINAL	33	0	813	0	846	0	51	0	0	147	198	648
NPV	20	0	233	0	253	0	15	0	0	56	72	181

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **3.52**

Program: IS2

Participant Test

	BENEFITS				COSTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	SAVINGS IN PARTICIPANT'S BILL $(000)	INCENTIVE PAYMENTS $(000)	OTHER PARTICIPANT'S BENEFITS $(000)	**TOTAL BENEFITS** $(000)	PARTICIPANT'S COST $(000)	PARTICIPANT'S BILL INCREASE $(000)	**TOTAL COSTS** $(000)	**NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	0	10	0	11	0	0	0	11
2008	0	10	0	11	0	0	0	11
2009	0	10	0	11	0	0	0	11
2010	0	10	0	11	0	0	0	11
2011	1	21	0	22	0	0	0	22
2012	1	21	0	22	0	0	0	22
2013	1	21	0	22	0	0	0	22
2014	1	21	0	21	0	0	0	21
2015	1	21	0	22	0	0	0	22
2016	1	21	0	22	0	0	0	22
2017	1	21	0	22	0	0	0	22
2018	1	21	0	22	0	0	0	22
2019	1	21	0	22	0	0	0	22
2020	1	21	0	22	0	0	0	22
2021	2	21	0	22	0	0	0	22
2022	2	21	0	22	0	0	0	22
2023	2	21	0	22	0	0	0	22
2024	2	21	0	22	0	0	0	22
2025	2	21	0	22	0	0	0	22
2026	2	21	0	22	0	0	0	22
2027	2	21	0	22	0	0	0	22
2028	2	21	0	22	0	0	0	22
2029	1	21	0	22	0	0	0	22
2030	1	21	0	22	0	0	0	22
2031	2	21	0	22	0	0	0	22
2032	1	21	0	22	0	0	0	22
2033	1	21	0	22	0	0	0	22
NOMINAL	32	494	0	526	0	0	0	526
NPV	9	161	0	170	0	0	0	170

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **#DIV/0!**

G. CURTAILABLE SERVICE PROGRAM

Program Start Date: ▸ 1996 for the CS-2 and CST-2 rate schedules.

Policies and Procedures

The Curtailable Service (CS) program is a direct load control program that will reduce PEF's demand at times of capacity shortage during peak or emergency conditions. The program is available throughout the entire territory served by PE to any non-residential customer who agrees to curtail 25% of their average monthly billing demand. The program is currently offered through the Curtailable General Service (CS-2) and Curtailable General Service Time of Use (CST-2) rate schedules. The CS-1 and CST-1 rate schedules were closed to new customers in 1996, but remain active for those customers that were grand fathered onto the rate.

PEF will have remote control of the circuit breaker or disconnect switch supplying the customer's equipment. If purchased power is available at the time of potential curtailment, customers who choose not to reduce their load will be assessed at the price of that purchased power. Customers participating in the Curtailable Service program receive a monthly curtailable demand credit based on their curtailable demand and billing load factor. The general program eligibility requirements to qualify for participation are as follows:

- Customer must be eligible for service under the CS-2 or CST-2 Rate Schedules.
- Average billing demand must be 500 kW or more.
- Available at primary, transmission and secondary service voltages.

Program Participation

Cumulative participation estimates for the program are shown in the following table.

Year	Total Number of Customers[1]	Total Number of Eligible Customers	Annual Number of Program Participants	Cumulative Penetration Level (%)
2005	184,973	983	1	0
2006	188,338	1,008	1	0
2007	191,917	1,033	1	0
2008	195,622	1,059	2	0
2009	199,361	1,086	2	0
2010	203,048	1,113	2	0
2011	206,613	1,141	3	0
2012	210,080	1,169	3	0
2013	213,480	1,198	3	0
2,014	216,855	1,228	4	0

1. *Total Number of Customers is the April 2004 forecast of all commercial and industrial customers.*

Savings Estimates

Savings estimate for the Curtailable Service program are shown in the following tables.

At the Meter						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	1146	1.451	1.447	2,744,781	3,476	3,465
2006	1145	1.399	1.401	5,485,311	6,701	6,709
2007	1146	1.451	1.447	8,230,092	10,427	10,394
2008	1146	1.451	1.447	10,974,873	13,903	13,859
2009	1146	1.431	1.429	13,715,403	17,129	17,104
2010	1136	1.403	1.403	16,495,934	20,373	20,367
2011	1130	1.428	1.424	19,284,965	24,368	24,291
2012	1125	1.408	1.405	22,065,495	27,613	27,555
2013	1122	1.393	1.391	24,846,026	30,857	30,819
2014	1119	1.391	1.389	27,630,807	34,352	34,302

At the Generator						
Year	Per Customer kWh Reduction	Per Customer Winter kW Reduction	Per Customer Summer kW Reduction	Total Annual kWh Reduction	Total Annual Winter kW Reduction	Total Annual Summer kW Reduction
2005	1225	1.5507	1.5459	2,932,993	3,714	3,702
2006	1224	1.4953	1.4971	5,861,444	7,161	7,170
2007	1224	1.5510	1.5461	8,794,436	11,142	11,107
2008	1224	1.5509	1.5460	11,727,429	14,856	14,809
2009	1224	1.5287	1.5265	14,655,880	18,303	18,276
2010	1214	1.4996	1.4992	17,627,074	21,770	21,764
2011	1208	1.5260	1.5212	20,607,351	26,039	25,957
2012	1203	1.5049	1.5017	23,578,545	29,506	29,444
2013	1199	1.4886	1.4867	26,549,739	32,973	32,932
2014	1196	1.4864	1.4842	29,525,474	36,708	36,654

Impact Evaluation Plan

Program impacts are evaluated through on-site interval metering data of all Curtailable Service customers.

Cost-Effectiveness

PEF is projecting slow growth for the Curtailable Service Program. In order to evaluate the program for cost-effectiveness a minimal level of participation was assumed. The cost-effectiveness results of the Curtailable Service program are as follows:

Cost-Effectiveness Test	NPV Benefits (000$)	NPV Costs (000$)	NPV Net Benefits (000$)	B/C Ratio
Rate Impact Measure	466	367	98	1.27
Participant	145	0	145	NA
Total Resource Cost	466	222	243	2.09

Program: **CS2**

Rate Impact Measure Test

	BENEFITS					COSTS							
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) REVENUE GAINS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) TOTAL FUEL & O&M INCREASE $(000)	(7) INCREASED T&D CAP. COSTS $(000)	(8) INCREASED GEN. CAP. COSTS $(000)	(9) UTILITY PROGRAM COSTS $(000)	(10) INCENTIVE PAYMENTS $(000)	(11) REVENUE LOSSES $(000)	(12) **TOTAL COSTS** $(000)	(13) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	15	0	0	15	-15
2005	1	0	0	0	1	0	0	0	15	4	0	20	-19
2006	1	0	0	0	1	0	0	0	15	4	0	20	-19
2007	8	0	10	0	18	0	0	0	15	4	0	20	-2
2008	17	0	22	0	39	0	0	0	15	9	1	24	14
2009	15	0	20	0	35	0	0	0	15	9	1	24	11
2010	0	0	31	0	31	1	0	0	15	9	1	25	6
2011	0	0	36	0	36	8	0	0	15	13	1	37	-1
2012	0	0	49	0	49	2	0	0	15	13	2	32	17
2013	0	0	49	0	49	12	0	0	15	13	1	41	8
2014	0	0	53	0	53	11	0	0	15	17	1	45	9
2015	7	0	72	0	79	0	0	0	15	17	2	34	45
2016	0	0	55	0	55	21	0	0	15	17	1	55	0
2017	0	0	56	0	56	0	0	0	15	17	2	34	22
2018	0	0	53	0	53	2	0	0	15	17	2	36	17
2019	8	0	59	0	66	0	0	0	15	17	2	34	32
2020	0	0	57	0	57	1	0	0	15	17	2	35	22
2021	2	0	58	0	60	0	0	0	15	17	2	34	26
2022	2	0	56	0	58	0	0	0	15	17	2	34	24
2023	0	0	59	0	59	2	0	0	15	17	2	36	24
2024	0	0	67	0	67	8	0	0	15	17	2	42	24
2025	0	0	64	0	64	3	0	0	15	17	2	37	27
2026	0	0	73	0	73	5	0	0	15	17	2	39	35
2027	0	0	72	0	72	39	0	0	15	17	2	73	-2
2028	0	0	69	0	69	4	0	0	15	17	2	38	30
2029	0	0	78	0	78	9	0	0	15	17	3	43	35
2030	0	0	72	0	72	7	0	0	15	17	2	42	31
2031	0	0	83	0	83	12	0	0	15	17	3	46	36
2032	0	0	85	0	85	9	0	0	15	17	3	44	41
2033	0	0	95	0	95	6	0	0	15	17	3	41	54
NOMINAL	59	0	1,553	0	1,612	161	0	0	450	423	45	1,080	531
NPV	36	0	430	0	466	42	0	0	180	132	13	367	98

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **1.27**

Program: CS2

Total Resource Cost Test

	BENEFITS					COSTS						
YEAR	(1) TOTAL FUEL & O&M SAVINGS $(000)	(2) AVOIDED T&D CAP. COSTS $(000)	(3) AVOIDED GEN. CAP. COSTS $(000)	(4) OTHER PARTICIPANT BENEFITS $(000)	(5) **TOTAL BENEFITS** $(000)	(6) PARTICIPANT'S COST $(000)	(7) TOTAL FUEL & O&M INCREASE $(000)	(8) INCREASED T&D CAP. COSTS $(000)	(9) INCREASED GEN. CAP. COSTS $(000)	(10) UTILITY PROGRAM COSTS $(000)	(11) **TOTAL COSTS** $(000)	(12) **NET BENEFITS** $(000)
2004	0	0	0	0	0	0	0	0	0	15	15	-15
2005	1	0	0	0	1	0	0	0	0	15	15	-14
2006	1	0	0	0	1	0	0	0	0	15	15	-14
2007	8	0	10	0	18	0	0	0	0	15	15	3
2008	17	0	22	0	39	0	0	0	0	15	15	24
2009	15	0	20	0	35	0	0	0	0	15	15	20
2010	0	0	31	0	31	0	1	0	0	15	16	16
2011	0	0	36	0	36	0	8	0	0	15	23	13
2012	0	0	49	0	49	0	2	0	0	15	17	31
2013	0	0	49	0	49	0	12	0	0	15	27	22
2014	0	0	53	0	53	0	11	0	0	15	26	27
2015	7	0	72	0	79	0	0	0	0	15	15	64
2016	0	0	55	0	55	0	21	0	0	15	36	18
2017	0	0	56	0	56	0	0	0	0	15	15	41
2018	0	0	53	0	53	0	2	0	0	15	17	36
2019	8	0	59	0	66	0	0	0	0	15	15	51
2020	0	0	57	0	57	0	1	0	0	15	16	41
2021	2	0	58	0	60	0	0	0	0	15	15	45
2022	2	0	56	0	58	0	0	0	0	15	15	43
2023	0	0	59	0	59	0	2	0	0	15	17	43
2024	0	0	67	0	67	0	8	0	0	15	23	43
2025	0	0	64	0	64	0	3	0	0	15	18	46
2026	0	0	73	0	73	0	5	0	0	15	20	54
2027	0	0	72	0	72	0	39	0	0	15	54	18
2028	0	0	69	0	69	0	4	0	0	15	19	50
2029	0	0	78	0	78	0	9	0	0	15	24	55
2030	0	0	72	0	72	0	7	0	0	15	22	50
2031	0	0	83	0	83	0	12	0	0	15	27	56
2032	0	0	85	0	85	0	9	0	0	15	24	61
2033	0	0	95	0	95	0	6	0	0	15	21	74
NOMINAL	59	0	1,553	0	1,612	0	161	0	0	450	612	1,000
NPV	36	0	430	0	466	0	42	0	0	180	222	243

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **2.09**

Program: CS2

Participant Test

YEAR	BENEFITS (1) SAVINGS IN PARTICIPANT'S BILL $(000)	(2) INCENTIVE PAYMENTS $(000)	(3) OTHER PARTICIPANT'S BENEFITS $(000)	(4) **TOTAL BENEFITS** $(000)	COSTS (5) PARTICIPANT'S COST $(000)	(6) PARTICIPANT'S BILL INCREASE $(000)	(7) **TOTAL COSTS** $(000)	(8) **NET BENEFITS TO PARTICIPANTS** $(000)
2004	0	0	0	0	0	0	0	0
2005	0	4	0	5	0	0	0	5
2006	0	4	0	5	0	0	0	5
2007	0	4	0	5	0	0	0	5
2008	1	9	0	9	0	0	0	9
2009	1	9	0	9	0	0	0	9
2010	1	9	0	9	0	0	0	9
2011	1	13	0	14	0	0	0	14
2012	2	13	0	15	0	0	0	15
2013	1	13	0	14	0	0	0	14
2014	1	17	0	19	0	0	0	19
2015	2	17	0	19	0	0	0	19
2016	1	17	0	19	0	0	0	19
2017	2	17	0	19	0	0	0	19
2018	2	17	0	19	0	0	0	19
2019	2	17	0	19	0	0	0	19
2020	2	17	0	19	0	0	0	19
2021	2	17	0	19	0	0	0	19
2022	2	17	0	19	0	0	0	19
2023	2	17	0	19	0	0	0	19
2024	2	17	0	19	0	0	0	19
2025	2	17	0	19	0	0	0	19
2026	2	17	0	19	0	0	0	19
2027	2	17	0	19	0	0	0	19
2028	2	17	0	19	0	0	0	19
2029	3	17	0	20	0	0	0	20
2030	2	17	0	19	0	0	0	19
2031	3	17	0	20	0	0	0	20
2032	3	17	0	20	0	0	0	20
2033	3	17	0	20	0	0	0	20
NOMINAL	43	406	0	449	0	0	0	449
NPV	13	132	0	145	0	0	0	145

Utility Discount Rate: **8.16**

Benefit Cost Ratio: **#DIV/0!**

V. TECHNOLOGY DEVELOPMENT PROGRAM

V. TECHNOLOGY DEVELOPMENT PROGRAM

Program Start Date: ▸ 1995

Policies and Procedures

The purpose of this program is to establish a system for meeting the goals in Section 366.82(2), Florida Statutes, and Rule 25-17, Florida Administrative Code. Specifically, the following is stated in Rule 25-17.001, {5}(f): "Aggressively pursue research, development, and demonstration projects jointly with others as well as individual projects in individual service areas."

Progress Energy will undertake certain development and demonstration projects which have promise to become cost-effective demand and energy efficiency programs. In general, each research and development project that is proposed and investigated will proceed as follows:

1. Project concept or idea development
2. Project research and design, including estimated costs and benefits
3. Conduct field test or pilot program
4. Evaluation of field test or pilot program, including cost-effectiveness
5. Acceptance or rejection of project for continuation as a program
6. If accepted in Item #5 above, application to the FPSC for approval to implement the program

Eligible customers will be determined during the project research and design phase, which will be dependent on the type of project being proposed and investigated. However, it is anticipated that only retail customers will be involved.

Each project that is proposed and investigated will have to meet one or more of the goals identified in Section 366.82(2), Florida Statutes, and Rule 25-17, Florida Administrative Code. If not, it will not proceed beyond the project concept or idea phase in Item #1 above.

Program Participation

In most cases, each demand reduction and energy efficiency project that is proposed and investigated under this program will require field testing with actual customers. These projects will offer services or products to eligible customers, after being defined in the project research and design phase, on a voluntary basis.

Examples of potential projects that may be funded under this program include demand reduction energy efficiency techniques, market transformation initiatives, indoor air quality measures, thermal energy storage technologies, and innovative metering approaches. All costs including incentives and rebates that are offered will be included as part of the pre-approved project expenditures under this program.

At the discretion of the Company, expenditures up to $800,000 annually may be made and recovered through the conservation cost recovery clause for all energy efficiency and conservation projects that are proposed and investigated. If any single project's expenditures exceed $100,000, a status report will be filed as a component of the Conservation Cost Recovery Projection and True-Up filings. The status report will identify each project under investigation with disbursements exceeding $100,000, the scope and purpose of the project, its development schedule identifying accomplishments and projections, and the project's actual and proposed expenditures for FPSC staff review. If any project (or combination of projects) expenditures are projected to exceed the $800,000 annual limit available under this program and are sufficiently worthy of special consideration, the Company will apply to the FPSC staff for approval to proceed.

Finally, the Company will account for and maintain records of all expenses for each project in accordance with Rule 25-17.015, Florida Administrative Code.

Savings Estimates

This program makes it possible to obtain and use actual data from field tests, instead of relying heavily on engineering assumptions, model results, estimates, and so forth. Benefit and cost figures derived from these projects will be more reliable and projectable, allowing better assessment of future demand reduction and energy efficiency programs submitted to the FPSC for approval.

A second benefit resulting from this development program is that the procedure uncovers benefits, costs, and disadvantages that may be overlooked by an engineering estimate or evaluation. During field tests, not only planned elements, but also unplanned elements are encountered. Actual experience on a small scale is obtained. This should facilitate the decision-making process and improve the success rate of approved programs.

Consequently, program savings were not estimated during the planning stage and are not included in the DSM Plan totals. Any impacts obtained by this program will be calculated for each individual project and will be reported to the FPSC to be counted toward achieving Progress Energy's conservation goals.

Impact Evaluation Plan

The methodology for monitoring and evaluating a project that is submitted to the FPSC for approval as a program shall be determined during the project research and design phase and shall be refined during the field test or pilot program phase. Since projects will normally include a field test or pilot program, the data will be actual rather than estimated. In the event a project does not involve a field test or pilot program, the estimated or modeled savings will be fully documented with the methodology used.

Cost-Effectiveness

The cost-effectiveness of each project submitted to the FPSC for approval to be implemented as a program shall be analyzed and reported using the Commission-approved cost-effectiveness tests.

VI. QUALIFYING FACILITIES PROGRAM

VI. QUALIFYING FACILITIES PROGRAM

Policies and Procedures

The purpose of this program is to meet the objectives and the Company's obligations established by Section 366.051, Florida Statutes, and the Commission's rules contained within Part III of Chapter 25-17, Florida Administrative Code, regarding the purchase of as-available energy and firm energy and capacity from qualifying facilities pursuant to standard offer and negotiated contracts.

Under the Qualifying Facilities program, Progress Energy develops standard offer contracts, negotiates, enters into, amends and restructures firm energy and capacity contracts entered into with qualifying cogeneration and small power production facilities, and administers all such contracts.