TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7		(0.0000)	(0.0000)	0.0015	0.0108	0.0001	0.0001	11.95	0.01	0.0000	0.0000	18.0	0.013	0.36	0.18	29.61
EER = 9.6, COP = 3.1		0.0132	0.0060	0.0025	0.0158	0.0012	0.0005	11.92	0.04	0.0000	0.0000	18.0	0.053	0.46	0.32	23.08
Closed Water Loop Heat Pump	Central Chiller System	0.0386	0.0180	0.0123	0.0326	0.0124	0.0060	11.84	0.12	0.0001	0.0001	18.0	0.000			
EER = 11.0, COP = 4.0																
Ground-Coupled Heat Pump	Unitary System & Elec. Heating	0.0156	0.0068	0.0011	0.0151	0.0039	0.0008	11.92	0.04	0.0000	0.0001	18.0	0.142	0.36	0.30	55.14
EER = 11.6, COP = 3.6																
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7		(0.0017)	(0.0028)	(0.0371)	(0.0646)	(0.0052)	(0.0072)	12.08	0.12	0.0000	(0.0002)	18.0	0.011	NA	NA	NA
EER = 9.6, COP = 3.1		0.0171	0.0063	(0.0355)	(0.0617)	0.0015	(0.0036)	12.04	0.08	0.0000	(0.0002)	18.0	0.069	NA	NA	NA
Double-Bundled Chiller	Central Chiller System	0.1400	0.0762	(0.0040)	(0.0037)	0.0477	0.0163	11.69	0.27	0.0001	0.0000	20.0	0.100	1.76	1.20	5.08
COP = 5.6																
Bypass/Delay Timer		0.0753	0.0992	0.0002	0.1214	(0.0144)	0.1340	11.56	0.42	(0.0001)	0.0000	15.0	0.006	19.00	6.11	0.26
Ventilation																
Adjustable Speed Drives - Fans	Fans - Constant Speed	0.1197	0.0693	0.1250	0.0908	0.1455	0.0999	11.31	0.65	0.0001	0.0001	15.0	0.105	2.92	1.79	3.27
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0101	0.0073	0.0047	0.0033	0.0176	0.0119	11.91	0.05	0.0000	0.0000	15.0	0.009	2.22	1.13	3.36
Variable Air Volume Systems (2)	Central Chiller CAV System											20.0	NA			
High Efficiency Fan Motors	Fan Motors	0.0218	0.0124	0.0211	0.0161	0.0243	0.0167	11.86	0.11	0.0000	0.0000	15.0	0.010	5.31	3.29	1.80
3% Increase in Efficiency																
High Efficiency Pump Motors	Pump Motors	0.0013	0.0008	0.0004	0.0003	0.0012	0.0008	11.96	0.00	0.0000	0.0000	15.0	0.001	3.41	2.13	2.64
3% Increase in Efficiency																
Reduction in Fan Flowrate (1)	Original Fan Flowrate											15.0	NA			
10 % Reduction in Fan cfm																
Fan Motor Downsizing (1)												15.0	NA			
HP Reduced to 1/3 of the Original	Original Fan Size															

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Building Shell																
Ceiling Insulation R= 38	Ceiling Insulation	0.0177	0.0090	0.0187	0.0212	0.0023	0.0052	11.89	0.07	0.0000	0.0000	20.0	0.560	0.10	0.08	147.07
Wall Insulation R= 19	Wall Insulation R=	0.0021	0.0013	0.0095	0.0116	(0.0016)	0.0015	11.94	0.02	0.0000	0.0000	20.0	0.088	0.21	0.16	85.26
Double-Pane Windows (1)	Single-Pane Windows											20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows											20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0616	0.0320	0.0025	0.0006	0.0217	0.0095	11.83	0.13	0.0001	0.0000	20.0	0.860	0.11	0.08	98.95
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows											20.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows											20.0	NA			
Double Pane Low E	Double-Pane Windows	0.0052	0.0027	0.0019	0.0019	0.0017	0.0011	11.95	0.01	0.0000	0.0000	20.0	0.048	0.23	0.17	54.57
"Triple Pane" Low E	Double-Pane Windows	0.0392	0.0204	0.0040	0.0031	0.0136	0.0066	11.87	0.09	0.0001	0.0000	20.0	0.954	0.07	0.05	183.51
Tinted Windows (1)	Single-Pane Windows											12.0	NA			
Tinted Windows	Double-Pane Windows	0.0395	0.0199	(0.0031)	(0.0047)	0.0139	0.0051	11.89	0.07	0.0000	(0.0000)	12.0	0.048	0.86	0.63	9.21
Low E Films (1)	Single-Pane Windows											12.0	NA			
Low E Films	Double-Pane Windows	0.0194	0.0101	0.0002	0.0005	0.0069	0.0029	11.92	0.04	0.0000	0.0000	12.0	0.191	0.12	0.09	68.53

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Lighting																
Daylighting Controls		0.1492	0.0516	0.1718	0.0418	0.2129	0.0468	11.29	0.67	0.0001	0.0003	10.0	0.351	0.86	0.58	10.53
Simple Delamping (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
Delamping w/Dummy Replacem. (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
Delamping with Reflector (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	Incandescent Lamps											20.0	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	T12 Fluorescent Lamps											20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps											3.4	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps											20.0	NA			
Metal Halide - Indoor	Mercury Vapor Lamps	0.0033	0.0017	0.0039	0.0015	0.0045	0.0017	11.94	0.02	0.0000	0.0000	20.0	(0.000)	21.10	13.33	
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0036	0.0068	0.0035	0.0068	0.0036	0.0068	11.93	0.03	0.0000	0.0000	20.0	(0.000)	24.57	11.37	
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0018	0.0034	0.0018	0.0034	0.0018	0.0034	11.95	0.02	0.0000	0.0000	20.0	(0.000)	12.30	5.69	
Occupancy Sensors		0.0862	0.0477	0.1137	0.0694	0.1307	0.0788	11.44	0.53	0.0001	(0.0000)	10.0	0.032	5.29	2.93	1.30
Ellipsoidal Lamps (1)	Incandescent Lamps											0.6	NA			
LED Exit Lighting	Incandescent Exit Lighting	0.0043	0.0051	0.0042	0.0050	0.0044	0.0050	11.93	0.03	0.0000	0.0000	15.0	0.008	2.15	1.24	3.92
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0036	0.0043	0.0036	0.0043	0.0037	0.0043	11.94	0.02	0.0000	0.0000	15.0	0.003	3.21	1.85	2.63
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0051	0.0060	0.0050	0.0060	0.0051	0.0059	11.93	0.03	0.0000	0.0000	15.0	0.014	1.01	0.58	8.37
Exterior Time Clock		0.0024	0.0128	0.0024	0.0127	0.0024	0.0128	11.92	0.05	0.0000	0.0000	10.0	0.001	9.31	4.17	0.57
Photocell - Outdoor Lighting		0.0059	0.0053	0.0017	0.0008	0.0031	0.0025	11.94	0.02	0.0000	0.0000	10.0	0.001	4.09	1.94	1.09
Delay Timer		0.0256	0.0143	0.0341	0.0208	0.0392	0.0236	11.80	0.16	0.0000	(0.0000)	10.0	0.013	4.08	2.26	1.69

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Water Heating																
High Efficiency Water Heater	Water Heater	0.0011	0.0013	0.0011	0.0013	0.0011	0.0013	11.95	0.01	0.0000	0.0000	10.0	0.000	224.46	129.40	0.03
Tank Wall R= 24.9	Tank Wall R=											10.0	NA			
Water Heater Blanket (1)	Water Heater															
Blanket R= 11																
Storage Water Heater	Water Heater	0.0180	(0.0187)	0.0201	(0.0208)	0.0199	(0.0206)	11.96	0.00	0.0000	(0.0000)	10.0	0.008	0.96	1.07	
Solar Assisted Water Heater	Water Heater	0.0162	0.0034	0.0099	0.0005	0.0148	0.0019	11.91	0.05	0.0000	0.0000	20.0	0.284	0.09	0.06	114.33
Office Equipment																
Personal Computers																
Timer (off at night/weekends)	Desktops	0.0051	0.0110	0.0056	0.0143	0.0070	0.0156	11.90	0.06	0.0000	(0.0000)	6.0	0.013	0.91	0.42	4.49
Energy Efficient Desktops	Desktops	0.0697	0.0353	0.0822	0.0310	0.0946	0.0357	11.61	0.35	0.0001	0.0001	6.0	(0.477)	INFINITE	INFINITE	NOW
Standard Laptops	Desktops	0.0907	0.0460	0.1070	0.0404	0.1232	0.0465	11.51	0.45	0.0001	0.0001	6.0	0.031	4.12	2.60	1.36
Computer Printers																
Timer (off at night/weekends)	Dedicated Printers	0.0037	0.0077	0.0052	0.0123	0.0063	0.0134	11.91	0.05	0.0000	(0.0000)	6.0	0.00288	3.30	1.54	1.27
Energy Efficient Printers	Dedicated Printers	0.0384	0.0194	0.0453	0.0171	0.0521	0.0196	11.77	0.19	0.0000	0.0000	6.0	$0	8.20	5.18	0.68
Copiers																
Timer (off at night/weekends)	Copiers	0.0015	0.0033	0.0014	0.0059	0.0018	0.0062	11.94	0.02	0.0000	(0.0000)	6.0	0.00072	5.43	2.50	0.77
Energy Efficient Copiers	Copiers	0.0132	0.0067	0.0156	0.0059	0.0179	0.0068	11.90	0.07	0.0000	0.0000	6.0	0.007812	2.34	1.48	2.38

Note:

(1) Not Applicable to New Buildings
(2) Not Applicable to Air Distribution System

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EXISTING GROCERY/CONVENIENCE BUILDING																
BASELINE								37.88								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Air-Cooled	Recip. Chiller Air-Cooled															
COP = 3.52 (0)	COP = 2.46	0.0738	0.0698	0.0053	0.0045	0.0299	0.0225	37.67	0.21	0.0001	0.0000	20.0	NA			
COP = 4.0	COP = 3.52	0.0206	0.0195	0.0015	0.0012	0.0083	0.0063	37.61	0.06	0.0000	0.0000	20.0	0.010	3.38	2.20	2.57
COP = 4.6	COP = 3.52	0.0412	0.0389	0.0030	0.0025	0.0167	0.0125	37.55	0.11	0.0000	0.0000	20.0	0.022	3.00	1.95	2.89
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER 8.2 (0)	EER 8.2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	37.88		0.0000	0.0000	18.0	1.941			
EER = 9.5	EER = 8.2	0.0974	0.0785	0.0010	0.0008	0.0225	0.0148	37.66	0.21	0.0001	0.0000	18.0	0.523	0.29	0.21	33.23
EER = 10.5	EER = 8.2	0.1649	0.1330	0.0017	0.0013	0.0381	0.0250	37.51	0.36	0.0002	0.0000	18.0	0.926	0.27	0.20	34.70
Evaporative Condenser	Unitary System Air-Cooled	0.1113	0.0898	0.0011	0.0009	0.0257	0.0189	37.63	0.25	0.0002	0.0000	15.0	0.379	0.42	0.30	21.04
Outside Air Economizer Cycle:																
Dry-Bulb Economizer	Central Chiller Air-Cooled	0.0047	0.0097	0.0008	0.0008	0.0068	0.0062	37.85	0.03	0.0000	0.0000	20.0	0.010	1.17	0.54	5.85
Enthalpy Economizer	Central Chiller Air-Cooled	0.0047	0.0096	0.0008	0.0008	0.0068	0.0062	37.85	0.03	0.0000	0.0000	20.0	0.024	0.47	0.21	14.23
Dry-Bulb Economizer	Unitary System Air-Cooled	0.0019	0.0050	0.0001	0.0002	0.0016	0.0018	37.86	0.01	0.0000	0.0000	18.0	0.193	0.02	0.01	277.26
Enthalpy Economizer	Unitary System Air-Cooled	0.0019	0.0052	0.0001	0.0002	0.0014	0.0018	37.86	0.01	0.0000	0.0000	18.0	0.486	0.01	0.00	688.18
Chilled Water Reset	Central Chiller Constant Temp.	0.0063	0.0077	0.0014	0.0011	0.0050	0.0040	37.85	0.03	(0.0000)	0.0000	20.0	0.026	0.37	0.17	16.74
Condenser Coil Cleaning	Unitary System Air-Cooled	0.0517	0.0417	0.0005	0.0004	0.0120	0.0078	37.76	0.11	0.0001	0.0000	1.0	0.005	1.57	1.13	0.65
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.0009	0.0020	0.0265	0.0313	0.0156	0.0212	37.78	0.10	0.0000	0.0000	20.0	0.035	1.26	0.69	9.78
Heat Pipe	Central Chiller System	0.0790	0.0999	0.2590	0.3411	0.1178	0.1675	36.81	1.06	0.0001	0.0003	20.0	0.469	1.21	0.74	10.13
Exhaust Air Heat Recovery	Central Chiller System	0.0000	0.0000	0.1517	0.2184	0.0139	0.0460	37.45	0.43	0.0000	0.0003	20.0	0.370	0.68	0.45	24.09
Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2 (existing = standard)	0.0075	0.0113	0.5324	0.7123	0.1082	0.2396	36.26	1.61	(0.0000)	(0.0000)	18.0	0.067	9.03	4.31	1.14
EER = 9.6, COP = 3.1	EER = 8.2 (standard)	0.0402	0.0380	0.6145	0.8185	0.1514	0.2980	35.91	1.96	0.0000	(0.0000)	18.0	0.272	2.77	1.36	3.68
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7	EER = 8.2 (existing = standard)	(0.0088)	(0.0132)	(1.4330)	(1.8787)	(0.5396)	(0.7845)	42.63	4.66	0.0000	(0.0038)	18.0	0.077	NA	NA	NA
EER = 9.6, COP = 3.1	EER = 8.2 (standard)	0.0886	0.0853	(1.2689)	(1.6662)	(0.4634)	(0.6677)	41.78	3.90	0.0001	(0.0038)	18.0	0.493	NA	NA	NA

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Ventilation																
Adjustable Speed Drives - Fans (2)	Fans - Constant Speed											15.0	NA			
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0039	0.0051	0.0034	0.0028	0.0051	0.0054	37.85	0.03	0.0000	0.0000	15.0	0.003	3.69	1.86	1.94
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0245	0.0273	0.0144	0.0155	0.0205	0.0220	37.75	0.12	0.0000	0.0000	15.0	0.006	8.57	4.96	0.92
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0004	0.0004	0.0001	0.0001	0.0003	0.0003	37.87	0.00	0.0000	0.0000	15.0	0.000	4.64	2.68	1.60
Reduction in Fan Flowrate 10 % Reduction in Fan cfm	Original Fan Flowrate	0.0751	0.0802	0.0450	0.0504	0.0632	0.0671	37.49	0.38	0.0001	0.0000	15.0	0.258	0.65	0.38	12.41
Fan Motor Downsizing HP Reduced to 1/3 of the Original	Original Fan Size	0.1923	0.2164	0.1115	0.1210	0.1619	0.1724	36.90	0.97	0.0001	0.0001	15.0	0.408	1.04	0.60	7.62
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.1328	0.0849	0.1672	0.2742	0.0176	0.0362	37.16	0.71	0.0002	0.0004	20.0	0.570	0.93	0.68	16.07
Wall Insulation (1)	Wall Insulation											20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.0187	0.0122	0.0455	0.0675	0.0043	0.0107	37.72	0.16	0.0000	0.0001	20.0	0.281	0.37	0.25	39.53
Triple-Pane Windows	Single-Pane Windows	0.0600	0.0423	0.0492	0.0766	0.0185	0.0191	37.61	0.27	0.0001	0.0001	20.0	0.778	0.22	0.16	64.77
Triple-Pane Windows (1)	Double-Pane Windows											20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.0222	0.0137	0.0639	0.0957	0.0042	0.0138	37.66	0.21	0.0000	0.0001	12.0	0.309	0.36	0.25	33.24
"Triple Pane" Low E	Single-Pane Windows	0.0550	0.0384	0.0810	0.0940	0.0160	0.0198	37.59	0.28	0.0001	0.0001	12.0	0.832	0.18	0.12	57.69
Double Pane Low E (1)	Double-Pane Windows											12.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows											12.0	NA			
Tinted Window Films	Single-Pane Windows	0.0368	0.0265	0.0076	0.0143	0.0122	0.0083	37.77	0.11	0.0000	0.0000	12.0	0.038	1.45	1.00	5.71
Tinted Window Films	Double-Pane Windows	0.0041	0.0029	(0.0006)	(0.0005)	0.0014	0.0006	37.87	0.01	0.0000	(0.0000)	12.0	0.007	0.61	0.42	11.42
Low E Films	Single-Pane Windows	0.0522	0.0368	0.0396	0.0617	0.0162	0.0163	37.65	0.22	0.0001	0.0001	12.0	0.110	1.06	0.73	9.15
Low E Films	Double-Pane Windows	0.0100	0.0071	0.0017	0.0033	0.0033	0.0022	37.85	0.03	0.0000	0.0000	12.0	0.039	0.37	0.26	21.96

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Simple Delamping 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0127	0.0141	0.0077	0.0086	0.0104	0.0112	37.81	0.06	0.0000	0.0000	10.0	0.000	272.34	158.31	0.02
Delamping w/Dummy Replacement 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0127	0.0141	0.0077	0.0086	0.0104	0.0112	37.81	0.06	0.0000	0.0000	10.0	0.001	43.23	25.13	0.15
Delamping with Reflector 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0127	0.0141	0.0077	0.0086	0.0104	0.0112	37.81	0.06	0.0000	0.0000	10.0	0.005	4.19	2.44	1.53
T8 Fluorescent Lamps Electronic Ballast	Incandescent Lamps	0.0853	0.0944	0.0515	0.0574	0.0702	0.0755	37.44	0.43	0.0001	0.0000	20.0	0.049	4.39	2.55	2.05
T8 Fluorescent Lamps Electronic Ballast	T12 Fluorescent Lamps	0.4548	0.5074	0.2727	0.3061	0.3744	0.4006	35.56	2.32	0.0004	0.0002	20.0	0.324	3.52	2.06	2.56
Low Wattage Fluorescent Lamps 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	0.1281	0.1427	0.0774	0.0866	0.1059	0.1138	37.22	0.65	0.0001	0.0000	1.7	0.012			
Electronic Ballasts	T12 Fluorescent Lamps	0.5121	0.5712	0.3063	0.3439	0.4209	0.4501	35.27	2.60	0.0004	0.0002	20.0	0.300	4.29	2.50	2.10
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0167	0.0721	0.0165	0.0716	0.0169	0.0719	37.61	0.27	0.0000	0.0000	20.0	0.042	2.43	1.09	3.07
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0068	0.0293	0.0067	0.0291	0.0069	0.0292	37.77	0.11	0.0000	0.0000	20.0	0.033	1.23	0.56	6.03
Exterior Time Clock		0.0000	0.0151	0.0000	0.0150	0.0000	0.0151	37.83	0.05	0.0000	0.0000	10.0	0.009	1.32	0.57	3.96
Photocell - Outdoor Lighting		0.0087	0.0039	0.0128	0.0058	0.0046	0.0081	37.83	0.04	(0.0000)	0.0000	10.0	0.009	1.34	0.65	4.26
Water Heating																
Desuperheater - Refrigeration	Water Heater	0.0356	0.0180	0.0351	0.0180	0.0360	0.0176	37.72	0.16	0.0000	0.0000	20.0	0.033	2.98	1.98	3.99
High Efficiency Water Heater Tank Wall R = 24.9	Water Heater	0.0020	0.0023	0.0019	0.0023	0.0020	0.0023	37.86	0.01	0.0000	0.0000	10.0	0.000	221.08	127.47	0.03
Water Heater Blanket Blanket R = 11	Water Heater	0.0020	0.0023	0.0019	0.0023	0.0020	0.0023	37.86	0.01	0.0000	0.0000	10.0	0.001	8.15	4.70	0.83
Storage Water Heater	Water Heater	0.0335	(0.0337)	0.0331	(0.0333)	0.0339	(0.0341)	37.88	0.00	0.0000	0.0000	10.0	0.039	0.65	0.67	

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Refrigeration																
Walk- In Strip Curtains		0.0054	0.0066	0.0071	0.0081	0.0070	0.0082	37.83	0.04	0.0000	0.0000	5.0	0.001	6.21	3.59	0.70
Glass Doors for Refrig. Cases	Refrigerated Cases	0.0169	0.0218	0.0236	0.0269	0.0232	0.0271	37.74	0.14	0.0000	0.0000	15.0	0.008	7.39	4.28	1.21
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0294	0.0341	0.0276	0.0327	0.0286	0.0328	37.69	0.19	0.0000	0.0000	15.0	0.000			
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.1137	0.1259	0.0811	0.0953	0.0926	0.1024	37.26	0.61	0.0001	0.0001	15.0	0.004	76.07	44.57	0.11
Floating Head Pressure Control (1)	Constant Pressure											15.0	NA			
Parallel Unequal Comp. System (1)	Independent Compressors											15.0	NA			
Variable Speed Compressor (1)	Constant Speed Compressors											15.0	NA			
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0166	0.0181	0.0102	0.0120	0.0121	0.0133	37.79	0.08	0.0000	0.0000	20.0	0.002	26.23	15.81	0.36
Mechanical Subcooling 10% Increase in EER	Refrigeration System	0.1738	0.1929	0.1274	0.1494	0.1444	0.1600	36.93	0.95	0.0002	0.0001	15.0	0.003	133.29	78.92	0.06
Anti-Sweat Control - Timeclock	Refrigerated Cases	0.0000	0.2499	0.0000	0.2439	0.0000	0.2463	37.14	0.74	0.0000	0.0000	15.0	0.001	249.36	108.49	0.03
Anti-Sweat Control - Humidistat	Refrigerated Cases	0.0524	0.1400	0.0500	0.1366	0.0517	0.1372	37.31	0.57	0.0000	0.0001	15.0	0.021	10.18	5.14	0.71
Energy-Efficient Case Lighting	Refrigerated Cases	0.0294	0.0341	0.0275	0.0327	0.0286	0.0328	37.69	0.19	0.0000	0.0000	10.0	0.013	4.85	2.81	1.40
Condenser Coil Cleaning		0.0873	0.0966	0.0623	0.0731	0.0710	0.0786	37.41	0.47	0.0001	0.0000	1.0	0.008	2.96	1.76	0.33
Appliances																
Convection Ovens	Radiant Ovens	0.0084	0.0051	0.0043	0.0018	0.0078	0.0040	37.84	0.03	0.0000	(0.0000)	15.0	0.162	0.07	0.04	93.40
Solid-State Temperature Controls	Radiant Ovens	0.0067	0.0031	0.0035	0.0010	0.0062	0.0024	37.85	0.02	0.0000	0.0000	15.0	0.019	0.52	0.30	14.80
High Efficiency Fryers	Fryers	0.0025	0.0010	0.0013	0.0002	0.0023	0.0007	37.87	0.01	0.0000	0.0000	11.0				

(0) Early Replacement Scenario
(1) Not Applicable to Existing Buildings
(2) Not Applicable to Air Distribution System

Barakat & Chamberlin 8/19/93

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY. BACK YEARS
NEW GROCERY/CONVENIENCE BUILDING																
BASELINE								36.00								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 4.0	COP = 3.52	0.0885	0.0842	0.0094	0.0080	0.0378	0.0296	35.74	0.26	0.0001	0.0000	20.0	0.009	16.55	10.68	0.52
COP = 4.6	COP = 3.52	0.1078	0.1026	0.0114	0.0097	0.0461	0.0361	35.68	0.31	0.0001	0.0000	20.0	0.020	8.96	5.78	0.97
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2	0.0837	0.0686	0.0014	0.0012	0.0205	0.0139	35.81	0.19	0.0001	0.0000	18.0	0.618	0.25	0.18	37.65
EER = 10.5	EER = 8.2	0.1417	0.1162	0.0024	0.0019	0.0347	0.0235	35.68	0.32	0.0002	0.0000	18.0	0.916	0.24	0.17	39.33
Evaporative Condenser	Unitary System Air-Cooled	0.0956	0.0784	0.0016	0.0013	0.0234	0.0158	35.78	0.22	0.0001	0.0000	15.0	0.375	0.37	0.26	23.84
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Central Chiller Water-Cooled											20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.0000	(0.0001)	0.0000	0.0000	0.0000	0.0000	36.00	0.00	0.0000	0.0000	20.0	0.022	0.00	0.00	NEVER
Dry-Bulb Economizer (1)	Unitary System Air-Cooled											18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	(0.0001)	0.0000	36.00	0.00	0.0000	0.0000	18.0	0.480	0.00	0.00	NEVER
Chilled Water Reset	Central Chiller Constant Temp.	0.0058	0.0071	0.0019	0.0016	0.0049	0.0042	35.97	0.03	(0.0000)	0.0000	20.0	0.026	0.37	0.17	17.33
Condenser Coil Cleaning (1)	Unitary System Air-Cooled											1.0	NA			
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.0011	0.0023	0.0265	0.0313	0.0161	0.0219	35.90	0.10	(0.0000)	0.0000	20.0	0.036	1.28	0.70	9.53
Heat Pipe	Central Chiller System	0.0780	0.1014	0.2372	0.3232	0.1152	0.1578	34.98	1.01	0.0001	0.0003	20.0	0.469	1.16	0.72	10.54
Exhaust Air Heat Recovery	Central Chiller System	0.0000	0.0000	0.1299	0.2005	0.0095	0.0341	35.62	0.37	0.0000	0.0003	20.0	0.370	0.63	0.42	27.63
Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2 (standard)	0.0086	0.0129	0.4320	0.5791	0.0843	0.1906	34.69	1.31	(0.0000)	(0.0000)	18.0	0.067	7.32	3.50	1.39
EER = 9.6, COP = 3.1	EER = 8.2 (standard)	0.0369	0.0365	0.4573	0.6089	0.1060	0.2239	34.53	1.47	0.0000	(0.0000)	18.0	0.272	2.08	1.03	4.85
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7	EER = 8.2 (standard)	(0.0051)	(0.0076)	(1.3978)	(1.8314)	(0.5488)	(0.8061)	40.59	4.60	0.0000	(0.0034)	18.0	0.075	NA	NA	NA
EER = 9.6, COP = 3.1	EER = 8.2 (standard)	0.0207	0.0140	(1.3470)	(1.7719)	(0.5056)	(0.7395)	40.33	4.33	0.0001	(0.0034)	18.0	0.485	NA	NA	NA

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Ventilation																
Adjustable Speed Drives - Fans (2)	Fans - Constant Speed											15.0	NA			
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0036	0.0047	0.0040	0.0036	0.0048	0.0053	35.97	0.03	0.0000	0.0000	15.0	0.003	3.67	1.83	1.98
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0241	0.0274	0.0153	0.0166	0.0207	0.0224	35.87	0.13	0.0000	0.0000	15.0	0.006	8.74	5.06	0.91
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0003	0.0003	0.0002	0.0001	0.0002	0.0002	36.00	0.00	(0.0000)	0.0000	15.0	0.000	3.86	1.93	1.66
Reduction in Fan Flowrate (1) 10 % Reduction in Fan cfm	Original Fan Flowrate											15.0	NA			
Fan Motor Downsizing (1) HP Reduced to 1/3 of the Original	Original Fan Size											15.0	NA			
Building Shell																
Ceiling Insulation R = 38	Ceiling Insulation	0.1024	0.0695	0.1052	0.1898	0.0087	0.0175	35.50	0.49	0.0002	0.0003	20.0	0.560	0.70	0.52	21.94
Wall Insulation R = 19	Wall Insulation	0.0293	0.0521	0.1085	0.1974	(0.0202)	0.0082	35.62	0.38	0.0001	0.0004	20.0	0.207	1.44	1.08	12.05
Double-Pane Windows (1)	Single-Pane Windows											20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows											20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0143	0.0104	0.0136	0.0220	0.0039	0.0043	35.93	0.07	0.0000	0.0000	20.0	0.672	0.07	0.05	187.79
Low-Emissivity Windows:												12.0	NA			
Double Pane Low E (1)	Single-Pane Windows											12.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows											12.0	0.037	1.26	0.89	9.14
Double Pane Low E	Double-Pane Windows	0.0131	0.0090	0.0218	0.0348	0.0026	0.0047	35.91	0.09	0.0000	0.0000	12.0	0.746	0.12	0.08	79.83
"Triple Pane" Low E	Double-Pane Windows	0.0450	0.0336	0.0207	0.0360	0.0139	0.0110	35.84	0.16	0.0001	0.0001	12.0				
Tinted Windows (1)	Single-Pane Windows											12.0	NA			
Tinted Windows	Double-Pane Windows	0.0242	0.0180	(0.0007)	0.0011	0.0087	0.0046			0.0000	0.0000	12.0	0.045	0.67	0.47	11.20
Low E Films (1)	Single-Pane Windows											12.0	NA			
Low E Films	Double-Pane Windows	0.0428	0.0325	0.0093	0.0181	0.0142	0.0096	35.87	0.13	0.0001	0.0000	12.0	0.149	0.46	0.32	16.67

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Simple Delamping (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
Delamping w/Dummy Replacem. (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
Delamping with Reflector (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps											10.0	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	Incandescent Lamps											20.0	NA			
T8 Fluorescent Lamps (1) Electronic Ballast	T12 Fluorescent Lamps											20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps											1.7	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps											20.0	NA			
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0167	0.0721	0.0165	0.0716	0.0169	0.0719	35.73	0.27	(0.0000)	0.0000	20.0	(0.004)	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0068	0.0293	0.0067	0.0291	0.0068	0.0292	35.89	0.11	(0.0000)	0.0000	20.0	(0.003)	INFINITE	INFINITE	NOW
Exterior Time Clock		0.0000	0.0151	0.0000	0.0150	0.0000	0.0151	35.95	0.05	0.0000	0.0000	10.0	0.009	1.32	0.57	3.96
Photocell - Outdoor Lighting		0.0097	0.0039	0.0128	0.0058	0.0046	0.0081	35.95	0.04	(0.0000)	0.0000	10.0	0.009	1.35	0.66	4.26
Water Heating																
Desuperheater - Refrigeration	Water Heater	0.0356	0.0180	0.0351	0.0180	0.0360	0.0176	35.84	0.16	0.0000	0.0000	20.0	0.033	2.97	1.98	3.99
High Efficiency Water Heater Tank Wall R= 24.9	Water Heater	0.0020	0.0023	0.0019	0.0023	0.0020	0.0023	35.99	0.01	0.0000	0.0000	10.0	0.000	221.22	127.55	0.03
Water Heater Blanket Blanket R= 11	Water Heater											10.0	NA			
Storage Water Heater	Water Heater	0.0335	(0.0337)	0.0331	(0.0333)	0.0339	(0.0341)	36.00	0.00	0.0000	0.0000	10.0	0.039	0.65	0.67	NEVER

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Refrigeration																
Walk- In Strip Curtains		0.0052	0.0070	0.0071	0.0082	0.0072	0.0084	35.95	0.04	0.0000	0.0000	5.0	0.001	6.21	3.55	0.69
Glass Doors for Refrig. Cases	Refrigerated Cases	0.0168	0.0227	0.0235	0.0269	0.0233	0.0277	35.86	0.14	0.0000	0.0000	15.0	0.004	14.55	8.35	0.61
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0294	0.0341	0.0275	0.0327	0.0286	0.0328	35.81	0.19	0.0000	0.0000	15.0	0.000	307.01	177.99	0.03
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.1136	0.1268	0.0811	0.0953	0.0925	0.1024	35.39	0.61	0.0001	0.0001	15.0	0.004	76.11	44.63	0.11
Floating Head Pressure Control	Constant Pressure	0.1818	0.2822	0.3369	0.3962	0.3025	0.3760	34.12	1.88	0.0000	0.0002	15.0	0.010	76.92	41.04	0.11
Parallel Unequal Comp. System	Independent Compressors	0.2578	0.2854	0.1842	0.2182	0.2099	0.2324	34.61	1.39	0.0002	0.0001	15.0	0.008	73.92	43.89	0.11
Variable Speed Compressor	Constant Speed Compressors	0.1309	0.1621	0.2116	0.2581	0.1952	0.2291	34.81	1.19	0.0000	0.0002	15.0	0.047	10.24	5.60	0.84
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0165	0.0180	0.0102	0.0121	0.0121	0.0133	35.92	0.08	0.0000	0.0000	20.0	0.002	25.97	15.57	0.36
Mechanical Subcooling 10% Increase in EER	Refrigeration System	0.1737	0.1928	0.1274	0.1495	0.1443	0.1600	35.05	0.95	0.0001	0.0001	15.0	0.003	133.20	78.85	0.06
Anti-Sweat Control - Timeclock	Refrigerated Cases	0.0000	0.2499	0.0000	0.2439	0.0000	0.2463	35.26	0.74	(0.0000)	0.0000	15.0	0.001	249.39	108.52	0.03
Anti-Sweat Control - Humidistat	Refrigerated Cases	0.0524	0.1400	0.0500	0.1365	0.0517	0.1372	35.43	0.57	(0.0000)	0.0001	15.0	0.021	10.19	5.14	0.71
Energy-Efficient Case Lighting	Refrigerated Cases	0.0294	0.0341	0.0275	0.0327	0.0286	0.0328	35.81	0.19	0.0000	0.0000	10.0	0.013	4.85	2.81	1.40
Condenser Coil Cleaning (1)												1.0	NA			
Appliances																
Convection Ovens	Radiant Ovens	0.0084	0.0051	0.0049	0.0022	0.0079	0.0042	35.97	0.03	0.0000	(0.0000)	15.0	0.162	0.07	0.04	80.84
Solid-State Temperature Controls	Radiant Ovens	0.0067	0.0031	0.0039	0.0013	0.0063	0.0025	35.97	0.02	0.0000	0.0000	15.0	0.019	0.54	0.31	14.40
High Efficiency Fryers	Fryers	0.0025	0.0010	0.0014	0.0003	0.0023	0.0008	35.99	0.01	0.0000	0.0000	11.0	0.015	0.26	0.17	31.49

Note:

(1) Not Applicable to New Buildings
(2) Not Applicable to Air Distribution System

Barakat & Chamberlin 9/19/93

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
EXISTING HOSPITAL BUILDING																
BASELINE								36.33								
Cooling																
High Efficiency Equipment:																
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 4.04 (0)	COP = 3.91	0.2673	0.2483	0.0405	0.0434	0.1100	0.0908	35.53	0.80	0.0003	0.0000	20.0	0.529	0.93	0.62	10.12
COP = 5.6	COP = 4.04	0.3143	0.2920	0.0476	0.0510	0.1294	0.1067	34.59	0.94	0.0004	0.0000	20.0	0.088	6.56	4.37	1.43
COP = 6.0	COP = 4.04	0.3614	0.3357	0.0547	0.0586	0.1488	0.1228	34.44	1.08	0.0004	0.0000	20.0	0.167	3.97	2.65	2.36
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.3579	0.3414	0.0675	0.0718	0.1612	0.1370	34.39	1.14	0.0004	0.0000	20.0	0.088	7.47	4.83	1.21
COP = 5.6	COP = 3.91															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 8.2	EER = 7.5	0.0280	0.0237	0.0007	0.0005	0.0092	0.0069	36.26	0.07	0.0000	0.0000	18.0	0.347	0.13	0.09	72.22
EER = 9.5	EER = 8.2	0.0421	0.0355	0.0010	0.0007	0.0138	0.0088	36.16	0.10	0.0001	0.0000	18.0	0.099	0.67	0.47	13.77
EER = 10.5	EER = 8.2	0.0631	0.0533	0.0015	0.0010	0.0208	0.0132	36.11	0.15	0.0001	0.0000	18.0	0.175	0.57	0.40	16.24
Evaporative Condenser	Unitary System Air-Cooled	0.0421	0.0355	0.0010	0.0007	0.0138	0.0088	36.23	0.10	0.0001	0.0000	15.0	0.072	0.86	0.60	9.97
Heat Recovery Absorp. Chiller COP = 1.0	Centrif. Chiller Water-Cooled	0.2931	0.2703	0.0371	0.0382	0.1169	0.0937	35.48	0.85	0.0004	0.0000	20.0	0.373	1.42	0.96	8.63
Outside Air Economizer Cycle:																
Dry-Bulb Economizer	Central Chiller Water-Cooled	0.0014	0.0008	0.0021	0.0012	0.0071	0.0051	36.31	0.02	0.0000	0.0000	20.0	0.015	0.46	0.22	21.00
Enthalpy Economizer	Central Chiller Water-Cooled	0.0029	0.0070	0.0021	0.0012	0.0075	0.0061	36.30	0.03	0.0000	0.0000	20.0	0.062	0.17	0.08	43.82
Dry-Bulb Economizer	Unitary System Air-Cooled	0.0010	0.0024	0.0002	0.0001	0.0016	0.0014	36.32	0.01	0.0000	0.0000	18.0	0.020	0.13	0.06	50.12
Enthalpy Economizer	Unitary System Air-Cooled	0.0010	0.0023	0.0002	0.0001	0.0016	0.0014	36.32	0.01	(0.0000)	0.0000	18.0	0.080	0.03	0.01	204.33
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.1133	0.1354	0.1874	0.2053	0.2243	0.2153	35.25	1.08	0.0001	0.0001	20.0	0.274	1.76	0.95	5.47
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0189	0.0257	0.0006	0.0004	0.0122	0.0072	36.26	0.07	0.0000	0.0000	15.0	0.002	14.34	8.70	0.36
Variable Speed Fans	Single-Speed Fans	0.0220	0.0296	0.0006	0.0004	0.0132	0.0080	36.25	0.07	0.0000	0.0000	15.0	0.031	0.81	0.38	6.25
Chilled Water Reset	Central Chiller Constant Temp.	0.0326	0.0429	0.0144	0.0154	0.0273	0.0253	36.17	0.16	(0.0000)	0.0000	20.0	0.026	2.27	1.02	2.85
Thermal Energy Storage Full Storage	Central Chiller Water-Cooled	1.1363	(1.1358)	0.1553	(0.2284)	0.4919	(0.5400)	36.45	0.12	0.0020	0.0001	20.0	1.573	0.70	0.73	
Condenser Coil Cleaning	Unitary System Air-Cooled	0.0210	0.0178	0.0005	0.0003	0.0069	0.0044	36.28	0.05	0.0000	0.0000	1.0	0.001	5.69	3.98	0.18
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.0833	0.0988	0.0526	0.0668	0.0609	0.0705	35.89	0.43	0.0001	0.0000	20.0	0.010	21.94	12.87	0.41
Heat Pipe	Central Chiller System	0.0516	0.0681	0.1248	0.1505	0.1201	0.1295	35.68	0.64	0.0000	0.0002	20.0	4.138	0.08	0.04	144.90
Exhaust Air Heat Recovery	Central Chiller System	0.0175	0.0199	0.0378	0.0507	0.0199	0.0243	36.16	0.17	0.0000	0.0001	20.0	3.264	0.03	0.02	418.19

TABLE
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ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT ($/kW)	PEAK DEMAND WINTER INCR IMPACT ($/kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Cooling/Heating																
Closed Water Loop Heat Pump (1) EER = 11.0, COP = 4.0	Central Chiller System	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Double-Bundled Chiller (1) COP = 5.6	Central Chiller System	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Ventilation																
Adjustable Speed Drives - Fans	Fans - Constant Speed	0.1676	0.1913	0.1310	0.1544	0.1533	0.1701	35.36	0.97	0.0001	0.0001	15.0	0.452	0.94	0.65	8.86
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0113	0.0248	0.0488	0.0577	0.0433	0.0544	36.09	0.24	0.0000	0.0000	15.0	0.081	1.20	0.65	7.88
Variable Air Volume Systems	Central Chiller CAV System	0.4783	0.5572	0.5075	0.6083	0.5124	0.6049	33.06	3.27	0.0004	0.0003	20.0	0.337	4.74	2.74	2.05
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0378	0.0420	0.0302	0.0351	0.0346	0.0377	36.11	0.22	0.0000	0.0000	15.0	0.017	5.61	3.30	1.50
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0107	0.0112	0.0073	0.0087	0.0083	0.0091	36.27	0.06	0.0000	0.0000	15.0	0.009	2.97	1.80	2.91
Reduction in Fan Flowrate 10 % Reduction in Fan cfm	Original Fan Flowrate	0.0038	0.0051	0.0085	0.0091	0.0102	0.0103	36.28	0.05	(0.0000)	0.0000	15.0	0.228	0.07	0.04	109.58
Fan Motor Downsizing HP Reduced to 1/3 of the Original	Original Fan Size	0.2987	0.3359	0.2384	0.2759	0.2730	0.2979	34.61	1.72	0.0002	0.0002	15.0	0.674	1.33	0.78	6.33
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.0026	0.0018	0.0031	0.0050	0.0001	0.0018	36.31	0.01	0.0000	0.0000	20.0	0.570	0.02	0.02	808.26
Wall Insulation (1)	Wall Insulation	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.0105	0.0073	0.0235	0.0340	0.0055	0.0123	36.23	0.09	0.0000	0.0000	20.0	0.180	0.32	0.22	43.27
Triple-Pane Windows	Single-Pane Windows	0.0359	0.0277	0.0253	0.0370	0.0156	0.0178	36.17	0.16	0.0001	0.0000	20.0	0.497	0.21	0.14	57.72
Triple-Pane Windows (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.0120	0.0082	0.0322	0.0468	0.0062	0.0165	36.21	0.12	0.0000	0.0000	20.0	0.197	0.38	0.26	37.33
"Triple Pane" Low E	Single-Pane Windows	0.0307	0.0233	0.0305	0.0447	0.0137	0.0194	36.17	0.16	0.0001	0.0000	20.0	0.532	0.20	0.14	64.27
Double Pane Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Tinted Window Films	Single-Pane Windows	0.0157	0.0123	0.0072	0.0106	0.0073	0.0061	36.27	0.06	0.0000	0.0000	12.0	0.021	1.50	1.05	6.20
Tinted Window Films (2)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	0.001			
Low E Films	Single-Pane Windows	0.0290	0.0224	0.0217	0.0318	0.0130	0.0160	36.19	0.13	0.0000	0.0000	12.0	0.034	2.02	1.39	4.80
Low E Films	Double-Pane Windows	0.0210	0.0164	0.0124	0.0181	0.0096	0.0094	36.24	0.09	0.0000	0.0000	12.0	0.143	0.32	0.22	29.75

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH DIVERSION COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Simple Delamping 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.1148	0.1311	0.0809	0.0936	0.0999	0.1083	35.70	0.63	0.0001	0.0001	10.0	0.001	384.39	224.77	0.02
Delamping w/Dummy Replacement 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.1148	0.1311	0.0809	0.0936	0.0999	0.1083	35.70	0.63	0.0001	0.0001	10.0	0.004	61.01	35.68	0.11
Delamping with Reflector 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.1148	0.1311	0.0809	0.0936	0.0999	0.1083	35.70	0.63	0.0001	0.0001	10.0	0.038	5.91	3.46	1.11
T8 Fluorescent Lamps Electronic Ballast	Incandescent Lamps	0.1938	0.1780	0.1322	0.1176	0.1650	0.1388	35.40	0.93	0.0002	0.0001	20.0	0.145	3.30	1.99	2.88
T8 Fluorescent Lamps Electronic Ballast	T12 Fluorescent Lamps	0.0878	0.0775	0.0601	0.0509	0.0748	0.0603	35.92	0.41	0.0001	0.0000	20.0	0.086	2.48	1.50	3.87
Low Wattage Fluorescent Lamps 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	0.1796	0.1559	0.1234	0.1026	0.1536	0.1213	35.49	0.84	0.0002	0.0001	3.0	0.005	23.99	14.56	0.11
Electronic Ballasts	T12 Fluorescent Lamps	0.1735	0.1509	0.1191	0.0992	0.1483	0.1175	35.52	0.81	0.0001	0.0001	20.0	0.111	3.79	2.30	2.64
Compact Fluorescent Lamps	Incandescent Lamps	0.1995	0.1727	0.1369	0.1133	0.1706	0.1341	35.40	0.93	0.0002	0.0001	2.5	(0.003)	INFINITE	INFINITE	NOW
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0059	0.0121	0.0059	0.0120	0.0060	0.0121	36.27	0.05	0.0000	0.0000	20.0	0.004	5.37	2.58	1.45
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0032	0.0066	0.0032	0.0066	0.0033	0.0066	36.30	0.03	0.0000	0.0000	20.0	0.006	1.84	0.88	4.25
Occupancy Sensors		0.0559	0.0028	0.0413	(0.0014)	0.0507	0.0001	36.18	0.15	0.0000	(0.0000)	10.0	0.022	2.08	1.10	2.69
LED Exit Lighting	Incandescent Exit Lighting	0.0066	0.0078	0.0065	0.0077	0.0067	0.0077	36.28	0.04	0.0000	0.0000	15.0	0.025	0.73	0.42	11.51
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0056	0.0066	0.0055	0.0065	0.0057	0.0065	36.29	0.04	0.0000	0.0000	15.0	0.021	0.73	0.42	11.55
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0078	0.0092	0.0077	0.0091	0.0079	0.0091	36.28	0.05	0.0000	0.0000	15.0	0.038	0.57	0.33	14.84
Delay Timer		0.0281	0.0016	0.0205	(0.0007)	0.0250	0.0001	36.25	0.07	0.0000	(0.0000)	10.0	0.000	157.62	92.00	0.03
Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.0329	0.0223	0.0325	0.0222	0.0333	0.0219	36.16	0.17	0.0000	0.0000	18.0	0.091	0.94	0.58	10.83
Desuperheater - HVAC	Water Heater	0.1262	0.0830	0.0053	0.0036	0.0669	0.0402	36.00	0.33	0.0001	0.0000	20.0	0.006	33.88	21.98	0.26
Desuperheater - Refrigeration	Water Heater	0.0657	0.0446	0.0649	0.0445	0.0665	0.0438	36.00	0.33	0.0001	0.0001	20.0	0.005	38.19	23.74	0.28
Solar Assisted Water Heater	Water Heater	0.1106	0.0735	0.0597	0.0407	0.0910	0.0578	35.89	0.43	0.0001	0.0000	20.0	0.264	0.91	0.57	11.02

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Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0049	0.0057	0.0047	0.0055	0.0048	0.0056	36.30	0.03	0.0000	0.0000	15.0	0.000	1601.24	924.80	0.01
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.0152	0.0178	0.0146	0.0173	0.0151	0.0173	36.23	0.10	0.0000	0.0000	15.0	0.004	10.66	6.16	0.79
Variable Speed Compressor (1)	Constant Speed Compressors	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0079	0.0093	0.0077	0.0091	0.0079	0.0091	36.28	0.05	0.0000	0.0000	20.0	0.004	5.67	3.27	1.67
Condenser Coil Cleaning		0.0109	0.0128	0.0105	0.0124	0.0109	0.0125	36.26	0.07	0.0000	0.0000	1.0	0.001	5.88	3.40	0.17
Appliances																
Convection Ovens	Radiant Ovens	0.0659	0.0470	(0.0108)	(0.0140)	0.0326	0.0121	36.19	0.13	0.0001	(0.0000)	15.0	0.052	1.37	0.90	5.25
Solid-State Temperature Controls	Radiant Ovens	0.0650	0.0465	(0.0116)	(0.0148)	0.0317	0.0115	36.20	0.13	0.0001	(0.0000)	15.0	0.006	11.49	7.59	0.62
High Efficiency Fryers	Fryers	0.0638	0.0457	(0.0126)	(0.0153)	0.0306	0.0108	36.20	0.12	0.0001	(0.0000)	11.0	0.011	5.04	3.33	1.19
Office Equipment																
Personal Computers																
Timer (off at night/weekends)	Desktops	0.0009	0.0081	0.0002	0.0058	0.0005	0.0066	36.31	0.02	0.0000	(0.0000)	6.0	0.008	0.52	0.23	6.78
Energy Efficient Desktops	Desktops	0.0619	0.0072	0.0460	0.0017	0.0561	0.0037	36.16	0.18	0.0001	0.0001	6.0	0.409	0.16	0.11	43.11
Energy Efficient Laptops	Desktops	0.0886	0.0129	0.0656	0.0045	0.0801	0.0074	36.07	0.26	0.0001	0.0001	6.0	0.735	0.13	0.09	52.80
Computer Printers																
Timer (off at night/weekends)	Dedicated Printers	0.0009	0.0081	0.0002	0.0058	0.0005	0.0066	36.31	0.02	0.0000	(0.0000)	6.0	0.005	0.88	0.39	3.99
Energy Efficient Printers	Dedicated Printers	0.0133	0.0019	0.0098	0.0007	0.0120	0.0011	36.23	0.04	0.0000	0.0000	6.0	0.200	0.07	0.05	95.61
Copiers																
Timer (off at night/weekends)	Copiers	0.0001	0.0012	0.0000	0.0009	0.0001	0.0010	36.32	0.00	0.0000	(0.0000)	6.0	0.002	0.36	0.16	9.75
Energy Efficient Copiers	Copiers	0.0020	0.0003	0.0015	0.0001	0.0018	0.0002	36.26	0.01	0.0000	0.0000	6.0	0.223	0.01	0.01	712.97
Miscellaneous																
High Efficiency Elevator Motors 3% Increase in Efficiency	Elevator Motors	0.0081	0.0083	0.0081	0.0081	0.0084	0.0079	36.28	0.05	0.0062	0.0046	15.0	0.004	1163.15	1160.71	1.46

Note:

(1) Not Applicable to Existing Buildings

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
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TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT ($/Wh/yr)	SUMMER OFF INCR IMPACT ($/Wh/yr)	WINTER ON INCR IMPACT ($/Wh/yr)	WINTER OFF INCR IMPACT ($/Wh/yr)	TRANSITIONAL ON INCR IMPACT ($/Wh/yr)	TRANSITIONAL OFF INCR IMPACT ($/Wh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT ($/kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT ($/kW)	PEAK DEMAND WINTER INCR IMPACT ($/kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
NEW HOSPITAL BUILDING																
BASELINE								34.05								
Cooling																
High Efficiency Equipment:																
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 5.6	COP = 4.04	0.2679	0.2367	0.0337	0.0303	0.0974	0.0761	33.30	0.74	0.0003	0.0000	20.0	0.088	5.40	3.68	1.77
COP = 6.0	COP = 4.04	0.3261	0.2882	0.0411	0.0370	0.1188	0.0929	33.14	0.90	0.0004	0.0000	20.0	0.167	3.46	2.36	2.76
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.3078	0.2810	0.0465	0.0362	0.1236	0.0981	33.15	0.89	0.0004	0.0000	20.0	0.088	6.13	4.06	1.49
COP = 5.6	COP = 3.91															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2	0.0332	0.0281	0.0007	0.0005	0.0107	0.0068	33.96	0.08	0.0000	0.0000	18.0	0.103	0.51	0.36	18.06
EER = 10.5	EER = 8.2	0.0532	0.0460	0.0012	0.0008	0.0171	0.0110	33.92	0.13	0.0001	0.0000	18.0	0.182	0.46	0.33	19.97
Evaporative Condenser	Unitary System Air-Cooled	0.0399	0.0338	0.0009	0.0006	0.0128	0.0082	33.95	0.10	0.0001	0.0000	15.0	0.074	0.79	0.55	10.89
Heat Recovery Absorp. Chiller COP = 1.0	Centrif. Chiller Water-Cooled	0.1685	0.1455	0.0069	0.0004	0.0529	0.0342	33.64	0.41	0.0002	(0.0000)	20.0	0.360	0.77	0.54	12.43
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Central Chiller Water-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	34.05	0.00	0.0000	0.0000	20.0	0.062	0.00	0.00	NEVER
Dry-Bulb Economizer (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	(0.0000)	0.0000	(0.0000)	0.0000	5.6415	(0.0000)			(0.0000)	0.0000	18.0	0.083	27.05	13.26	0.41
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.0639	0.0864	0.3016	0.2928	0.2663	0.4060	32.63	1.42	0.0000	0.0001	20.0	0.230	2.60	1.32	3.99
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0172	0.0215	0.0001	0.0002	0.0088	0.0053	33.99	0.05	0.0000	0.0000	15.0	0.002	11.71	5.48	0.42
Variable Speed Fans	Single-Speed Fans	0.0203	0.0259	0.0001	0.0002	0.0096	0.0061	33.98	0.06	0.0000	0.0000	15.0	0.031	0.68	0.32	7.20
Chilled Water Reset	Central Chiller Constant Temp.	0.0264	0.0325	0.0090	0.0081	0.0187	0.0159	33.94	0.11	(0.0000)	0.0000	20.0	0.026	1.63	0.76	3.96
Thermal Energy Storage Full Storage	Central Chiller Water-Cooled	0.8868	(0.7928)	0.1259	(0.1094)	0.3534	(0.3284)	33.91	0.13	0.0016	0.0001	20.0	0.524	1.82	1.79	57.92
Condenser Coil Cleaning (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.0543	0.0591	0.0247	0.0323	0.0350	0.0372	34.29	0.24	0.0001	(0.0000)	20.0	0.010	15.48	10.40	0.71
Heat Pipe	Central Chiller System	0.0120	0.0140	0.0249	0.0346	0.0127	0.0159	33.93	0.11	0.0000	0.0001	20.0	4.138	0.02	0.01	783.81
Exhaust Air Heat Recovery	Central Chiller System	0.0120	0.0140	0.0249	0.0346	0.0127	0.0159	33.93	0.11	0.0000	0.0001	20.0	3.264	0.02	0.01	618.29

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Cooling/Heating																
Closed Water Loop Heat Pump EER = 11.0, COP = 4.0	Central Chiller System	0.0794	0.0811	0.4883	0.4491	0.5480	0.7259	31.67	2.37	0.0002	(0.0000)	18.0	0.000	INFINITE	INFINITE	NOW
Double-Bundled Chiller COP = 5.6	Central Chiller System	0.2785	0.1921	0.0394	0.0116	0.1321	0.0678	33.32	0.72	0.0004	(0.0000)	20.0	0.220	2.12	1.45	4.86
Ventilation																
Adjustable Speed Drives - Fans	Fans - Constant Speed	0.1429	0.1406	0.1052	0.1383	0.1016	0.1220	33.29	0.75	0.0001	0.0001	15.0	0.452	0.77	0.47	11.35
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0126	0.0276	0.0466	0.0591	0.0412	0.0507	33.81	0.24	0.0000	0.0000	15.0	0.081	1.17	0.83	7.80
Variable Air Volume Systems	Central Chiller CAV System	0.3861	0.3797	0.3317	0.4105	0.2888	0.3351	31.93	2.11	0.0003	0.0003	20.0	0.337	3.20	1.91	3.04
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0360	0.0446	0.0335	0.0395	0.0364	0.0425	33.81	0.23	0.0000	0.0000	15.0	0.017	5.81	3.34	1.43
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0102	0.0106	0.0071	0.0084	0.0077	0.0087	33.99	0.05	0.0000	0.0000	15.0	0.009	2.73	1.62	3.06
Reduction in Fan Flowrate (1) 10 % Reduction in Fan cfm	Original Fan Flowrate	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Fan Motor Downsizing (1) HP Reduced to 1/3 of the Original	Original Fan Size	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.0038	0.0035	0.0029	0.0042	0.0012	0.0020	34.03	0.02	0.0000	0.0000	20.0	0.560	0.02	0.01	581.17
Wall Insulation	Wall Insulation	0.0132	0.0208	0.0260	0.0323	0.0077	0.0145	33.93	0.11	0.0000	0.0000	20.0	0.153	0.43	0.27	26.94
Double-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0167	0.0130	0.0085	0.0113	0.0080	0.0079	33.98	0.08	0.0000	0.0000	20.0	0.983	0.04	0.03	266.09
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double Pane Low E	Double-Pane Windows	0.0131	0.0109	0.0160	0.0203	0.0087	0.0102	33.97	0.08	0.0000	0.0000	20.0	0.054	0.90	0.60	13.65
"Triple Pane" Low E	Double-Pane Windows	0.0292	0.0239	0.0301	0.0386	0.0186	0.0205	33.88	0.18	0.0000	0.0000	20.0	1.068	0.09	0.06	130.52
Tinted Window Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Tinted Window Films	Double-Pane Windows	0.0094	0.0079	0.0078	0.0100	0.0055	0.0068	34.00	0.05	0.0000	0.0000	12.0	0.002	10.21	6.82	0.90
Low E Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Low E Films	Double-Pane Windows	0.0122	0.0101	0.0236	0.0298	0.0104	0.0133	33.95	0.10	0.0000	0.0000	12.0	0.214	0.22	0.15	46.67

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Simple Delamping (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping w/Dummy Replacement (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping with Reflector (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
T8 Fluorescent Lamps (1) Electronic Ballast	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
T8 Fluorescent Lamps (1) Electronic Ballast	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	3.0	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Compact Fluorescent Lamps (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	2.5	NA			
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0059	0.0121	0.0059	0.0120	0.0060	0.0120	33.99	0.05	0.0000	0.0000	20.0	(0.000)	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0032	0.0066	0.0032	0.0066	0.0033	0.0066	34.02	0.03	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Occupancy Sensors		0.0481	0.0016	0.0339	(0.0002)	0.0450	0.0064	33.91	0.13	0.0000	(0.0000)	10.0	0.022	1.86	0.96	3.05
LED Exit Lighting	Incandescent Exit Lighting	0.0066	0.0078	0.0065	0.0077	0.0067	0.0077	34.00	0.04	0.0000	0.0000	15.0	0.009	2.13	1.23	3.96
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0056	0.0066	0.0055	0.0065	0.0056	0.0065	34.01	0.04	0.0000	0.0000	15.0	0.005	3.17	1.83	2.66
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0078	0.0092	0.0077	0.0091	0.0079	0.0091	33.99	0.05	0.0000	0.0000	15.0	0.022	1.00	0.58	8.45
Delay Timer		0.0237	0.0005	0.0159	(0.0002)	0.0243	0.0037	33.98	0.07	0.0000	(0.0000)	10.0	0.000	142.92	73.30	0.04

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Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.0329	0.0223	0.0325	0.0222	0.0333	0.0219	33.88	0.17	0.0000	0.0000	18.0	0.091	0.94	0.58	10.83
Desuperheater - HVAC	Water Heater	0.1262	0.0830	0.0053	0.0036	0.0869	0.0402	33.72	0.33	0.0001	0.0000	20.0	0.006	33.88	21.98	0.26
Desuperheater - Refrigeration	Water Heater	0.0657	0.0446	0.0650	0.0445	0.0665	0.0438	33.71	0.33	0.0001	0.0001	20.0	0.005	38.19	23.74	0.28
Solar Assisted Water Heater	Water Heater	0.1106	0.0736	0.0597	0.0407	0.0910	0.0578	33.61	0.43	0.0001	0.0000	20.0	0.264	0.91	0.57	11.02
Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0049	0.0057	0.0047	0.0055	0.0048	0.0056	34.01	0.03	0.0000	0.0000	15.0	0.000	1600.99	924.66	0.01
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.0152	0.0178	0.0146	0.0173	0.0151	0.0173	33.95	0.10	0.0000	0.0000	15.0	0.004	10.66	6.16	0.79
Variable Speed Compressor	Constant Speed Compressors	0.0704	0.0831	0.0706	0.0839	0.0720	0.0831	33.58	0.46	0.0001	0.0001	15.0	0.051	3.95	2.27	2.14
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0079	0.0093	0.0077	0.0091	0.0079	0.0091	33.99	0.05	0.0000	0.0000	20.0	0.004	5.66	3.27	1.67
Condenser Coil Cleaning (1)		NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Appliances																
Convection Ovens	Radiant Ovens	0.1140	0.0740	0.0436	0.0359	0.0562	0.0440	33.68	0.37	0.0000	0.0002	15.0	0.052	3.52	2.25	2.39
Solid-State Temperature Controls	Radiant Ovens	0.1129	0.0732	0.0429	0.0374	0.0550	0.0435	33.68	0.36	0.0000	0.0002	15.0	0.006	30.25	19.27	0.28
High Efficiency Fryers	Fryers	0.1114	0.0716	0.0413	0.0348	0.0541	0.0440	33.69	0.36	0.0000	0.0002	11.0	0.011	13.50	8.61	0.53

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ECONOMIC SCREENING
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IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE (YRS.)	INCR COST ($)	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Office Equipment																
Personal Computers																
Timer (off at night/weekends)	Desktops	0.0001	0.0078	(0.0015)	0.0091	(0.0004)	0.0056	34.02	0.02	0.0000	(0.0000)	6.0	0.008	0.47	0.21	7.42
Energy Efficient Desktops	Desktops	0.0593	0.0072	0.0453	0.0088	0.0545	0.0143	33.86	0.19	0.0001	0.0001	6.0	(0.306)	INFINITE	INFINITE	NOW
Energy Efficient Laptops	Desktops	0.0848	0.0127	0.0658	0.0191	0.0796	0.0260	33.76	0.29	0.0001	0.0001	6.0	0.020	4.92	3.43	1.33
Computer Printers																
Timer (off at night/weekends)	Dedicated Printers	0.0001	0.0078	(0.0015)	0.0091	(0.0004)	0.0056	34.02	0.02	0.0000	(0.0000)	6.0	0.006	0.81	0.36	4.37
Energy Efficient Printers	Dedicated Printers	0.0305	0.0048	0.0203	0.0024	0.0287	0.0031	33.96	0.09	0.0000	0.0000	6.0	0.011	2.84	2.10	2.24
Copiers																
Timer (off at night/weekends)	Copiers	0.0000	0.0012	(0.0002)	0.0014	(0.0001)	0.0008	34.04	0.00	0.0000	0.0000	6.0	0.002	0.33	0.16	10.67
Energy Efficient Copiers	Copiers	0.0203	0.0035	0.0137	0.0027	0.0190	0.0044	33.98	0.06	0.0000	0.0000	6.0	0.019	1.14	0.81	5.68
Miscellaneous																
High Efficiency Elevator Motors 3% Increase in Efficiency	Elevator Motors	0.0081	0.0083	0.0081	0.0081	0.0084	0.0079	34.00	0.05	0.0000	0.0000	15.0	0.004	4.65	2.21	1.46

Note:

(1) Not Applicable to New Buildings

Barakat & Chamberlin 8/19/93

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
EXISTING REFRIGERATED WAREHOUSE																
BASELINE								18.73								
Cooling																
High Efficiency Equipment:																
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 8.2 (0)	EER = 7.5 (existing)	0.0182	0.0089	0.0000	0.0000	0.0026	0.0014	18.70	0.03	0.0000	0.0000	18.0	0.156	0.22	0.18	66.22
EER = 9.5	EER = 8.2 (standard)	0.0247	0.0121	0.0000	0.0000	0.0034	0.0019	18.66	0.04	0.0001	0.0000	18.0	0.017	2.76	2.27	5.26
EER = 10.5	EER = 8.2 (standard)	0.0395	0.0194	0.0000	0.0000	0.0054	0.0030	18.63	0.07	0.0001	0.0000	18.0	0.030	2.49	2.05	5.83
Evaporative Condenser	Unitary System Air-Cooled	0.0263	0.0130	0.0000	0.0000	0.0027	0.0017	18.69	0.04	0.0001	0.0000	15.0	0.030	1.54	1.28	9.06
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (2)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	(0.0000)	(0.0000)	0.0000	(0.0000)	(0.0000)	18.73	0.00	0.0000	0.0000	18.0	0.034	0.00	0.00	NEVER
Condenser Coil Cleaning	Unitary System Air-Cooled	0.0116	0.0057	(0.0000)	0.0000	0.0007	0.0006	18.71	0.02	0.0000	0.0000	1.0	0.001	2.97	2.51	0.57
Time Clock		0.1121	0.0644	0.1078	0.0537	0.1216	0.0583	18.23	0.51	0.0000	0.0000	10.0	0.002	61.64	30.79	0.09
Setback Thermostat (2)		NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Heating (3)																
Cooling/Heating																
Unitary System & Gas Furnace EER = 8.2	Unitary System & Gas Furnace EER = 7.5 (existing)	0.0147	0.0073	0.0000	0.0000	0.0024	0.0013	18.71	0.03	0.0000	0.0000	18.0	NA			
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7	EER = 8.2 (standard)	(0.0356)	(0.0151)	(0.0423)	(0.0235)	(0.0833)	(0.0306)	18.94	0.23	(0.0000)	0.0000	18.0	0.180	NA	NA	NA
EER = 9.6, COP = 3.1	EER = 8.2 (standard)	(0.0093)	(0.0022)	(0.0359)	(0.0197)	(0.0655)	(0.0234)	18.87	0.16	0.0000	0.0000	18.0	0.226	NA	NA	NA
Bypass/Delay Timer		0.1617	0.1001	0.1642	0.1052	0.1659	0.0999	17.94	0.80	0.0012	0.0000	15.0	0.001	1084.24	902.92	0.02
Ventilation																
Adjustable Speed Drives - Fans (4)	Fans - Constant Speed	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0120	0.0055	0.0102	0.0051	0.0107	0.0043	18.68	0.05	0.0000	0.0000	15.0	0.001	25.40	17.23	0.42
Reduction in Fan Flowrate 10 % Reduction in Fan cfm	Original Fan Flowrate	0.0208	0.0102	0.0109	0.0077	0.0129	0.0082	18.66	0.07	0.0000	0.0000	15.0	0.057	1.00	0.77	14.34
Fan Motor Downsizing HP Reduced to 1/3 of the Original	Original Fan Size	0.0944	0.0433	0.0808	0.0374	0.0846	0.0372	18.36	0.38	0.0001	0.0001	15.0	0.073	2.91	1.97	3.67

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS

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Building Shell																
Ceiling Insulation R = 30		(0.0136)	(0.0079)	(0.0006)	(0.0005)	(0.0182)	(0.0068)	18.78	0.05	0.0000	(0.0000)	20.0	0.570	0.00	0.02	NEVER
Wall Insulation (1)		NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.0032	0.0017	(0.0003)	0.0006	0.0005	0.0005	18.73	0.01	0.0000	0.0000	20.0	0.096	0.07	0.05	217.08
Triple-Pane Windows	Single-Pane Windows	0.0059	0.0036	0.0001	0.0007	0.0007	0.0010	18.72	0.01	0.0000	0.0000	20.0	0.267	0.05	0.04	310.38
Triple-Pane Windows (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.0061	0.0037	(0.0002)	0.0008	0.0012	0.0010	18.72	0.01	0.0000	0.0000	12.0	0.106	0.10	0.08	117.67
"Triple Pane" Low E	Single-Pane Windows	0.0124	0.0073	0.0003	0.0011	0.0024	0.0020	18.71	0.03	0.0000	0.0000	12.0	0.286	0.08	0.06	167.64
Double Pane Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Tinted Window Films	Single-Pane Windows	0.0124	0.0075	0.0003	0.0011	0.0025	0.0020	18.71	0.03	0.0000	0.0000	12.0	0.025	0.88	0.71	13.59
Tinted Window Films (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Low E Films	Single-Pane Windows	0.0120	0.0070	0.0003	0.0011	0.0023	0.0019	18.71	0.02	0.0000	0.0000	12.0	0.038	0.55	0.45	21.54
Low E Films (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			

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Lighting																
Daylighting Controls		0.2821	0.1310	0.1878	0.0944	0.2576	0.1119	17.67	1.06	0.0003	0.0001	10.0	0.861	0.50	0.32	15.10
Simple Delamping 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0018	0.0011	0.0017	0.0014	0.0018	0.0011	18.72	0.01	0.0000	0.0000	10.0	0.000	161.07	106.80	0.05
Delamping w/Dummy Replacement 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0018	0.0011	0.0017	0.0014	0.0018	0.0011	18.72	0.01	0.0000	0.0000	10.0	0.000	25.57	16.95	0.33
Delamping with Reflector 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.0018	0.0011	0.0017	0.0014	0.0018	0.0011	18.72	0.01	0.0000	0.0000	10.0	0.002	2.48	1.64	3.42
T8 Fluorescent Lamps Electronic Ballast	Incandescent Lamps	0.0263	0.0146	0.0226	0.0134	0.0239	0.0132	18.62	0.11	0.0000	0.0000	20.0	0.027	2.59	1.72	4.52
T8 Fluorescent Lamps Electronic Ballast	T12 Fluorescent Lamps	0.0476	0.0266	0.0409	0.0239	0.0431	0.0235	18.53	0.21	0.0001	0.0000	20.0	0.057	2.19	1.46	5.34
Low Wattage Fluorescent Lamps 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	0.0144	0.0079	0.0122	0.0070	0.0128	0.0071	18.67	0.06	0.0000	0.0000	3.0	0.002	4.56	3.04	0.73
Electronic Ballasts	T12 Fluorescent Lamps	0.0933	0.0526	0.0810	0.0469	0.0854	0.0471	18.33	0.41	0.0001	0.0001	20.0	0.079	3.15	2.10	3.71
High Pressure Sodium - Indoor	Mercury Vapor Lamps	0.0452	0.0254	0.0388	0.0229	0.0413	0.0228	18.54	0.20	0.0001	0.0000	20.0	0.022	5.39	3.59	2.17
Metal Halide - Indoor	Mercury Vapor Lamps	0.0173	0.0098	0.0148	0.0089	0.0156	0.0083	18.66	0.07	0.0000	0.0000	20.0	0.022	2.04	1.36	5.71
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0087	0.0177	0.0086	0.0176	0.0088	0.0176	18.65	0.08	0.0000	0.0000	20.0	0.010	3.19	1.47	2.36
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0041	0.0082	0.0040	0.0082	0.0041	0.0082	18.70	0.04	0.0000	0.0000	20.0	0.010	1.48	0.69	5.07
Occupancy Sensors		0.0304	0.0138	0.0393	0.0185	0.0406	0.0180	18.57	0.16	0.0001	0.0001	10.0	0.013	6.66	4.86	1.66
LED Exit Lighting	Incandescent Exit Lighting	0.0067	0.0079	0.0066	0.0079	0.0068	0.0079	18.69	0.04	0.0000	0.0000	15.0	0.024	0.78	0.45	10.86
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0057	0.0067	0.0056	0.0067	0.0058	0.0067	18.70	0.04	0.0000	0.0000	15.0	0.021	0.77	0.45	10.90
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0080	0.0094	0.0079	0.0093	0.0080	0.0093	18.68	0.06	0.0000	0.0000	15.0	0.037	0.60	0.35	14.00
Exterior Time Clock		0.0019	0.0019	0.0031	0.0025	0.0024	0.0021	18.72	0.01	0.0000	0.0000	10.0	0.001	4.41	2.11	1.31
Photocell - Outdoor Lighting		0.0100	0.0101	0.0046	0.0023	0.0063	0.0054	18.69	0.04	0.0000	0.0000	10.0	0.001	12.26	5.83	0.38
Delay Timer		0.0261	0.0122	0.0377	0.0178	0.0389	0.0173	18.68	0.15	0.0001	0.0000	10.0	0.000	308.60	230.48	0.04

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Water Heating																
Desuperheater - Refrigeration	Water Heater	0.0029	0.0014	0.0029	0.0014	0.0030	0.0013	18.72	0.01	0.0000	0.0000	20.0	0.006	1.28	0.86	9.36
High Efficiency Water Heater Tank Wall R= 24.9	Water Heater	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	18.73	0.00	0.0000	0.0000	10.0	0.000	130.90	75.43	0.05
Water Heater Blanket Blanket R= 11	Water Heater	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	18.73	0.00	0.0000	0.0000	10.0	0.000	10.86	6.26	0.62
Storage Water Heater	Water Heater	0.0014	(0.0014)	0.0027	(0.0027)	0.0019	(0.0019)	18.73	0.00	0.0000	0.0000	10.0	0.006	0.36	0.37	NEVER
Refrigeration																
Walk- In Strip Curtains		0.3231	0.2702	0.3040	0.2492	0.3392	0.2628	16.98	1.75	0.0003	0.0003	5.0	0.027	14.84	9.00	0.30
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0474	0.0406	0.0462	0.0368	0.0483	0.0378	18.48	0.26	0.0000	0.0000	15.0	0.000	360.32	220.53	0.03
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.1512	0.1281	0.1446	0.1149	0.1529	0.1188	17.92	0.81	0.0001	0.0001	15.0	0.051	7.45	4.55	1.22
Floating Head Pressure Control (1)	Constant Pressure	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Parallel Unequal Comp. System (1)	Independent Compressors	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Variable Speed Compressor (1)	Constant Speed Compressors	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0785	0.0668	0.0758	0.0602	0.0796	0.0620	18.31	0.42	0.0001	0.0001	20.0	0.056	3.95	2.41	2.59
Mechanical Subcooling 10% Increase in EER	Refrigeration System	0.2785	0.2354	0.2653	0.2108	0.2811	0.2182	17.24	1.49	0.0002	0.0002	15.0	0.074	9.44	5.76	0.96
Condenser Coil Cleaning		0.1828	0.1547	0.1745	0.1387	0.1847	0.1435	17.75	0.98	0.0002	0.0002	1.0	0.002	26.85	16.41	0.04
Office Equipment																
Personal Computers																
Timer (off at night/weekends)	Desktops	0.0047	0.0335	0.0040	0.0322	0.0031	0.0312	18.62	0.11	0.0000	0.0000	6.0	0.001	22.63	10.65	0.17
Energy Efficient Desktops	Desktops	0.0530	0.0370	0.0476	0.0352	0.0489	0.0346	18.48	0.26	0.0001	0.0000	6.0	0.048	1.60	1.06	3.59
Energy Efficient Laptops	Desktops	0.0739	0.0502	0.0657	0.0468	0.0677	0.0461	18.38	0.35	0.0001	0.0001	6.0	0.086	1.23	0.81	4.71
Computer Printers																
Timer (off at night/weekends)	Dedicated Printers	0.0096	0.0625	0.0073	0.0595	0.0087	0.0589	18.53	0.20	0.0000	0.0000	6.0	0.000	127.81	60.14	0.03
Energy Efficient Printers	Dedicated Printers	0.0847	0.0586	0.0752	0.0545	0.0781	0.0539	18.33	0.41	0.0001	0.0001	6.0	0.013	9.18	6.03	0.63
Copiers																
Timer (off at night/weekends)	Copiers	0.0035	0.0264	0.0031	0.0267	0.0026	0.0247	18.65	0.09	0.0000	0.0000	6.0	0.000	53.77	26.33	0.07

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Energy Efficient Copiers	Copiers	0.0387	0.0273	0.0349	0.0262	0.0363	0.0266	18.54	0.19	0.0000	0.0000	6.0	0.040	1.39	0.91	4.13

Note:

(0) Early Replacement Scenario
(1) Not Applicable to Existing Buildings
(2) Not Applicable Due to Full Implementation in Base Case
(3) No Electric Space Heating in this Prototype
(4) Not Applicable to Air Distribution System

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NEW REFRIGERATED WAREHOUSE																
BASELINE								18.36								
Cooling																
High Efficiency Equipment:																
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2 (standard)	0.0194	0.0095	0.0000	0.0000	0.0029	0.0014	18.33	0.03	0.0000	0.0000	18.0	0.017	2.08	1.70	6.71
EER = 10.5	EER = 8.2 (standard)	0.0135	0.0066	0.0000	0.0000	0.0020	0.0009	18.31	0.02	0.0000	0.0000	18.0	0.030	0.81	0.67	17.11
Evaporative Condenser	Unitary System Air-Cooled	0.0222	0.0108	0.0000	0.0000	0.0033	0.0016	18.33	0.04	0.0001	0.0000	15.0	0.030	1.21	0.99	10.63
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	(0.0000)	(0.0000)	(0.0000)	(0.0000)	0.0000	(0.0000)	18.36	0.00	0.0000	0.0000	18.0	0.034	0.00	0.00	NEVER
Condenser Coil Cleaning (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Time Clock		0.1191	0.0582	0.1086	0.0536	0.1237	0.0599	17.84	0.52	0.0000	0.0000	10.0	0.002	63.02	31.24	0.09
Setback Thermostat (2)		NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Heating (3)																
Cooling/Heating																
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7	EER = 8.2 (standard)	(0.0355)	(0.0148)	(0.0288)	(0.0165)	(0.0610)	(0.0225)	18.54	0.18	(0.0000)	0.0000	18.0	0.008	NA	NA	NA
EER = 9.8, COP = 3.1	EER = 8.2 (standard)	(0.0166)	(0.0059)	(0.0249)	(0.0136)	(0.0509)	(0.0177)	18.49	0.13	0.0000	0.0000	18.0	0.054	NA	NA	NA
Bypass/Delay Timer		0.1697	0.1068	0.1662	0.1074	0.1712	0.1041	17.54	0.83	0.0012	0.0000	15.0	0.001	1061.56	873.78	0.02
Ventilation																
Adjustable Speed Drives - Fans (4)	Fans - Constant Speed	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0121	0.0057	0.0102	0.0047	0.0108	0.0048	18.32	0.05	0.0000	0.0000	15.0	0.001	24.97	16.71	0.41
Reduction in Fan Flowrate (2) 10 % Reduction in Fan cfm	Original Fan Flowrate	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Fan Motor Downsizing (2) HP Reduced to 1/3 of the Original	Original Fan Size	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			

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Building Shell																
Ceiling Insulation R= 38		(0.0319)	(0.0039)	(0.0005)	0.0026	(0.0122)	0.0009	18.41	0.04	0.0000	(0.0000)	20.0	0.560	0.00	0.01	NEVER
Wall Insulation R= 19		(0.0336)	(0.0099)	(0.0001)	0.0004	(0.0088)	0.0001	18.42	0.05	(0.0000)	(0.0000)	20.0	0.081	-0.42	-0.29	NEVER
Double-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0039	0.0020	0.0001	0.0002	0.0007	0.0006	18.36	0.01	0.0000	0.0000	20.0	0.171	0.04	0.03	317.55
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Double Pane Low E	Double-Pane Windows	0.0039	0.0021	0.0001	0.0002	0.0000	0.0006	18.36	0.01	0.0000	0.0000	12.0	0.010	0.51	0.39	18.06
"Triple Pane" Low E	Double-Pane Windows	0.0104	0.0060	0.0002	0.0006	0.0025	0.0013	18.34	0.02	0.0000	0.0000	12.0	0.189	0.08	0.06	125.64
Tinted Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Tinted Windows	Double-Pane Windows	0.0091	0.0049	(0.0006)	0.0005	0.0016	0.0014	18.36	0.02	0.0000	0.0000	12.0	0.026	0.46	0.36	20.04
Low E Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Low E Films	Double-Pane Windows	0.0105	0.0059	0.0002	0.0006	0.0023	0.0016	18.34	0.02	0.0000	0.0000	12.0	0.038	0.38	0.29	25.14

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Daylighting Controls		0.2372	0.1107	0.1626	0.0811	0.2231	0.0965	17.45	0.91	0.0002	0.0001	10.0	0.392	0.93	0.59	8.06
Simple Delamping (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping w/Dummy Replacem. (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping with Reflector (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	T8 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	3.0	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
High Pressure Sodium - Indoor	Mercury Vapor Lamps	0.0406	0.0223	0.0339	0.0192	0.0361	0.0199	18.19	0.17	0.0000	0.0000	20.0	(0.002)	INFINITE	INFINITE	NOW
Metal Halide - Indoor	Mercury Vapor Lamps	0.0159	0.0087	0.0130	0.0075	0.0139	0.0077	18.30	0.07	0.0000	0.0000	20.0	(0.002)	INFINITE	INFINITE	NOW
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0087	0.0177	0.0086	0.0176	0.0088	0.0176	18.28	0.08	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0041	0.0082	0.0040	0.0082	0.0041	0.0082	18.33	0.04	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Occupancy Sensors		0.0304	0.0138	0.0393	0.0185	0.0406	0.0180	18.20	0.16	0.0001	0.0000	10.0	0.009	9.05	6.34	1.10
LED Exit Lighting	Incandescent Exit Lighting	0.0067	0.0079	0.0066	0.0079	0.0068	0.0079	18.32	0.04	0.0000	0.0000	15.0	0.008	2.26	1.30	3.74
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0057	0.0067	0.0056	0.0067	0.0058	0.0067	18.33	0.04	0.0000	0.0000	15.0	0.005	3.36	1.94	2.51
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0080	0.0094	0.0079	0.0093	0.0080	0.0093	18.31	0.05	0.0000	0.0000	15.0	0.021	1.06	0.61	7.98
Exterior Time Clock		0.0019	0.0019	0.0031	0.0025	0.0024	0.0021	18.35	0.01	0.0000	0.0000	10.0	0.001	4.41	2.11	1.31
Photocell - Outdoor Lighting		0.0100	0.0101	0.0046	0.0023	0.0063	0.0054	18.33	0.04	0.0000	0.0000	10.0	0.001	12.26	5.83	0.38
Delay Timer		0.0248	0.0115	0.0333	0.0155	0.0355	0.0168	18.23	0.14	0.0001	0.0000	10.0	0.000	272.87	201.99	0.04

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Water Heating																
Desuperheater - Refrigeration	Water Heater	0.0029	0.0014	0.0029	0.0014	0.0030	0.0013	18.36	0.01	0.0000	0.0000	20.0	0.006	1.28	0.86	9.37
High Efficiency Water Heater Tank Wall R = 24.9	Water Heater	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	18.36	0.00	0.0000	0.0000	10.0	0.000	130.41	76.21	0.05
Water Heater Blanket (1) Blanket R = 11	Water Heater	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Storage Water Heater	Water Heater	0.0014	(0.0014)	0.0027	(0.0027)	0.0019	(0.0019)	18.36	0.00	0.0000	0.0000	10.0	0.006	0.36	0.37	NEVER
Refrigeration																
Walk- In Strip Curtains		0.3231	0.2674	0.3037	0.2471	0.3365	0.2608	16.62	1.74	0.0003	0.0003	5.0	0.027	14.79	8.98	0.30
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0486	0.0404	0.0464	0.0367	0.0491	0.0377	18.11	0.26	0.0000	0.0000	15.0	0.000	362.46	221.62	0.03
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.1518	0.1261	0.1447	0.1145	0.1534	0.1177	17.56	0.81	0.0001	0.0001	15.0	0.051	7.44	4.55	1.22
Floating Head Pressure Control	Constant Pressure	0.0826	0.1886	0.1123	0.2530	0.1150	0.2513	19.37	1.00	0.0000	0.0000	15.0	0.005	75.01	34.52	0.09
Parallel Unequal Comp. System	Independent Compressors	0.3445	0.2861	0.3285	0.2600	0.3481	0.2672	16.53	1.83	0.0003	0.0003	15.0	0.117	7.33	4.48	1.24
Variable Speed Compressor	Constant Speed Compressors	0.6819	0.5667	0.6499	0.4903	0.6581	0.5032	14.81	3.55	0.0006	0.0006	15.0	0.650	2.56	1.57	3.53
Ambient Subcooling 5% Increase in EER	Refrigeration System	0.0795	0.0660	0.0758	0.0600	0.0803	0.0617	17.94	0.42	0.0001	0.0001	20.0	0.056	3.95	2.42	2.58
Mechanical Subcooling 10% Increase in EER	Refrigeration System	0.2783	0.2311	0.2653	0.2100	0.2811	0.2158	16.88	1.48	0.0002	0.0002	15.0	0.074	9.40	5.75	0.96
Condenser Coil Cleaning (1)		NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Office Equipment																
Personal Computers																
Timer (off at night/weekends)	Desktops	0.0047	0.0335	0.0040	0.0322	0.0031	0.0312	18.26	0.11	0.0000	0.0000	6.0	0.001	21.59	9.61	0.17
Energy Efficient Desktops	Desktops	0.0530	0.0370	0.0476	0.0362	0.0489	0.0346	18.11	0.26	0.0000	0.0000	6.0	(0.036)	INFINITE	INFINITE	NOW
Energy Efficient Laptops	Desktops	0.0739	0.0502	0.0657	0.0468	0.0677	0.0461	18.01	0.35	0.0001	0.0001	6.0	0.002	41.32	26.66	0.13
Computer Printers																
Timer (off at night/weekends)	Dedicated Printers	0.0098	0.0625	0.0073	0.0595	0.0067	0.0589	18.16	0.20	0.0000	0.0000	6.0	0.000	121.99	54.31	0.03
Energy Efficient Printers	Dedicated Printers	0.0847	0.0586	0.0752	0.0545	0.0781	0.0539	17.96	0.41	0.0001	0.0001	6.0	0.001	151.71	93.77	0.03
Copiers																
Timer (off at night/weekends)	Copiers	0.0035	0.0264	0.0031	0.0257	0.0026	0.0247	18.28	0.09	0.0000	0.0000	6.0	0.000	51.21	22.78	0.07

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Energy Efficient Copiers	Copiers	0.0387	0.0273	0.0349	0.0262	0.0353	0.0258	18.18	0.19	0.0000	0.0000	6.0	0.003	14.89	9.31	0.35

Note:

(1) Not Applicable to Existing Buildings
(2) Not Applicable Due to Full Implementation in Base Case
(3) No Electric Space Heating in this Prototype
(4) Not Applicable to Air Distribution System

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EXISTING LODGING BUILDING								23.61								
BASELINE																
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 3.52 (0)	COP = 3.12	0.0300	0.0263	0.0092	0.0098	0.0161	0.0131	23.50	0.10	0.0000	0.0000	20.0	NA			
COP = 4.0	COP = 3.52	0.0200	0.0176	0.0062	0.0064	0.0107	0.0088	23.43	0.07	0.0000	0.0000	20.0	0.030	1.34	0.86	7.02
COP = 4.6	COP = 3.52	0.0400	0.0351	0.0124	0.0130	0.0215	0.0176	23.36	0.14	0.0000	0.0000	20.0	0.067	1.19	0.77	7.89
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 4.04 (0)	COP = 3.90	0.0340	0.0298	0.0105	0.0111	0.0182	0.0148	23.49	0.12	0.0000	0.0000	20.0	0.697	0.10	0.06	97.36
COP = 5.6	COP = 4.04	0.1560	0.1368	0.0484	0.0512	0.0837	0.0683	22.94	0.54	0.0002	0.0000	20.0	0.116	2.67	1.71	3.53
COP = 6.0	COP = 4.04	0.1859	0.1631	0.0577	0.0610	0.0998	0.0814	22.84	0.65	0.0002	0.0000	20.0	0.220	1.66	1.06	5.61
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.1899	0.1666	0.0589	0.0622	0.1019	0.0832	22.94	0.66	0.0002	0.0000	20.0	0.116	3.25	2.08	2.90
COP = 5.6	COP = 4.04															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 8.2 (0)	EER = 7.5	0.0357	0.0279	0.0008	0.0007	0.0130	0.0076	23.52	0.09	0.0000	0.0000	18.0	0.033	1.67	1.16	5.52
EER = 9.5	EER = 8.2	0.0485	0.0379	0.0011	0.0010	0.0177	0.0103	23.41	0.12	0.0001	0.0000	18.0	0.009	8.39	5.83	1.10
EER = 10.5	EER = 8.2	0.0774	0.0605	0.0018	0.0016	0.0282	0.0165	23.34	0.19	0.0001	0.0000	18.0	0.018	7.57	5.26	1.22
Evaporative Condenser	Unitary System Air-Cooled	0.0545	0.0425	0.0013	0.0011	0.0199	0.0116	23.48	0.13	0.0001	0.0000	15.0	0.006	12.03	8.36	0.71
Window Air Conditioner	Window Air Conditioner															
EER = 7.8 (0)	EER = 6.8	0.0312	0.0196	0.0000	(0.0000)	0.0074	0.0039	23.55	0.06	0.0000	0.0000	15.0	0.249	0.15	0.10	54.67
EER = 9.5	EER = 7.8	0.0380	0.0239	(0.0000)	0.0000	0.0090	0.0048	23.47	0.08	0.0001	(0.0000)	15.0	0.055	1.02	0.77	9.86
EER = 10.5	EER = 7.8	0.0548	0.0343	(0.0000)	0.0000	0.0129	0.0069	23.44	0.11	0.0001	(0.0000)	15.0	0.109	0.71	0.53	13.72
Heat Recovery Absorp. Chiller	Electric Chillers	0.0930	0.0706	0.0173	0.0177	0.0366	0.0235	23.35	0.26	0.0001	0.0000	20.0	2.969	0.06	0.04	177.19
COP = 1.0																
Outside Air Economizer Cycle:																
Dry-Bulb Economizer	Central Chiller Water-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	23.61	0.00	0.0000	0.0000	20.0	0.020	0.00	0.00	NEVER
Enthalpy Economizer	Central Chiller Water-Cooled	0.0090	0.0400	0.0000	0.0000	0.0030	0.0072	23.55	0.06	0.0000	0.0000	20.0	0.103	0.22	0.10	23.53
Dry-Bulb Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	23.61	0.00	0.0000	0.0000	18.0	0.002	0.00	0.00	NEVER
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	23.61	0.00	0.0000	0.0000	18.0	0.009	0.00	0.00	NEVER
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.1068	0.2286	0.3296	0.3513	0.3888	0.4719	21.73	1.88	0.0000	0.0001	20.0	0.383	2.04	1.02	4.64
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0152	0.0217	0.0188	0.0192	0.0243	0.0210	23.49	0.12	0.0000	0.0000	15.0	0.003	16.39	7.74	0.42
Variable Speed Fans	Single-Speed Fans	0.0185	0.0259	0.0197	0.0201	0.0282	0.0225	23.47	0.13	0.0000	0.0000	15.0	0.024	1.89	0.89	3.58
Chilled Water Reset	Central Chiller Constant Temp.	0.0253	0.0309	0.0188	0.0207	0.0239	0.0222	23.47	0.14	0.0000	0.0000	20.0	0.026	2.34	1.22	3.40
Thermal Energy Storage	Central Chiller Water-Cooled	0.6941	(0.4949)	0.2377	(0.1388)	0.4040	(0.2526)	23.16	0.45	0.0010	0.0002	20.0	1.530	0.52	0.48	60.68
Full Storage																
Condenser Coil Cleaning	Unitary System Air-Cooled	0.0298	0.0233	0.0007	0.0006	0.0109	0.0063	42.96	0.07	0.0000	0.0000	1.0	0.005	0.97	0.67	1.03

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Heating																
Heat Pipe	Central Chiller System	0.0745	0.1423	0.5803	0.7059	0.3280	0.4901	21.29	2.32	0.0000	0.0004	20.0	3.242	0.31	0.17	34.86
Exhaust Air Heat Recovery	Central Chiller System	0.0038	0.0036	0.0073	0.0092	0.0049	0.0063	23.57	0.04	0.0000	0.0000	20.0	2.541	0.01	0.00	1600.29
Cooling/Heating																
Unitary System & Elec. Heating EER = 8.2	Unitary System & Elec. Heating EER = 7.6	0.0413	0.0321	0.0009	0.0008	0.0148	0.0086	23.51	0.10	0.0001	0.0000	18.0	NA			
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2	0.0000	0.0000	0.2499	0.3668	0.0317	0.0935	22.77	0.74	0.0000	(0.0000)	18.0	0.125	2.21	1.06	4.70
EER = 9.5, COP = 3.1	EER = 8.2	0.0879	0.0851	0.3082	0.4446	0.0836	0.1461	22.37	1.14	0.0001	(0.0000)	18.0	0.509	0.95	0.51	10.68
Closed Water Loop Heat Pump (1) EER = 11.0, COP = 4.0	Central Chiller System	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Ground-Coupled Heat Pump (1) EER = 11.8, COP = 3.5	Unitary System & Elec. Heating	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Ventilation																
Adjustable Speed Drives - Fans (2)	Fans - Constant Speed	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0353	0.0516	0.0585	0.0716	0.0518	0.0645	23.27	0.33	0.0000	0.0000	15.0	0.029	4.55	2.47	1.84
Variable Air Volume Systems	Central Chiller CAV System	0.2525	0.4297	0.7428	0.8923	0.6313	0.8651	19.79	3.81	0.0001	0.0005	3.5	0.313	1.78	0.96	1.86
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0188	0.0221	0.0115	0.0131	0.0157	0.0168	23.51	0.10	0.0000	0.0000	15.0	0.011	4.10	2.42	1.98
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0042	0.0049	0.0042	0.0050	0.0043	0.0049	23.58	0.03	0.0000	0.0000	15.0	0.001	9.09	5.26	0.93
Reduction in Fan Flowrate 10 % Reduction in Fan cfm	Original Fan Flowrate	0.0628	0.0895	0.1328	0.1568	0.1264	0.1562	22.88	0.72	0.0000	0.0001	15.0	0.220	1.31	0.71	6.70
Fan Motor Downsizing HP Reduced to 1/3 of the Original	Original Fan Size	0.1477	0.1744	0.0901	0.1029	0.1223	0.1325	22.84	0.77	0.0001	0.0001	15.0	0.336	1.01	0.59	7.94

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.0025	0.0021	0.0142	0.0195	0.0026	0.0065	23.56	0.05	0.0000	0.0000	20.0	0.570	0.06	0.04	298.36
Wall Insulation (1)	Wall Insulation	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.0286	0.0205	0.2835	0.3686	0.0664	0.1255	22.71	0.89	0.0001	0.0004	20.0	0.719	0.68	0.43	21.01
Triple-Pane Windows	Single-Pane Windows	0.0560	0.0448	0.3426	0.4533	0.0833	0.1538	22.47	1.13	0.0001	0.0004	20.0	1.990	0.32	0.20	44.03
Triple-Pane Windows (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.0579	0.0463	0.3847	0.5106	0.0900	0.1702	22.35	1.26	0.0001	0.0005	20.0	0.790	0.88	0.56	15.86
"Triple Pane" Low E	Single-Pane Windows	0.1191	0.1034	0.3638	0.4914	0.0899	0.1702	22.26	1.35	0.0002	0.0005	20.0	2.129	0.36	0.23	38.45
Double Pane Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Tinted Window Films	Single-Pane Windows	0.1236	0.1118	0.0951	0.1447	0.0427	0.0503	23.04	0.57	0.0001	0.0002	12.0	0.185	1.50	1.01	5.95
Tinted Window Films	Double-Pane Windows	0.0428	0.0399	(0.0300)	(0.0298)	(0.0008)	(0.0121)	23.60	0.01	0.0000	(0.0000)	12.0	0.104	0.13	0.12	25.09
Low E Films	Single-Pane Windows	0.1166	0.1034	0.2262	0.3097	0.0721	0.1103	22.67	0.94	0.0002	0.0003	12.0	0.282	1.54	1.00	8.46
Low E Films	Double-Pane Windows	0.0513	0.0477	(0.0242)	(0.0205)	0.0021	(0.0093)	23.56	0.05	0.0001	(0.0000)	12.0	0.159	0.23	0.18	25.50
Lighting																
Halogen Lamps	Incandescent Lamps	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	23.61	0.00	0.0000	0.0000	0.5	0.000			
Compact Fluorescent Lamps	Incandescent Lamps	0.2840	0.2175	0.1338	0.0742	0.2081	0.1211	22.57	1.04	0.0002	0.0001	2.5	(0.013)	INFINITE	INFINITE	NOW
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0069	0.0142	0.0069	0.0141	0.0070	0.0141	23.54	0.06	0.0000	0.0000	20.0	0.010	2.49	1.20	3.14
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0048	0.0097	0.0047	0.0097	0.0048	0.0097	23.56	0.04	0.0000	0.0000	20.0	0.012	1.39	0.87	5.63
Occupancy Sensors		0.0697	0.0101	0.0322	0.0011	0.0528	0.0047	23.44	0.17	0.0002	0.0001	10.0	0.246	0.54	0.44	25.16
LED Exit Lighting	Incandescent Exit Lighting	0.0068	0.0080	0.0067	0.0080	0.0069	0.0080	23.56	0.04	0.0000	0.0000	16.0	0.170	0.11	0.07	74.70
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0058	0.0068	0.0057	0.0068	0.0059	0.0067	23.57	0.04	0.0000	0.0000	16.0	0.145	0.11	0.06	76.01
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0081	0.0095	0.0080	0.0095	0.0082	0.0094	23.55	0.05	0.0000	0.0000	16.0	0.259	0.09	0.05	98.34
Photocell - Outdoor Lighting		0.0323	0.0680	0.0251	0.0635	0.0272	0.0647	23.33	0.28	0.0000	0.0000	10.0	0.003	23.57	11.46	0.23
Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.0120	0.0087	0.0119	0.0086	0.0121	0.0085	23.55	0.06	0.0000	0.0000	18.0	0.058	0.54	0.34	18.45
High Efficiency Water Heater Tank Wall R = 24.0	Water Heater	0.0018	0.0019	0.0016	0.0019	0.0017	0.0019	23.60	0.01	0.0000	0.0000	10.0	0.000	8.94	5.15	0.76

TABLE
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ECONOMIC SCREENING
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IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH DIVERSN. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Water Heater Blanket Blanket R = 11	Water Heater	0.0018	0.0019	0.0016	0.0019	0.0017	0.0019	23.60	0.01	0.0000	0.0000	10.0	0.001	4.94	2.85	1.37
Solar Assisted Water Heater	Water Heater	0.0401	0.0285	0.0215	0.0156	0.0328	0.0223	23.45	0.16	0.0000	0.0000	20.0	0.726	0.12	0.07	81.65

TABLE
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ECONOMIC SCREENING
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IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	SIT. CUST. PAY BACK YEARS
Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0011	0.0013	0.0008	0.0009	0.0011	0.0013	23.60	0.01	0.0000	0.0000	15.0	0.000	163.13	89.56	0.05
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.0111	0.0131	0.0108	0.0128	0.0111	0.0128	23.54	0.07	0.0000	0.0000	15.0	0.006	6.38	3.11	1.67
Variable Speed Compressor (1)	Constant Speed Compressors	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Condenser Coil Cleaning		0.0085	0.0101	0.0083	0.0098	0.0085	0.0098	23.55	0.06	0.0000	0.0000	1.0	0.001	2.37	1.37	0.41
Appliances																
Convection Ovens	Radiant Ovens	0.0397	0.0205	0.0293	0.0121	0.0345	0.0145	23.46	0.15	0.0000	0.0000	15.0	0.041	1.80	1.13	4.98
Solid-State Temperature Controls	Radiant Ovens	0.0317	0.0163	0.0235	0.0098	0.0276	0.0116	23.49	0.12	0.0000	0.0000	15.0	0.005	12.41	7.77	0.72
High Efficiency Fryers	Fryers	0.0128	0.0066	0.0095	0.0040	0.0111	0.0047	23.56	0.05	0.0000	0.0000	11.0	0.003	7.25	4.52	1.04

Note:

(0) Early Replacement Scenario
(1) Not Applicable to Existing Buildings
(2) Not Applicable to Air Distribution System

Barakat & Chamberlin 8/20/93

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
NEW LODGING BUILDING																
BASELINE								18.21								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 4.0	COP = 3.52	0.0166	0.0117	0.0020	0.0016	0.0064	0.0038	18.17	0.04	0.0000	0.0000	20.0	0.024	1.14	0.79	8.68
COP = 4.8	COP = 3.52	0.0331	0.0234	0.0040	0.0032	0.0128	0.0077	18.13	0.08	0.0000	0.0000	20.0	0.055	1.02	0.70	9.77
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 5.6	COP = 4.04	0.1324	0.0937	0.0159	0.0126	0.0509	0.0308	17.87	0.34	0.0002	0.0000	20.0	0.096	2.32	1.61	4.27
COP = 6.0	COP = 4.04	0.1572	0.1112	0.0189	0.0150	0.0605	0.0366	17.81	0.40	0.0002	0.0000	20.0	0.182	1.45	1.01	6.83
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.1324	0.0937	0.0159	0.0126	0.0509	0.0308	17.87	0.34	0.0002	0.0000	20.0	0.096	2.32	1.61	4.27
COP = 5.6	COP = 4.04															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2	0.0486	0.0363	0.0011	0.0009	0.0140	0.0081	18.10	0.11	0.0001	0.0000	18.0	0.008	10.11	7.37	1.00
EER = 10.5	EER = 8.2	0.0776	0.0580	0.0018	0.0014	0.0224	0.0130	18.04	0.17	0.0001	0.0000	18.0	0.014	9.12	6.65	1.11
Evaporative Condenser	Unitary System Air-Cooled	0.0545	0.0408	0.0013	0.0010	0.0158	0.0091	18.09	0.12	0.0001	0.0000	15.0	0.006	14.49	10.57	0.65
Window Air Conditioner	Window Air Conditioner															
EER = 9.5	EER = 7.8	0.0301	0.0191	0.0000	0.0000	0.0064	0.0036	18.16	0.06	0.0000	0.0000	15.0	0.069	0.60	0.44	15.70
EER = 10.5	EER = 7.8	0.0432	0.0274	0.0000	0.0000	0.0092	0.0051	18.12	0.08	0.0001	0.0000	15.0	0.137	0.43	0.32	21.87
Heat Recovery Absorp. Chiller COP = 1.0	Electric Chillers	0.0775	0.0484	(0.0094)	(0.0171)	0.0169	(0.0037)	18.19	0.11	0.0001	(0.0000)	20.0	2.449	0.04	0.03	250.11
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Central Chiller Water-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.0002	0.0001	0.0000	0.0000	0.0001	0.0009	18.21	0.00	(0.0000)	0.0000	20.0	0.085	0.01	0.00	1400.59
Dry-Bulb Economizer (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	18.21	0.00	0.0000	0.0000	18.0	0.008	0.00	0.00	NEVER
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.0561	0.0301	0.1269	0.0958	0.2017	0.1155	17.58	0.63	(0.0000)	0.0000	20.0	0.316	0.78	0.37	11.99
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0180	0.0221	0.0009	0.0007	0.0121	0.0086	18.16	0.06	0.0000	0.0000	15.0	0.003	7.88	3.69	0.66
Variable Speed Fans	Single-Speed Fans	0.0191	0.0256	0.0009	0.0007	0.0129	0.0073	18.14	0.07	0.0000	0.0000	15.0	0.024	0.94	0.44	5.50
Chilled Water Reset	Central Chiller Constant Temp.	0.0252	0.0222	0.0059	0.0047	0.0147	0.0094	18.13	0.08	0.0000	0.0000	20.0	0.026	1.44	0.80	5.08
Thermal Energy Storage Full Storage	Central Chiller Water-Cooled	0.5904	(0.4206)	0.1038	(0.0583)	0.2639	(0.1617)	17.89	0.32	0.0009	0.0000	20.0	0.443	1.45	1.32	23.12
Condenser Coil Cleaning (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Heating																
Heat Pipe	Central Chiller System	0.0082	0.0102	0.0154	0.0188	0.0112	0.0165	18.13	0.08	0.0000	0.0000	20.0	2.482	0.02	0.01	674.84
Exhaust Air Heat Recovery	Central Chiller System	0.0082	0.0102	0.0154	0.0188	0.0112	0.0165	18.13	0.08	0.0000	0.0000	20.0	1.945	0.02	0.01	528.87

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER		WINTER		TRANSITIONAL		ANNUAL ENERGY		PEAK DEMAND		LIFE	INCR COST	BENEFIT/COST		EST. CUST. PAY BACK YEARS
		ON INCR IMPACT (kWh/yr)	OFF INCR IMPACT (kWh/yr)	ON INCR IMPACT (kWh/yr)	OFF INCR IMPACT (kWh/yr)	ON INCR IMPACT (kWh/yr)	OFF INCR IMPACT (kWh/yr)	TOTAL USAGE (kWh/yr)	INCR IMPACT (kWh/yr)	SUMMER INCR IMPACT (kW)	WINTER INCR IMPACT (kW)	YRS.	$	WITH ENVIRON. COSTS	UTILITY	

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Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2	0.0000	0.0000	0.4538	0.5908	0.1175	0.2306	16.82	1.38	0.0000	(0.0000)	18.0	0.104	5.00	2.39	2.09
EER = 9.6, COP = 3.1	EER = 8.2	0.0597	0.0481	0.5317	0.6872	0.1754	0.2890	16.41	1.80	0.0001	(0.0000)	18.0	0.425	1.71	0.88	6.12
Closed Water Loop Heat Pump	Central Chiller System	(0.3286)	(0.4783)	0.1321	0.2193	0.1577	0.0466	18.46	0.25	(0.0005)	0.0003	18.0	0.000	INFINITE	INFINITE	NOW
EER = 11.0, COP = 4.0																
Ground-Coupled Heat Pump	Unitary System & Elec. Heating	0.0800	0.0642	0.6667	0.8754	0.1944	0.3249	16.00	2.21	0.0001	0.0014	18.0	1.249	1.06	0.72	14.60
EER = 11.6, COP = 3.5	EER = 8.2															
Ventilation																
Adjustable Speed Drives - Fans (2)	Fans - Constant Speed	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.0444	0.0623	0.0581	0.0657	0.0570	0.0679	17.85	0.38	0.0000	0.0000	15.0	0.048	2.71	1.37	2.74
Variable Air Volume Systems	Central Chiller CAV System	0.0987	0.0947	0.0758	0.0523	0.1245	0.0764	17.69	0.52	0.0000	(0.0001)	15.0	0.000	INFINITE	INFINITE	NOW
High Efficiency Fan Motors	Fan Motors	0.0168	0.0186	0.0069	0.0072	0.0109	0.0106	18.14	0.07	0.0000	0.0000	15.0	0.009	3.73	2.21	2.04
3% Increase in Efficiency																
High Efficiency Pump Motors	Pump Motors	0.0046	0.0054	0.0045	0.0051	0.0048	0.0053	18.18	0.03	0.0000	0.0000	15.0	0.002	7.18	3.94	1.10
3% Increase in Efficiency																
Reduction in Fan Flowrate (1)	Original Fan Flowrate	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
10 % Reduction in Fan cfm																
Fan Motor Downsizing (1)	Original Fan Size	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
HP Reduced to 1/3 of the Original																
Building Shell																
Ceiling Insulation R = 38	Ceiling Insulation	0.0056	0.0062	0.0259	0.0356	0.0085	0.0148	18.11	0.10	0.0000	0.0000	20.0	0.560	0.10	0.08	140.06
Wall Insulation R = 19	Wall Insulation	0.0175	0.0306	0.2794	0.3517	0.0844	0.1430	17.30	0.91	0.0000	0.0003	20.0	0.140	3.33	2.02	4.05
Double-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0689	0.0581	0.0626	0.1037	0.0199	0.0294	17.87	0.34	0.0001	0.0001	20.0	1.986	0.11	0.08	109.92
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double Pane Low E	Double-Pane Windows	(0.0994)	(0.0863)	0.3136	0.3681	0.0785	0.1621	17.47	0.74	(0.0001)	0.0003	20.0	0.111	3.04	1.68	8.20
"Triple Pane" Low E	Double-Pane Windows	(0.0058)	(0.0003)	0.2636	0.3282	0.0792	0.1414	17.40	0.81	0.0000	0.0003	20.0	2.204	0.19	0.11	77.13
Tinted Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Tinted Windows	Double-Pane Windows	0.0489	0.0427	(0.0333)	(0.0306)	(0.0043)	(0.0173)	18.20	0.01	0.0000	(0.0000)	12.0	0.290	0.05	0.05	85.58

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Low E Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Low E Films	Double-Pane Windows	(0.0099)	(0.0051)	0.1580	0.1953	0.0478	0.0857	17.74	0.47	(0.0000)	0.0002	12.0	0.441	0.43	0.26	27.20

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Lighting																
Halogen Lamps (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	0.5	NA			
Compact Fluorescent Lamps (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	2.5	NA			
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0069	0.0142	0.0069	0.0141	0.0070	0.0141	18.15	0.06	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0048	0.0097	0.0047	0.0097	0.0048	0.0097	18.17	0.04	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Occupancy Sensors		0.0270	0.0039	0.0125	0.0011	0.0198	0.0013	18.14	0.07	0.0001	0.0000	10.0	0.246	0.19	0.15	65.30
LED Exit Lighting	Incandescent Exit Lighting	0.0068	0.0080	0.0067	0.0080	0.0069	0.0080	18.16	0.04	0.0000	0.0000	15.0	0.058	0.33	0.19	25.70
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.0058	0.0068	0.0057	0.0068	0.0059	0.0068	18.17	0.04	0.0000	0.0000	15.0	0.033	0.49	0.28	17.26
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.0081	0.0095	0.0080	0.0095	0.0082	0.0094	18.16	0.05	0.0000	0.0000	15.0	0.147	0.15	0.09	54.87
Photocell - Outdoor Lighting		0.0323	0.0680	0.0251	0.0635	0.0272	0.0647	17.93	0.28	0.0000	0.0000	10.0	0.003	23.57	11.46	0.23
Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.0120	0.0087	0.0119	0.0086	0.0121	0.0085	18.15	0.06	0.0000	0.0000	18.0	0.058	0.54	0.34	18.45
High Efficiency Water Heater Tank Wall R = 24.9	Water Heater	0.0016	0.0019	0.0016	0.0019	0.0017	0.0019	18.20	0.01	0.0000	0.0000	10.0	0.000	8.94	5.15	0.76
Water Heater Blanket (1) Blanket R = 11	Water Heater	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Solar Assisted Water Heater	Water Heater	0.0401	0.0285	0.0216	0.0156	0.0328	0.0223	18.05	0.16	0.0000	0.0000	20.0	0.726	0.12	0.07	81.60
Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.0012	0.0014	0.0008	0.0009	0.0012	0.0013	18.20	0.01	0.0000	0.0000	15.0	0.000	169.08	92.82	0.05
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.0114	0.0134	0.0108	0.0126	0.0112	0.0129	18.14	0.07	0.0000	0.0000	15.0	0.006	5.45	3.15	1.54
Variable Speed Compressor	Constant Speed Compressors	0.0234	0.0277	0.0262	0.0312	0.0258	0.0299	18.04	0.16	0.0000	0.0000	15.0	0.074	0.96	0.54	8.97
Condenser Coil Cleaning (1)		NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			

TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Appliances																
Convection Ovens	Radiant Ovens	0.0437	0.0235	0.0347	0.0189	0.0406	0.0189	18.03	0.18	0.0000	0.0000	15.0	0.041	2.06	1.27	4.29
Solid-State Temperature Controls	Radiant Ovens	0.0350	0.0188	0.0276	0.0136	0.0325	0.0151	18.07	0.14	0.0000	0.0000	15.0	0.005	14.31	8.81	0.62
High Efficiency Fryers	Fryers	0.0141	0.0076	0.0111	0.0055	0.0130	0.0061	18.15	0.06	0.0000	0.0000	11.0	0.003	8.42	5.20	0.90

Note:

(1) Not Applicable to New Buildings
(2) Not Applicable to Air Distribution System

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TABLE
UNION ELECTRIC
ECONOMIC SCREENING
COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COST*	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
EXISTING MISCELLANEOUS BUILDING																
BASELINE								27.43								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 3.52 (0)	COP = 2.88	0.0044	0.0047	0.0028	0.0032	0.0034	0.0035	27.41	0.02	0.0000	0.0000	20.0	NA			
COP = 4.0	COP = 3.52	0.0022	0.0023	0.0014	0.0016	0.0017	0.0018	27.40	0.01	0.0000	0.0000	20.0	0.001	4.58	2.75	2.05
COP = 4.6	COP = 3.52	0.0067	0.0070	0.0042	0.0048	0.0051	0.0053	27.38	0.03	0.0000	0.0000	20.0	0.003	6.11	3.66	1.53
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 4.04 (0)	COP = 3.60	0.0222	0.0235	0.0139	0.0160	0.0170	0.0177	27.32	0.11	0.0000	0.0000	20.0	0.070	0.81	0.49	11.51
COP = 5.6	COP = 4.04	0.0466	0.0492	0.0292	0.0336	0.0357	0.0372	27.09	0.23	0.0000	0.0000	20.0	0.012	10.26	6.15	0.91
COP = 6.0	COP = 4.04	0.0554	0.0586	0.0348	0.0400	0.0425	0.0442	27.05	0.28	0.0001	0.0000	20.0	0.022	6.43	3.86	1.46
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.0662	0.0788	0.0550	0.0629	0.0622	0.0670	26.93	0.39	0.0000	0.0000	20.0	0.012	16.02	9.07	0.56
COP = 5.6	COP = 4.04															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.2 (0)	EER = 7.5	0.0310	0.0256	0.0017	0.0015	0.0145	0.0094	27.35	0.08	0.0000	0.0000	18.0	0.519	0.09	0.06	93.07
EER = 9.5	EER = 8.2	0.0427	0.0353	0.0023	0.0020	0.0200	0.0129	27.23	0.12	0.0000	0.0000	18.0	0.144	0.47	0.31	18.73
EER = 10.5	EER = 8.2	0.0686	0.0567	0.0037	0.0032	0.0321	0.0208	27.16	0.19	0.0001	0.0000	18.0	0.255	0.42	0.28	20.61
Evaporative Condenser	Unitary System Air-Cooled	0.0469	0.0387	0.0025	0.0022	0.0219	0.0142	27.31	0.13	0.0001	0.0000	15.0	0.104	0.65	0.43	12.35
Window Air Conditioner	Window Air Conditioner															
EER = 7.8 (0)	EER = 7.5	0.0075	0.0062	0.0004	0.0004	0.0036	0.0023	27.41	0.02	0.0000	0.0000	15.0	0.077	0.14	0.09	56.62
EER = 9.5	EER = 7.8	0.0084	0.0069	0.0004	0.0004	0.0039	0.0025	27.39	0.02	0.0000	0.0000	15.0	0.016	0.74	0.49	10.94
EER = 10.5	EER = 7.8	0.0151	0.0124	0.0008	0.0007	0.0070	0.0046	27.37	0.04	0.0000	0.0000	15.0	0.033	0.66	0.44	12.15
Outside Air Economizer Cycle:																
Dry-Bulb Economizer	Central Chiller Water-Cooled	0.0004	0.0011	0.0031	0.0028	0.0049	0.0058	27.41	0.02	0.0000	0.0000	20.0	0.004	1.98	0.93	5.03
Enthalpy Economizer	Central Chiller Water-Cooled	0.0010	0.0050	0.0031	0.0028	0.0055	0.0069	27.41	0.02	0.0000	0.0000	20.0	0.009	1.05	0.48	7.90
Dry-Bulb Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	27.43	0.00	0.0000	0.0000	18.0	0.060	0.00	0.00	NEVER
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	27.43	0.00	0.0000	0.0000	18.0	0.151	0.00	0.00	NEVER
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.0134	0.0182	0.0744	0.1064	0.0132	0.0233	27.18	0.25	0.0000	0.0001	20.0	0.035	3.66	2.24	3.44
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0049	0.0076	0.0112	0.0129	0.0106	0.0121	27.37	0.06	0.0000	0.0000	15.0	0.010	2.25	1.16	3.71
Variable Speed Fans	Single-Speed Fans	0.0057	0.0086	0.0110	0.0126	0.0110	0.0122	27.37	0.06	0.0000	0.0000	15.0	0.050	0.46	0.24	17.69
Chilled Water Reset	Central Chiller Constant Temp.	0.0057	0.0086	0.0112	0.0129	0.0106	0.0121	27.37	0.06	(0.0000)	0.0000	20.0	0.026	0.93	0.45	9.14
Condenser Coil Cleaning	Unitary System Air-Cooled	0.0251	0.0207	0.0014	0.0012	0.0117	0.0076	27.36	0.07	0.0000	0.0000	1.0	0.003	1.26	0.83	0.75
Cooling/Heating																
Unitary System & Gas Furnace EER = 8.2	Unitary System & Gas Furnace EER = 7.5	NA	NA	NA	NA	NA	NA	27.41		NA	NA	18.0	NA			
Dual Fuel (Add-On) Heat Pump EER = 8.2, COP = 2.7	Unitary System & Gas Furnace EER = 8.2	(0.0003)	(0.0003)	(0.0155)	(0.0212)	(0.0013)	(0.0029)	27.45	0.04	(0.0000)	(0.0000)	18.0	0.011	-2.13	-1.43	NEVER

TABLE
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IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
EER= 9.8, COP= 3.1	EER= 8.2	0.0659	0.0543	(0.0119)	(0.0181)	0.0298	0.0171	27.27	0.14	0.0001	(0.0000)	18.0	0.073	1.08	0.71	7.06

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Ventilation																
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0109	0.0128	0.0099	0.0116	0.0109	0.0123	27.36	0.07	0.0000	0.0000	15.0	0.004	7.30	4.27	1.17
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0014	0.0016	0.0013	0.0016	0.0014	0.0016	27.42	0.01	0.0000	0.0000	15.0	0.000	8.20	4.45	0.95
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.0060	0.0067	0.0022	0.0032	0.0029	0.0034	27.41	0.02	0.0000	0.0000	20.0	0.570	0.02	0.02	393.36
Wall Insulation (1)	Wall Insulation	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.0028	0.0018	0.0035	0.0051	0.0008	0.0010	27.42	0.02	(0.0000)	0.0000	20.0	0.063	0.10	0.05	84.61
Triple-Pane Windows	Single-Pane Windows	0.0051	0.0033	0.0050	0.0073	0.0022	0.0020	27.41	0.02	0.0000	0.0000	20.0	0.175	0.09	0.06	137.30
Triple-Pane Windows (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.0060	0.0034	0.0044	0.0063	0.0023	0.0020	27.41	0.02	0.0000	0.0000	20.0	0.069	0.22	0.15	57.02
"Triple Pane" Low E	Single-Pane Windows	0.0101	0.0067	0.0058	0.0080	0.0048	0.0036	27.39	0.04	0.0000	0.0000	20.0	0.187	0.13	0.09	86.32
Double Pane Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Tinted Window Films	Single-Pane Windows	0.0097	0.0069	0.0024	0.0031	0.0056	0.0036	27.40	0.03	0.0000	0.0000	12.0	0.016	0.91	0.60	8.70
Tinted Window Films	Double-Pane Windows	0.0504	0.0388	(0.0051)	(0.0083)	0.0322	0.0175	27.31	0.13	0.0001	(0.0000)	12.0	0.141	0.40	0.26	16.40
Low E Films	Single-Pane Windows	0.0099	0.0068	0.0038	0.0051	0.0052	0.0035	27.40	0.03	0.0000	0.0000	12.0	0.025	0.68	0.46	12.44
Low E Films	Double-Pane Windows	0.0710	0.0523	0.0112	0.0160	0.0403	0.0256	27.22	0.22	0.0001	0.0000	12.0	0.286	0.36	0.24	21.38
Lighting																
T8 Fluorescent Lamps Electronic Ballast	Incandescent Lamps	0.0562	0.0508	0.0469	0.0412	0.0547	0.0457	27.14	0.30	0.0001	0.0000	20.0	0.107	1.45	0.89	6.92
T8 Fluorescent Lamps Electronic Ballast	T12 Fluorescent Lamps	0.0552	0.0499	0.0460	0.0404	0.0536	0.0448	27.14	0.29	0.0001	0.0000	20.0	0.126	1.21	0.74	8.27
Low Wattage Fluorescent Lamps 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	0.0374	0.0338	0.0312	0.0273	0.0363	0.0303	27.24	0.20	0.0000	0.0000	3.0	0.003	10.20	6.23	0.28
Electronic Ballasts	T12 Fluorescent Lamps	0.0466	0.0421	0.0388	0.0341	0.0452	0.0378	27.19	0.24	0.0000	0.0000	20.0	0.111	1.16	0.71	8.70
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0097	0.0199	0.0096	0.0197	0.0098	0.0198	27.34	0.09	0.0000	0.0000	20.0	0.015	2.29	1.10	3.42
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0053	0.0108	0.0052	0.0108	0.0054	0.0108	27.38	0.05	0.0000	0.0000	20.0	0.015	1.25	0.80	6.27
Photocell - Outdoor Lighting		0.0236	0.0106	0.0078	0.0011	0.0137	0.0059	27.37	0.06	0.0000	0.0000	10.0	0.003	7.70	4.50	0.74

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Water Heating																
High Efficiency Water Heater Tank Wall R= 24.9	Water Heater	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	27.43	0.00	0.0000	0.0000	10.0	0.000	39.86	22.98	0.17
Water Heater Blanket Blanket R= 11	Water Heater	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	27.43	0.00	0.0000	0.0000	10.0	0.000	22.04	12.71	0.31

Note:

(0) Early Replacement Scenario
(1) Not Applicable to Existing Buildings

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	$ENGR/COST WITH ENVIRON COSTS	$ENGR/COST UTILITY	EST. CUST. PAY BACK YEARS
NEW MISCELLANEOUS BUILDING																
BASELINE																
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 4.0	COP = 3.52	0.0248	0.0238	0.0027	0.0025	0.0124	0.0100	25.98	0.08	0.0000	0.0000	20.0	0.001	34.41	21.75	0.25
COP = 4.6	COP = 3.52	0.0290	0.0279	0.0032	0.0030	0.0145	0.0117	25.95	0.09	0.0000	0.0000	20.0	0.003	17.90	11.31	0.48
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 5.6	COP = 4.04	0.0838	0.0805	0.0092	0.0085	0.0419	0.0337	25.78	0.26	0.0001	0.0000	20.0	0.012	12.42	7.86	0.69
COP = 6.0	COP = 4.04	0.0922	0.0886	0.0101	0.0094	0.0461	0.0371	25.76	0.28	0.0001	0.0000	20.0	0.022	7.20	4.55	1.19
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.1052	0.1079	0.0116	0.0108	0.0551	0.0438	25.71	0.33	0.0001	0.0000	20.0	0.012	15.16	9.23	0.53
COP = 5.6	COP = 4.04															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2	0.0342	0.0285	0.0018	0.0016	0.0161	0.0104	25.95	0.09	0.0000	0.0000	18.0	0.144	0.38	0.25	23.30
EER = 10.5	EER = 8.2	0.0583	0.0485	0.0031	0.0027	0.0275	0.0177	25.88	0.16	0.0001	0.0000	18.0	0.266	0.36	0.24	24.19
Evaporative Condenser	Unitary System Air-Cooled	0.0342	0.0285	0.0018	0.0016	0.0161	0.0104	25.95	0.09	0.0000	0.0000	15.0	0.104	0.48	0.32	16.86
Window Air Conditioner	Window Air Conditioner															
EER = 9.5	EER = 7.8	0.0070	0.0058	0.0004	0.0003	0.0033	0.0021	26.02	0.02	0.0000	0.0000	15.0	0.016	0.62	0.42	13.04
EER = 10.5	EER = 7.8	0.0124	0.0103	0.0007	0.0006	0.0059	0.0038	26.01	0.03	0.0000	0.0000	15.0	0.033	0.56	0.37	14.67
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Central Chiller Water-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	26.04	0.00	0.0000	0.0000	20.0	0.009	0.00	0.00	NEVER
Dry-Bulb Economizer (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	26.04	0.00	0.0000	0.0000	18.0	0.151	0.00	0.00	NEVER
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.0081	0.0090	0.0253	0.0268	0.0231	0.0291	25.92	0.12	0.0000	(0.0000)	20.0	0.035	1.28	0.57	6.92
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.0059	0.0084	0.0008	0.0007	0.0058	0.0045	26.01	0.03	0.0000	0.0000	15.0	0.010	0.90	0.42	6.32
Variable Speed Fans	Single-Speed Fans	0.0052	0.0077	0.0008	0.0007	0.0056	0.0044	26.02	0.02	0.0000	0.0000	15.0	0.050	0.17	0.08	34.26
Chilled Water Reset	Central Chiller Constant Temp.	0.0053	0.0080	0.0019	0.0017	0.0052	0.0050	26.01	0.03	0.0000	0.0000	20.0	0.026	0.42	0.20	16.51
Condenser Coil Cleaning (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Cooling/Heating																
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace															
EER = 8.2, COP = 2.7	EER = 8.2	(0.0003)	(0.0003)	(0.0114)	(0.0168)	(0.0012)	(0.0027)	26.07	0.03	(0.0000)	(0.0000)	18.0	0.011	NA	NA	NA
EER = 9.6, COP = 3.1	EER = 8.2	0.0087	0.0066	(0.0110)	(0.0165)	0.0021	(0.0006)	26.05	0.01	0.0000	(0.0000)	18.0	0.073	NA	NA	NA

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Ventilation																
High Efficiency Fan Motors 3% Increase in Efficiency	Fan Motors	0.0120	0.0139	0.0095	0.0109	0.0114	0.0126	25.97	0.07	0.0000	0.0000	15.0	0.004	7.32	4.22	1.12
High Efficiency Pump Motors 3% Increase in Efficiency	Pump Motors	0.0014	0.0017	0.0014	0.0017	0.0015	0.0017	26.03	0.01	0.0000	0.0000	15.0	0.000	8.74	4.80	0.91
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.0082	0.0079	0.0009	0.0053	(0.0008)	(0.0002)	26.02	0.02	0.0000	(0.0000)	20.0	0.560	0.01	0.01	373.24
Wall Insulation	Wall Insulation	0.0171	0.0267	0.0071	0.0338	(0.0193)	(0.0042)	25.98	0.06	0.0000	0.0001	20.0	0.263	0.24	0.19	60.24
Double-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.0583	0.0408	0.0146	0.0195	0.0302	0.0181	25.86	0.18	0.0001	0.0000	20.0	1.399	0.08	0.06	126.74
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double Pane Low E	Double-Pane Windows	0.0231	0.0155	0.0104	0.0156	0.0095	0.0062	25.96	0.08	0.0000	0.0000	20.0	0.078	0.65	0.45	16.81
"Triple Pane" Low E	Double-Pane Windows	0.0894	0.0623	0.0213	0.0289	0.0451	0.0271	25.77	0.27	0.0001	0.0000	20.0	1.562	0.11	0.07	92.59
Tinted Window Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Tinted Window Films	Double-Pane Windows	0.0786	0.0566	0.0058	0.0047	0.0470	0.0269	25.82	0.22	0.0001	(0.0000)	12.0	0.167	0.65	0.42	11.18
Low E Films (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			
Low E Films	Double-Pane Windows	0.0864	0.0610	0.0130	0.0157	0.0481	0.0285	25.79	0.25	0.0001	0.0000	12.0	0.310	0.39	0.25	19.74
Lighting																
T8 Fluorescent Lamps (1) Electronic Ballast	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
T8 Fluorescent Lamps (1) Electronic Ballast	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	3.0	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.0097	0.0199	0.0096	0.0197	0.0098	0.0198	25.95	0.09	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.0053	0.0108	0.0052	0.0108	0.0054	0.0108	25.99	0.05	0.0000	0.0000	20.0	(0.001)	INFINITE	INFINITE	NOW
Photocell - Outdoor Lighting		0.0238	0.0106	0.0078	0.0011	0.0138	0.0059	25.98	0.06	0.0000	0.0000	10.0	0.003	7.70	4.50	0.74

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Water Heating																
High Efficiency Water Heater Tank Wall R= 24.9	Water Heater Tank Wall R=	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	26.04	0.00	0.0000	0.0000	10.0	0.000	39.18	22.56	0.17
Water Heater Blanket (1) Blanket R= 11	Water Heater	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			

Note:

(1) Not Applicable to New Buildings

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
EXISTING NURSING HOME BUILDING																
BASELINE								15.67								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 3.52 (0)	COP = 3.14	0.00460	0.00413	0.00024	0.00016	0.00209	0.00148	15.65	0.01	0.00000	0.00000	20.0	NA			
COP = 4.0	COP = 3.52	0.00900	0.00827	0.00048	0.00031	0.00419	0.00295	15.63	0.03	0.00001	0.00000	20.0	0.00343	4.15	2.64	2.03
COP = 4.6	COP = 3.52	0.01798	0.01653	0.00095	0.00065	0.00836	0.00591	15.60	0.05	0.00002	0.00000	20.0	0.00772	3.69	2.35	2.28
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 4.04 (0)	COP = 3.91	0.03147	0.02894	0.00166	0.00114	0.01464	0.01034	15.58	0.09	0.00003	0.00000	20.0	0.13291	0.37	0.24	22.44
COP = 5.6	COP = 4.04	0.09439	0.08680	0.00503	0.00356	0.04385	0.03101	15.31	0.26	0.00009	0.00000	20.0	0.02212	6.76	4.31	1.24
COP = 6.0	COP = 4.04	0.10787	0.09919	0.00575	0.00407	0.05010	0.03543	15.28	0.30	0.00010	0.00000	20.0	0.04197	4.07	2.59	2.07
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.12585	0.11573	0.00669	0.00470	0.05848	0.04136	15.31	0.35	0.00012	0.00000	20.0	0.02212	9.01	5.74	0.93
COP = 5.6	COP = 3.91															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 8.2 (0)	EER = 8.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.67		0.00000	0.00000	18.0	0.46234	0.00	0.00	NEVER
EER = 9.5	EER = 8.2	0.02352	0.02153	0.01097	0.01261	0.01310	0.01276	15.57	0.09	0.00002	0.00001	18.0	0.12467	0.39	0.24	22.90
EER = 10.5	EER = 8.2	0.03905	0.03573	0.01822	0.02093	0.02174	0.02116	15.51	0.16	0.00004	0.00001	18.0	0.22057	0.37	0.23	24.40
Evaporative Condenser	Unitary System Air-Cooled	0.02636	0.02411	0.01229	0.01412	0.01467	0.01428	15.56	0.11	0.00002	0.00001	15.0	0.09023	0.56	0.36	14.80
Window Air Conditioner	Window Air Conditioner															
EER = 7.8 (0)	EER = 6.8	0.02931	0.01856	0.00000	0.00000	0.00606	0.00347	15.61	0.06	0.00004	0.00000	15.0	0.04977	0.73	0.53	11.72
EER = 9.5	EER = 7.8	0.03925	0.02485	0.00000	0.00000	0.00811	0.00465	15.53	0.08	0.00005	0.00000	15.0	0.01072	4.57	3.28	1.88
EER = 10.5	EER = 7.8	0.05912	0.03743	0.00000	0.00000	0.01222	0.00700	15.49	0.12	0.00007	0.00000	15.0	0.02144	3.44	2.47	2.50
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (2)	Central Chiller Water-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.67		0.00000	0.00000	20.0	0.02673	0.00	0.00	NEVER
Dry-Bulb Economizer (2)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.00062	0.00203	0.00000	0.00000	0.00006	0.00038	15.66	0.00	0.00000	0.00000	18.0	0.12314	0.01	0.00	531.98
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.02718	0.03243	-0.01260	-0.03236	0.06056	0.02976	15.58	0.10	0.00002	-0.00002	20.0	0.08186	0.56	0.29	12.62
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.00702	0.01067	0.00107	0.00089	0.00904	0.00685	15.63	0.04	0.00000	0.00000	15.0	0.00365	3.72	1.87	1.70
Variable Speed Fans	Single-Speed Fans	0.00863	0.01270	0.00111	0.00093	0.00997	0.00743	15.63	0.04	0.00000	0.00000	15.0	0.00743	2.09	1.08	3.05
Chilled Water Reset	Central Chiller Constant Temp.	0.01200	0.01667	0.00171	0.00124	0.01003	0.00802	15.62	0.05	0.00000	0.00000	20.0	0.02600	0.84	0.45	8.41
Condenser Coil Cleaning	Unitary System Air-Cooled	0.02838	0.02325	0.00608	0.00689	0.01234	0.00978	15.58	0.09	0.00003	0.00000	1.0	0.00150	3.48	2.26	0.27
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.01215	0.01438	0.00767	0.00974	0.00888	0.01028	15.60	0.08	0.00000	0.00000	20.0	0.01340	1.83	0.86	3.86
Heat Pipe	Central Chiller System	0.02452	0.03930	0.04581	0.05171	0.04520	0.04984	15.41	0.26	0.00001	0.00003	20.0	0.02676	4.24	2.26	2.21

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Exhaust Air Heat Recovery	Central Chiller System	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	15.67		0.00000	0.00000	20.0	0.02144	0.00	0.00	NEVER

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Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2	-0.00003	-0.00002	0.10465	0.19159	0.00209	0.03606	15.33	0.33	0.00000	0.00006	18.0	0.04788	2.94	1.59	4.00
EER = 9.5, COP = 3.1	EER = 8.2	0.04669	0.03429	0.03188	0.04589	0.02335	0.02415	15.46	0.21	0.00003	0.00002	18.0	0.19534	0.50	0.29	17.61
Closed Water Loop Heat Pump (1)	Central Chiller System	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
EER = 11.0, COP = 4.0																
Ground-Coupled Heat Pump (1)	Unitary System & Elec. Heating	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
EER = 11.6, COP = 3.5	EER = 8.2															
Dual Fuel (Add-On) Heat Pump (2)	Unitary System & Gas Furnace	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
COP = 6.6																
Ventilation																
Adjustable Speed Drives - Fans	Fans - Constant Speed	0.01994	0.02350	0.01501	0.01649	0.01881	0.02039	15.55	0.11	0.00001	0.00001	15.0	0.04459	1.11	0.64	7.34
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.01414	0.02034	0.00887	0.00825	0.01888	0.01788	15.58	0.09	0.00001	0.00000	15.0	0.00886	3.91	2.11	1.90
High Efficiency Fan Motors	Fan Motors	0.01502	0.01721	0.00983	0.00965	0.01419	0.01373	15.59	0.08	0.00001	0.00000	15.0	0.00282	12.17	7.00	0.65
3% Increase in Efficiency																
High Efficiency Pump Motors	Pump Motors	0.00194	0.00228	0.00094	0.00083	0.00182	0.00172	15.66	0.01	0.00000	0.00000	15.0	0.00060	6.85	3.95	1.13
3% Increase in Efficiency																
Reduction in Fan Flowrate	Original Fan Flowrate	0.12647	0.15045	0.10476	0.11270	0.13054	0.13732	14.91	0.76	0.00009	0.00007	15.0	0.20887	1.56	0.89	5.24
10 % Reduction in Fan cfm																
Fan Motor Downsizing	Original Fan Size	0.12069	0.13838	0.08099	0.08077	0.11071	0.11390	15.02	0.65	0.00009	0.00006	15.0	0.10084	2.81	1.64	2.88
HP Reduced to 1/3 of the Original																
Building Shell																
Ceiling Insulation R = 30	Ceiling Insulation	0.01864	0.01663	0.00897	0.03067	0.00000	0.00400	15.59	0.08	0.00003	0.00002	20.0	0.57000	0.09	0.06	128.36
Wall Insulation (1)	Wall Insulation	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double-Pane Windows	Single-Pane Windows	0.01413	0.00980	0.10289	0.13080	0.02282	0.04631	15.34	0.33	0.00002	0.00009	20.0	0.50483	0.33	0.20	39.47
Triple-Pane Windows	Single-Pane Windows	0.03052	0.02280	0.12062	0.15794	0.03259	0.05664	15.25	0.42	0.00004	0.00010	20.0	0.00000			
Triple-Pane Windows (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low-Emissivity Windows:																
Double Pane Low E	Single-Pane Windows	0.02863	0.02107	0.13747	0.17647	0.03402	0.06281	15.21	0.46	0.00004	0.00011	20.0	0.56464	0.43	0.26	29.57
"Triple Pane" Low E	Single-Pane Windows	0.03695	0.02788	0.13902	0.18060	0.03783	0.06561	15.18	0.49	0.00005	0.00012	20.0	1.49682	0.17	0.10	73.21
Double Pane Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Double-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Tinted Window Films	Single-Pane Windows	0.05902	0.04811	0.03364	0.04971	0.03015	0.02569	15.42	0.25	0.00007	0.00003	12.0	0.13017	0.85	0.55	9.48

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Tinted Window Films	Double-Pane Windows	0.01750	0.01436	0.00744	0.00926	0.00882	0.00484	15.60	0.08	0.00002	0.00000	12.0	0.07693	0.38	0.24	20.60
Low E Films	Single-Pane Windows	0.05698	0.04584	0.07840	0.10472	0.03698	0.04435	15.30	0.37	0.00007	0.00007	12.0	0.19808	0.80	0.50	11.09
Low E Films	Double-Pane Windows	0.02358	0.01942	0.01699	0.02272	0.01322	0.01184	15.56	0.11	0.00003	0.00002	12.0	0.11656	0.42	0.27	19.83

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END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Lighting																
Simple Delamping 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.02084	0.01569	0.01414	0.00617	0.01929	0.01256	15.58	0.09	0.00002	0.00001	10.0	0.00020	168.99	104.33	0.04
Delamping w/Dummy Replacement 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.02084	0.01569	0.01414	0.00617	0.01929	0.01256	15.58	0.09	0.00002	0.00001	10.0	0.00126	26.82	16.56	0.26
Delamping with Reflector 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	0.02084	0.01569	0.01414	0.00617	0.01929	0.01256	15.58	0.09	0.00002	0.00001	10.0	0.01301	2.60	1.61	2.68
Halogen Lamps	Incandescent Lamps	0.06515	0.04923	0.04372	0.02341	0.05941	0.03706	15.39	0.28	0.00006	0.00004	0.5	0.00225	3.61	2.27	0.15
T8 Fluorescent Lamps Electronic Ballast	Incandescent Lamps	0.33241	0.25103	0.21364	0.12263	0.29781	0.18901	14.26	1.41	0.00029	0.00018	20.0	0.26290	2.92	1.82	3.41
T8 Fluorescent Lamps Electronic Ballast	T12 Fluorescent Lamps	0.25683	0.19377	0.16632	0.09448	0.23006	0.14661	14.58	1.09	0.00023	0.00014	20.0	0.24525	2.42	1.52	4.12
Low Wattage Fluorescent Lamps 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	0.14213	0.10747	0.09293	0.05284	0.12829	0.08236	15.06	0.61	0.00013	0.00008	3.0	0.00679	13.93	8.73	0.20
Electronic Ballasts	T12 Fluorescent Lamps	0.15126	0.11425	0.09980	0.05697	0.13886	0.08702	15.02	0.65	0.00013	0.00009	20.0	0.16721	2.11	1.32	4.74
Compact Fluorescent Lamps	Incandescent Lighting	0.36235	0.27366	0.23209	0.13143	0.32394	0.20543	14.14	1.53	0.00032	0.00020	2.5	-0.01003	INFINITE	INFINITE	NOW
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.00552	0.01076	0.00546	0.01069	0.00559	0.01071	15.62	0.05	0.00000	0.00000	20.0	0.00715	2.73	1.32	2.87
Metal Halide - Outdoor	Mercury Vapor Lamps	0.00257	0.00501	0.00254	0.00497	0.00260	0.00498	15.64	0.02	0.00000	0.00000	20.0	0.00715	1.27	0.61	6.17
LED Exit Lighting	Incandescent Exit Lighting	0.01268	0.01494	0.01253	0.01486	0.01283	0.01479	15.58	0.08	0.00001	0.00001	15.0	0.04859	0.73	0.42	11.51
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.01076	0.01268	0.01063	0.01261	0.01089	0.01265	15.60	0.07	0.00001	0.00001	15.0	0.04140	0.73	0.42	11.56
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.01533	0.01806	0.01515	0.01797	0.01551	0.01788	15.57	0.10	0.00001	0.00001	15.0	0.07406	0.58	0.34	14.51
Exterior Time Clock		0.00134	0.01339	0.00133	0.01323	0.00136	0.01355	15.62	0.04	0.00000	0.00000	10.0	0.00157	7.56	3.34	0.70
Photocell - Outdoor Lighting		0.01126	0.00846	0.00406	0.00136	0.00657	0.00325	15.63	0.03	0.00000	0.00000	10.0	0.00157	7.48	4.25	0.73

TABLE
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ECONOMIC SCREENING
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IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS.	INCR COST $	BENEFIT/COST WITH ENVIRON COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.02602	0.01804	0.02473	0.01798	0.02532	0.01774	16.54	0.13	0.00003	0.00002	18.0	0.00577	12.08	7.70	0.88
Desuperheater - HVAC	Water Heater	0.06838	0.04785	0.00262	0.00187	0.05490	0.03492	16.46	0.21	0.00008	0.00000	20.0	0.01243	9.93	6.43	0.97
Desuperheater - Refrigeration	Water Heater	0.03628	0.02543	0.03486	0.02535	0.03570	0.02501	16.49	0.18	0.00004	0.00003	20.0	0.01066	9.59	6.11	1.15
High Efficiency Water Heater Tank Wall R = 24.9	Water Heater	0.00313	0.00368	0.00309	0.00366	0.00317	0.00365	16.65	0.02	0.00000	0.00000	10.0	0.00004	200.57	115.64	0.03
Water Heater Blanket Blanket R = 11	Water Heater	0.00313	0.00368	0.00309	0.00366	0.00317	0.00365	16.65	0.02	0.00000	0.00000	10.0	0.00006	110.91	63.95	0.06
Solar Assisted Water Heater	Water Heater	0.05865	0.04143	0.03138	0.02271	0.04832	0.03268	16.43	0.24	0.00007	0.00003	20.0	0.99528	0.14	0.09	76.55
Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.00056	0.00066	0.00039	0.00040	0.00057	0.00063	16.66	0.00	0.00000	0.00000	15.0	0.00001	139.16	79.88	0.06
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.00243	0.00276	0.00181	0.00161	0.00205	0.00233	16.66	0.01	0.00000	0.00000	15.0	0.00503	1.14	0.67	7.15
Variable Speed Compressor (1)	Constant Speed Compressors	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
Condenser Coil Cleaning		0.00183	0.00208	0.00136	0.00121	0.00155	0.00175	16.66	0.01	0.00000	0.00000	1.0	0.00071	0.71	0.42	1.35
Appliances																
Convection Ovens	Radiant Ovens	0.00279	0.00113	0.00127	-0.00131	0.00290	0.00081	16.66	0.01	0.00000	0.00001	15.0	0.05574	0.09	0.07	123.47
Solid-State Temperature Controls	Radiant Ovens	0.00189	0.00078	0.00035	-0.00052	0.00188	0.00131	16.66	0.01	0.00000	0.00001	15.0	0.00643	0.64	0.48	19.72
High Efficiency Fryers	Fryers	0.00096	0.00036	0.00001	-0.00103	0.00101	0.00040	16.67	0.00	0.00000	0.00000	11.0	0.00500	0.21	0.15	41.10

Note:

(0) Early Replacement Scenario
(1) Not Applicable to New Buildings
(2) Not Applicable to Prototype Building - No Gas Heating

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NEW NURSING HOME BUILDING																
BASELINE								12.71								
Cooling																
High Efficiency Equipment:																
Recip. Chiller Water-Cooled	Recip. Chiller Water-Cooled															
COP = 4.0	COP = 3.52	0.00722	0.00637	0.00046	0.00044	0.00312	0.00222	12.69	0.02	0.00001	0.00000	20.0	0.00288	4.13	2.72	2.16
COP = 4.6	COP = 3.52	0.01445	0.01275	0.00092	0.00088	0.00624	0.00440	12.67	0.04	0.00002	0.00000	20.0	0.00648	3.67	2.42	2.43
Centrif. Chiller Water-Cooled	Centrif. Chiller Water-Cooled															
COP = 5.6	COP = 4.04	0.07959	0.07014	0.00494	0.00484	0.03442	0.02417	12.49	0.22	0.00009	0.00000	20.0	0.01855	7.06	4.66	1.26
COP = 6.0	COP = 4.04	0.09042	0.07969	0.00563	0.00550	0.03909	0.02749	12.47	0.25	0.00010	0.00000	20.0	0.03520	4.23	2.78	2.11
Screw Chiller Water-Cooled	Centrif. Chiller Water-Cooled	0.07959	0.07014	0.00494	0.00484	0.03442	0.02417	12.49	0.22	0.00009	0.00000	20.0	0.01855	7.06	4.66	1.26
COP = 5.6	COP = 4.04															
Unitary System Air-Cooled	Unitary System Air-Cooled															
EER = 9.5	EER = 8.2	0.03911	0.02853	0.00012	0.00007	0.01195	0.00847	12.63	0.09	0.00005	0.00000	18.0	0.12262	0.47	0.33	19.82
EER = 10.5	EER = 8.2	0.06493	0.04736	0.00020	0.00012	0.01984	0.01074	12.57	0.14	0.00008	0.00000	18.0	0.21695	0.44	0.31	21.13
Evaporative Condenser	Unitary System Air-Cooled	0.04380	0.03195	0.00013	0.00008	0.01338	0.00725	12.62	0.10	0.00006	0.00000	16.0	0.08875	0.67	0.48	12.81
Window Air Conditioner	Window Air Conditioner															
EER = 9.5	EER = 8.2	0.03670	0.02333	0.00000	0.00000	0.00755	0.00435	12.64	0.07	0.00005	0.00000	15.0	0.01000	4.93	3.63	1.88
EER = 10.5	EER = 8.2	0.05528	0.03514	0.00000	0.00000	0.01138	0.00655	12.60	0.11	0.00008	0.00000	15.0	0.02001	3.71	2.74	2.49
Outside Air Economizer Cycle:																
Dry-Bulb Economizer (1)	Central Chiller Water-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Enthalpy Economizer	Central Chiller Water-Cooled	0.00032	0.00135	-0.00003	-0.00001	0.00015	0.00044	12.71	0.00	0.00000	0.00000	20.0	0.02144	0.04	0.02	136.99
Dry-Bulb Economizer (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
Enthalpy Economizer	Unitary System Air-Cooled	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	12.71		0.00000	0.00000	18.0	0.12112	0.00	0.00	NEVER
Hydronic Economizer Cycle	Central Chiller Water-Cooled	0.01521	0.01484	0.01786	0.01810	0.03684	0.02827	12.68	0.13	0.00001	0.00000	20.0	0.06821	0.84	0.44	11.24
Cooling Towers:																
Two-Speed Fans	Single-Speed Fans	0.00588	0.00850	0.00023	0.00011	0.00643	0.00381	12.69	0.02	0.00000	0.00000	15.0	0.00355	2.43	1.13	2.29
Variable Speed Fans	Single-Speed Fans	0.00728	0.01015	0.00024	0.00012	0.00701	0.00417	12.68	0.03	0.00000	0.00000	15.0	0.00743	1.34	0.63	4.06
Chilled Water Reset	Central Chiller Constant Temp.	0.00981	0.01285	0.00160	0.00158	0.00738	0.00603	12.67	0.04	0.00000	0.00000	20.0	0.02600	0.60	0.29	10.65
Condenser Coil Cleaning (1)	Unitary System Air-Cooled	NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Heating																
Heat Recovery from Refrigeration System	Unitary System	0.00792	0.00862	0.00360	0.00471	0.00511	0.00543	12.68	0.04	0.00000	0.00000	20.0	0.01340	1.02	0.48	6.62
Heat Pipe	Central Chiller System	0.00652	0.01189	0.00963	0.00939	0.00934	0.01089	12.66	0.06	0.00000	0.00000	20.0	0.02676	0.86	0.41	9.21
Exhaust Air Heat Recovery	Central Chiller System	0.00000	-0.00001	0.00005	0.00004	0.00003	-0.00004	12.71	0.00	0.00000	0.00000	20.0	0.02144	0.00	0.00	NEVER

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Cooling/Heating																
High Eff. Air-Source Heat Pump	Unitary System & Elec. Heating															
EER = 8.2, COP = 2.7	EER = 8.2	0.00000	-0.00004	0.16531	0.26863	0.00803	0.04637	12.29	0.48	0.00000	0.00000	18.0	0.04716	3.76	1.79	2.75
EER = 9.5, COP = 3.1	EER = 8.2	0.04066	0.03016	0.03047	0.04421	0.01994	0.02063	12.53	0.19	0.00003	0.00000	18.0	0.19243	0.46	0.26	19.43
Closed Water Loop Heat Pump	Central Chiller System	-0.29858	-0.30344	0.06873	0.10146	-0.06268	0.00011	13.21	0.49	-0.00025	0.00010	18.0	0.00000			
EER = 11.0, COP = 4.0																
Ground-Coupled Heat Pump	Unitary System & Elec. Heating	0.05556	0.04119	0.12976	0.21319	0.03154	0.05400	12.19	0.53	0.00007	0.00041	18.0	0.56596	0.62	0.44	24.36
EER = 11.6, COP = 3.5																
Dual Fuel (Add-On) Heat Pump	Unitary System & Gas Furnace	NA	NA	NA	NA	NA	NA			NA	NA	18.0	NA			
COP = 5.6																
Ventilation																
Adjustable Speed Drives - Fans	Fans - Constant Speed	0.01900	0.02235	0.01740	0.02050	0.01853	0.02140	12.59	0.12	0.00001	0.00001	15.0	0.04459	1.14	0.65	7.24
Adjustable Speed Drives - Pumps	Pumps - Constant Speed	0.01216	0.01736	0.01630	0.01807	0.01764	0.02144	12.61	0.10	0.00000	0.00000	15.0	0.00886	4.22	2.11	1.77
High Efficiency Fan Motors	Fan Motors	0.01496	0.01704	0.00913	0.00922	0.01316	0.01341	12.64	0.08	0.00001	0.00001	15.0	0.00282	11.92	6.92	0.67
3% Increase in Efficiency																
High Efficiency Pump Motors	Pump Motors	0.00143	0.00179	0.00141	0.00167	0.00165	0.00194	12.70	0.01	0.00000	0.00000	15.0	0.00060	7.86	4.26	1.00
3% Increase in Efficiency																
Reduction in Fan Flowrate	Original Fan Flowrate	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
10 % Reduction in Fan cfm																
Fan Motor Downsizing	Original Fan Size	NA	NA	NA	NA	NA	NA			NA	NA	15.0	NA			
HP Reduced to 1/3 of the Original																
Building Shell																
Ceiling Insulation R = 38	Ceiling Insulation R =	0.00732	0.00626	0.00909	0.01726	0.00044	0.00528	12.67	0.05	0.00001	0.00002	20.0	0.56000	0.06	0.04	248.22
Wall Insulation R = 19	Wall Insulation R =	0.00976	0.02728	0.15111	0.19238	0.02717	0.06911	12.24	0.48	0.00001	0.00020	20.0	0.28298	0.89	0.55	15.08
Double-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Triple-Pane Windows	Double-Pane Windows	0.03055	0.02711	0.05535	0.07433	0.02379	0.03105	12.47	0.24	0.00003	0.00006	20.0	1.39826	0.09	0.06	123.63
Low-Emissivity Windows:																
Double Pane Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
"Triple Pane" Low E (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Double Pane Low E	Double-Pane Windows	0.02598	0.02508	0.09610	0.12570	0.02996	0.04897	12.36	0.35	0.00003	0.00011	20.0	0.07798	2.40	1.49	5.22
"Triple Pane" Low E	Double-Pane Windows	0.07734	0.06839	0.08655	0.11972	0.04968	0.05684	12.26	0.46	0.00009	0.00011	20.0	1.55165	0.17	0.11	87.68
Tinted Windows (1)	Single-Pane Windows	NA	NA	NA	NA	NA	NA			NA	NA	12.0	NA			

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Lighting																
Simple Delamping (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping w/Dummy Replacem. (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Delamping with Reflector (1) 4-ft Fixtures, 4 lamps to 2 lamps	4-foot Fixtures, 4 Lamps	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Halogen Lamps (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	0.5	NA			
T8 Fluorescent Lamps Electronic Ballast (1)	Incandescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
T8 Fluorescent Lamps (1) Electronic Ballast	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Low Wattage Fluorescent Lamps (1) 4-Foot Fixtures, 34 Watts	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	3.0	NA			
Electronic Ballasts (1)	T12 Fluorescent Lamps	NA	NA	NA	NA	NA	NA			NA	NA	20.0	NA			
Compact Fluorescent Lamps (1)	Incandescent Lighting	NA	NA	NA	NA	NA	NA			NA	NA	2.5	NA			
High Pressure Sodium - Outdoor	Mercury Vapor Lamps	0.00552	0.01078	0.00546	0.01069	0.00559	0.01071	12.66	0.05	0.00000	0.00000	20.0	-0.00064	INFINITE	INFINITE	NOW
Metal Halide - Outdoor	Mercury Vapor Lamps	0.00257	0.00501	0.00254	0.00497	0.00260	0.00498	12.69	0.02	0.00000	0.00000	20.0	-0.00064	INFINITE	INFINITE	NOW
LED Exit Lighting	Incandescent Exit Lighting	0.01268	0.01494	0.01253	0.01487	0.01283	0.01479	12.63	0.08	0.00001	0.00001	15.0	0.01672	2.13	1.23	3.96
Fluorescent Exit Lighting	Incandescent Exit Lighting	0.01076	0.01268	0.01063	0.01261	0.01089	0.01255	12.64	0.07	0.00001	0.00001	15.0	0.00953	3.17	1.83	2.68
Electroluminescent Exit Lighting	Incandescent Exit Lighting	0.01533	0.01806	0.01515	0.01798	0.01551	0.01788	12.61	0.10	0.00001	0.00001	10.0	0.04219	0.82	0.47	8.26
Exterior Time Clock		0.00134	0.01339	0.00133	0.01323	0.00136	0.01355	12.67	0.04	0.00000	0.00000	10.0	0.00157	7.55	3.34	0.70
Photocell - Outdoor Lighting		0.01126	0.00848	0.00405	0.00137	0.00657	0.00325	12.68	0.03	0.00000	0.00000	10.0	0.00157	7.48	4.25	0.73

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COMMERCIAL SECTOR
IMPACT AND COST PER SQUARE FOOT

END USE/MEASURE	BASIS OF COMPARISON	SUMMER ON INCR IMPACT (kWh/yr)	SUMMER OFF INCR IMPACT (kWh/yr)	WINTER ON INCR IMPACT (kWh/yr)	WINTER OFF INCR IMPACT (kWh/yr)	TRANSITIONAL ON INCR IMPACT (kWh/yr)	TRANSITIONAL OFF INCR IMPACT (kWh/yr)	ANNUAL ENERGY TOTAL USAGE (kWh/yr)	ANNUAL ENERGY INCR IMPACT (kWh/yr)	PEAK DEMAND SUMMER INCR IMPACT (kW)	PEAK DEMAND WINTER INCR IMPACT (kW)	LIFE YRS	INCR COST $	BENEFIT/COST WITH ENVIRON. COSTS	BENEFIT/COST UTILITY	EST. CUST. PAY BACK YEARS
Water Heating																
Heat Pump Water Heater COP = 3.0	Water Heater	0.02503	0.01804	0.02473	0.01788	0.02532	0.01774	12.58	0.13	0.00003	0.00002	18.0	0.00577	12.08	7.70	0.88
Desuperheater - HVAC	Water Heater	0.06838	0.04785	0.00262	0.00188	0.05490	0.03492	12.60	0.21	0.00008	0.00000	20.0	0.01243	9.93	6.43	0.97
Desuperheater - Refrigeration	Water Heater	0.03528	0.02543	0.03486	0.02535	0.03570	0.02501	12.63	0.18	0.00004	0.00003	20.0	0.01066	9.59	6.11	1.15
High Efficiency Water Heater Tank Wall R = 24.9	Water Heater Tank Wall R =	0.00312	0.00368	0.00309	0.00367	0.00316	0.00365	12.69	0.02	0.00000	0.00000	10.0	0.00004	200.57	116.64	0.03
Water Heater Blanket (1) Blanket R = 11	Water Heater	NA	NA	NA	NA	NA	NA			NA	NA	10.0	NA			
Solar Assisted Water Heater	Water Heater	0.05866	0.04143	0.03137	0.02271	0.04831	0.03268	12.48	0.24	0.00007	0.00003	20.0	1.02063	0.13	0.09	78.50
Refrigeration																
High Eff. Evaporator Fan Motor 3% Increase in Efficiency	Evaporator Fan Motor	0.00056	0.00087	0.00038	0.00031	0.00057	0.00062	12.71	0.00	0.00000	0.00000	15.0	0.00001	127.40	70.48	0.06
High Efficiency Compressor 10% Increase in EER	Reciprocating Compressor	0.00243	0.00277	0.00163	0.00119	0.00212	0.00229	12.70	0.01	0.00000	0.00000	15.0	0.00503	1.05	0.59	7.36
Variable Speed Compressor	Constant Speed Compressors	0.00093	0.00180	0.00405	0.00324	0.00369	0.00484	12.69	0.02	0.00000	0.00000	15.0	0.06431	0.10	0.05	81.52
Condenser Coil Cleaning (1)		NA	NA	NA	NA	NA	NA			NA	NA	1.0	NA			
Appliances																
Convection Ovens	Radiant Ovens	0.00283	0.00107	0.00177	0.00039	0.00250	0.00080	12.70	0.01	0.00000	0.00000	15.0	0.05574	0.09	0.06	106.82
Solid-State Temperature Controls	Radiant Ovens	0.00194	0.00069	0.00116	0.00033	0.00156	0.00055	12.71	0.01	0.00000	0.00000	15.0	0.00643	0.51	0.34	18.74
High Efficiency Fryers	Fryers	0.00100	0.00037	0.00068	0.00009	0.00088	0.00026	12.71	0.00	0.00000	0.00000	11.0	0.00600	0.29	0.19	27.83

Note:

(1) Not Applicable to New Buildings
(2) Not Applicable to Prototype Building - No Gas Heating

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APPENDIX C

RESIDENTIAL SECTOR PLSA ASSUMPTIONS

Residential "Base" Case

CUSTOMER FORECAST	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Residential Sector	1,012,298	1,020,292	1,028,319	1,036,600	1,045,142	1,053,964	1,063,074	1,072,449	1,081,300	1,090,231	1,099,243	1,108,338	1,117,515	1,126,775	1,135,877	1,145,052	1,154,301

GENERAL ASSUMPTIONS:

O&M Escalation Rate	4.40%	
Capital Escalation Rate	4.60%	
Rebate Processing Cost:	$5	
Cost of EMA audit:	$200	per home
Cost of Service Call:	$150	per home
Cost of CAA Audit:	$100	per home
Annual Marketing Cost for Low Income	$10,000	
Annual Fixed Cost for CAA	$20,000	
Cost of Blower Door Test	$200	per home
Cost of Switch Installation	$50	per switch
Cost of Participant Sign-Up	$10	per home (includes direct mail and telemarketing combined)
Cost of Contractor Services for LM	$19	per switch
Equipment Incentive:	0.67	of incremental cost

UNION ELECTRIC LABOR COSTS (FULLY LOADED - 1997$):

	$/yr
Program Manager	$95,037
Analyst /Field Staff	$83,157
Clerical	$47,518

OTHER ASSUMPTIONS:

Cost of Brochure:	$1.25
Evaluation %:	25%

1: RESIDENTIAL AUDIT & FINANCING PROGRAM

1A-B. WATER HEATING & LIGHTING MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SF customers with electric space & water heat — 17.2%
3. APPLICABILITY: Electric Water Heater saturation — 100.0%
4. EQUIPMENT LIFE = — 12 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

PHASE I		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)		173,750	175,122	176,500	177,922	179,388	180,902	182,466	184,075	185,594	187,127	188,674	190,235	191,810	193,399	194,981	196,536	198,124
Eligible (less cum.part.)		173,750	174,774	175,802	176,872	177,984	179,142	180,437	181,775	183,021	184,279	185,550	187,111	188,686	190,275	191,837	193,412	195,000
Percent participating (annual)		0.20%	0.20%	0.20%	0.20%	0.20%	0.15%	0.15%	0.15%	0.15%	0.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants each year		348	350	352	354	356	269	271	273	275	276	0	0	0	0	0	0	0
Participant renewals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348	350
Total participants each year		348	350	352	354	356	269	271	273	275	276	0	0	0	0	0	348	350
Cumulative participants		348	698	1,050	1,404	1,760	2,029	2,300	2,573	2,848	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124
Cumulative partic. rate:		0.2%	0.4%	0.6%	0.8%	1.0%	1.1%	1.3%	1.4%	1.5%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Free riders each year		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weighted Avg Impact:																		
Peak Demand (kW)	0.341	0.111																
Energy (kWh/year)	3,737	1,183																
Technical Potential (based on 100% participation)																		
Peak Demand (MW)		19.3	19.4	19.6	19.7	19.9	20.1	20.3	20.4	20.6	20.8	20.9	21.1	21.3	21.5	21.6	21.8	22.0
Energy (GWH)		205.5	207.2	208.8	210.5	212.2	214.0	215.9	217.8	219.6	221.4	223.2	225.0	226.9	228.8	230.6	232.5	234.4
Program Induced Meter Level Impacts (net of free riders):																		
Peak Demand (MW)		0.04	0.08	0.12	0.16	0.20	0.23	0.26	0.29	0.32	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Energy (GWH)		0.41	0.83	1.24	1.66	2.08	2.40	2.72	3.04	3.37	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fixed Admin. Costs																		
UI Admin/staff		$56,428	$58,911	$61,503	$64,209	$67,034	$69,984	$73,063	$76,278	$79,634	$83,138	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing		$10,859	$11,337	$11,836	$12,357	$12,901	$13,468	$14,061	$14,679	$15,325	$16,000	$0	$0	$0	$0	$0	$0	$0
Evaluation		$14,107	$14,728	$15,378	$16,052	$16,759	$17,496	$18,266	$19,069	$19,909	$20,785	$0	$0	$0	$0	$0	$0	$0
Total Fixed:		$81,395	$84,976	$88,715	$92,618	$96,694	$100,948	$105,390	$110,027	$114,868	$119,922	$0	$0	$0	$0	$0	$0	$0
Utility Variable Costs	1995$																	
Tank wrap	$25																	
Pipe insulation	$3																	
Compact fluorescent bulb	$8																	
Total Free Measures	$36	$40	$42	$43	$45	$47	$49	$52	$54	$56	$59	$0	$0	$0	$0	$0	$0	$0
Utility Audit Cost	$100	$109	$114	$119	$124	$129	$135	$141	$147	$154	$161	$0	$0	$0	$0	$0	$0	$0
Total Variable		$149	$155	$162	$169	$177	$185	$193	$201	$210	$219	$0	$0	$0	$0	$0	$0	$0
Participant Audit Cost	$100	$109	$114	$119	$124	$129	$135	$141	$147	$154	$161	$0	$0	$0	$0	$0	$0	$0

1C. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997 CONTINUING UNTIL 2008
2. ELIGIBILITY: All SF customers with electric space & water heat — 17.2%
3. APPLICABILITY = Customers completing Phase I
4. EQUIPMENT LIFE = — 25 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 5%

PHASE II	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	348	350	352	354	356	269	271	273	275	276	0	0	0	0	0	0	0
Cumulative Eligible	348	698	1,050	1,404	1,760	2,029	2,300	2,573	2,848	3,124	0	0	0	0	0	0	0
Percent participating (annual)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	35	35	35	35	36	27	27	27	28	28	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	35	35	35	35	36	27	27	27	28	28	0	0	0	0	0	0	0
Cumulative participants	35	70	105	140	176	203	230	257	285	313	313	313	313	313	313	313	313
Cumulative partic. rate:	10.06%	10.03%	10.00%	9.97%	10.00%	10.00%	10.00%	9.99%	10.01%	10.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Free riders	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	0
Cumulative free riders	2	4	5	7	9	10	12	13	14	16	16	16	16	16	16	16	16

Incremental Participant Costs (1995)

Measures:	SF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 300
2. Weatherization (Window Caulk & Weather Strip	$ 316
3. R5 Basement Wall Insulation (Condemned)	$ 570
4. Duct Insulation (1.5" FG w/R 5 Vap Bri	$ 350
5. Setback Thermostat	$ 107
6. Air-to-Air Heat Exchanger	$ 1,050

Impacts per Participant	Weight	Deka kWh	Deka Winter kW	Deka Summer kW	Cost
SF-EFCAC					
Measures 1, 2 and 3	0.46491	6,718	4.37	0.20	$551
SF-HP					
Measures 2 and 3	0.24581	1,981	5.57	0.23	$218
SF-EFRAC					
Measures 2 and 3	0.28947	4,909	1.35	0.05	$256
Weighted Total		5031	3.79	0.16	$1,025

Weighted Avg. Impact	Post Impact Baseline	Deka
Peak Demand (KW)	1.710	0.300
Energy (kWh/year)	15,161	4,287

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.10	0.11	0.11	0.11	0.11	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy (GWH)	1.49	1.50	1.51	1.52	1.53	1.15	1.16	1.17	1.18	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Energy (GWH)	0.14	0.29	0.43	0.57	0.72	0.83	0.94	1.05	1.16	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Fixed Admin. Costs:																	
Admin/staff	$45,142	$47,129	$49,202	$51,367	$53,628	$55,987	$58,451	$61,022	$63,707	$66,510	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$8,608	$9,070	$9,469	$9,885	$10,320	$10,775	$11,249	$11,744	$12,260	$12,800	$0	$0	$0	$0	$0	$0	$0
Evaluation	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$65,116	$67,981	$70,972	$74,095	$77,355	$80,758	$84,312	$88,022	$91,894	$95,938	$0	$0	$0	$0	$0	$0	$0
Utility Variable Costs:	1995$																
Blower Door Test	$200	$218	$228	$238	$248	$259	$270	$282	$295	$308	$321	$0	$0	$0	$0	$0	$0	$0
Participant Measure Cost	$1,025	$1,122	$1,171	$1,223	$1,277	$1,333	$1,392	$1,453	$1,517	$1,583	$1,653	$0	$0	$0	$0	$0	$0

10. SHADING AIR CONDITIONER / HEAT PUMP W/TRELLIS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All SF customers with electric space & water heat = 17.2%
3. APPLICABILITY = Customers with Central AC or Heat Pump = 81.8%
4. MEASURE LIFE = 15 years
5. PARTICIPANT RENEWAL = 100%
6. FREE RIDERS = 5%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility *applic)	142,161	143,284	144,411	145,574	146,774	148,013	149,292	150,609	151,852	153,106	154,371	155,649	156,937	158,238	159,516	160,804	162,103
Eligible (less cum. part.)	142,161	143,177	144,211	145,295	146,422	147,598	148,825	150,090	151,280	152,481	153,693	154,971	156,259	157,560	158,838	160,126	161,425
Percent participating (annual)	0.08%	0.07%	0.06%	0.05%	0.04%	0.04%	0.04%	0.04%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	107	93	79	73	63	52	52	53	53	53	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	93
Total participants	107	93	79	73	63	52	52	53	53	53	0	0	0	0	0	107	93
Cumulative participants	107	200	279	352	415	467	519	572	625	678	678	678	678	678	678	678	678
Cumulative partic. rate:	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Free Riders	5	5	4	4	3	3	3	3	3	3	0	0	0	0	0	0	0
Cumulative free riders	5	10	14	18	21	23	26	29	31	34	34	34	34	34	34	34	34

Impacts per Participant:

	Total kWh	Deka	Total kW	Deka	Equipment Saturation	Weighted Impact: Total kWh	Deka	Total kW	Deka
SF Central AC	3,139	214	3.270	0.327	90.3%	2,835	193	2.953	0.295
SF Heat Pump	16,043	208	3.430	0.343	9.7%	1,556	20	0.333	0.033
Total						4,391	213	3.286	0.329

Weighted Avg. Impact	Baseline	Deka
Peak Demand (KW)	3.286	0.329
Energy (kWh/year)	4,391	213

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	46.7	47.1	47.4	47.8	48.2	48.6	49.1	49.5	49.9	50.3	50.7	51.1	51.6	52.0	52.4	52.8	53.3
Energy (GWH)	30.3	30.6	30.8	31.1	31.3	31.6	31.9	32.1	32.4	32.7	32.9	33.2	33.5	33.8	34.0	34.3	34.6
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.03	0.06	0.09	0.11	0.13	0.15	0.16	0.18	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Energy (GWH)	0.02	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Fixed Admin. Costs:																	
Admin/staff	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$2,172	$2,267	$2,367	$2,471	$2,580	$2,694	$2,812	$2,936	$3,065	$3,200	$0	$0	$0	$0	$0	$0	$0
Evaluation	$2,821	$2,946	$3,075	$3,210	$3,352	$3,499	$3,653	$3,814	$3,982	$4,157	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$16,279	$16,995	$17,743	$18,524	$19,339	$20,190	$21,078	$22,005	$22,974	$23,984	$0	$0	$0	$0	$0	$0	$0
	1995$																
Participant Measure Cost	$210	$230	$240	$250	$261	$273	$285	$297	$311	$324	$339	$353	$369	$385	$402	$420	$438	$458

2: RESIDENTIAL SETBACK THERMOSTAT FOR GAS HEAT CUSTOMERS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: SF Residential Customers = 71.1%
3. APPLICABILITY = Gas Space Heat Saturation = 66.4%
4. Penetration rate half of give-away portion of program
5. MEASURE LIFE = 5 years
6. PARTICIPANT RENEWAL = 100%
7. FREE RIDERS = 20%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	478,317	482,095	485,887	489,800	493,836	498,005	502,309	506,739	510,921	515,141	519,400	523,697	528,033	532,409	536,709	541,044	545,415
Eligible (less cum. part.)	478,317	481,378	484,448	487,634	490,939	494,372	498,281	502,312	506,092	509,907	513,758	518,055	522,391	526,767	531,067	535,402	539,773
Percent participating (annual)	0.15%	0.15%	0.15%	0.15%	0.15%	0.08%	0.08%	0.08%	0.08%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	717	722	727	731	736	395	399	402	405	408	0	0	0	0	0	0	0
Participant renewals	0	0	717	722	1,444	1,453	2,180	1,848	2,579	2,250	2,984	2,658	2,984	2,658	2,984	2,658	2,984
Total participants	717	722	1,444	1,453	2,180	1,848	2,579	2,250	2,984	2,658	2,984	2,658	2,984	2,658	2,984	2,658	2,984
Cumulative participants	717	1,439	2,166	2,897	3,633	4,026	4,427	4,829	5,234	5,642	5,642	5,642	5,642	5,642	5,642	5,642	5,642
Cumulative partic. rate:	0.1%	0.3%	0.4%	0.6%	0.7%	0.8%	0.9%	1.0%	1.0%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%	1.0%
Free Riders	143	144	145	146	147	79	80	80	81	82	0	0	0	0	0	0	0
Cumulative free riders	143	288	433	579	727	806	885	966	1,047	1,128	1,128	1,128	1,128	1,128	1,128	1,128	1,128

Weighted Avr. Impact	Baseline	Delta
Peak Demand (KW)	1.680	0.100
Energy (kWh/year)	2,920	496

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	47.8	48.2	48.6	49.0	49.4	49.8	50.2	50.7	51.1	51.5	51.9	52.4	52.8	53.2	53.7	54.1	54.5
Energy (GWH)	237.2	239.1	241.0	242.9	244.9	247.0	249.1	251.3	253.4	255.5	257.6	259.8	261.9	264.1	266.2	268.4	270.5
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.06	0.12	0.17	0.23	0.29	0.32	0.35	0.39	0.42	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Energy (GWH)	0.28	0.57	0.86	1.15	1.44	1.60	1.76	1.92	2.08	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Fixed Admin. Costs:																	
Admin/staff	$28,511	$29,766	$31,075	$32,443	$33,870	$35,360	$36,916	$38,540	$40,236	$42,007	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,518	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Evaluation	$7,128	$7,441	$7,769	$8,111	$8,468	$8,840	$9,229	$9,635	$10,059	$10,502	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$45,639	$47,647	$49,743	$51,932	$54,217	$56,603	$59,093	$61,693	$64,408	$67,242	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Incremental Partic.Costs	$85	$93	$97	$101	$106	$110	$115	$120	$126	$131	$137	$143	$149	$156	$163	$170	$177	$185

3: RESIDENTIAL LOW-INCOME PROGRAM

3A-B. WATER HEATING & LIGHTING MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All MF Customers — 25.9% (for HH incomes less than $15,000)
3. APPLICABILITY: Electric Water Heating Saturation — 70.9%
4. EQUIPMENT LIFE = — 12 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility*applic)	540	534	527	521	515	510	504	499	494	489	0	0	0	207,045	208,717	210,403	212,103
Eligible (less cum.part.)	383	378	373	369	365	361	357	354	350	347	0	0	0	203,408	205,080	206,766	208,466
Percent participating (annual)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%
New participants	383	378	373	369	365	361	357	354	350	347	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	383	378
Total participants	383	378	373	369	365	361	357	354	350	347	0	0	0	0	0	383	378
Cumulative participants	383	761	1,134	1,503	1,868	2,229	2,586	2,940	3,290	3,637	3,637	3,637	3,637	3,637	3,637	3,637	3,637
Cumulative partic. rate:	70.9%	142.5%	215.2%	288.5%	362.7%	437.1%	513.1%	589.2%	666.0%	743.8%	0.0%	0.0%	0.0%	1.8%	1.7%	1.7%	1.7%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Impacts per Participant:	Baseline	Delta
Peak Demand (KW)	0.307	0.049
Energy (kWh/year)	3,378	1,183

Technical Potential (based on 100% participation)														10.1	10.2	10.3	10.4
Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	244.9	246.9	248.9	250.9
Energy (GWH)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0	0.0	0.0				
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.02	0.04	0.06	0.07	0.09	0.11	0.13	0.14	0.16	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Energy (GWH)	0.45	0.90	1.34	1.78	2.21	2.64	3.06	3.48	3.89	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30

Fixed Admin. Costs:																	
Admin/staff	$56,428	$58,911	$61,503	$64,209	$67,034	$69,984	$73,063	$76,278	$79,634	$83,138	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,518	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Marketing	$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$14,107	$14,728	$15,376	$16,052	$16,759	$17,496	$18,266	$19,069	$19,909	$20,785	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$85,535	$89,299	$93,228	$97,330	$101,612	$106,083	$110,751	$115,624	$120,711	$126,023	$0	$0	$0	$0	$0	$0	$0

Utility Variable Costs:	1995$																
Free Measures:	$36	$40	$42	$43	$45	$47	$49	$52	$54	$56	$59	$0	$0	$0	$0	$0	$0	$0
Audit Cost	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$0	$0	$0	$0	$0	$0	$0
Total Variable:		$94	$98	$103	$107	$112	$117	$122	$128	$133	$139	$0	$0	$0	$0	$0	$0	$0

3C. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All MF Customers — 25.9% (for HH incomes less than $15,000)
3. APPLICABILITY = MF w/Electric Space Heat Saturation — 10.3%
4. EQUIPMENT LIFE = — 25 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility*applic.)	27,009	27,222	27,437	27,658	27,885	28,121	28,364	28,614	28,850	29,089	29,329	29,572	29,816	30,064	30,306	30,551	30,798
Eligible (less cum. part.)	27,009	26,682	26,363	26,057	25,763	25,484	25,217	24,963	24,700	24,445	24,196	24,439	24,683	24,931	25,173	25,418	25,665
Percent participating (annual)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	540	534	527	521	515	510	504	499	494	489	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	540	534	527	521	515	510	504	499	494	489	0	0	0	0	0	0	0
Cumulative participants	540	1,074	1,601	2,122	2,637	3,147	3,651	4,150	4,644	5,133	5,133	5,133	5,133	5,133	5,133	5,133	5,133
Cumulative partic. rate:	2.0%	3.9%	5.8%	7.7%	9.5%	11.2%	12.9%	14.5%	16.1%	17.6%	17.5%	17.4%	17.2%	17.1%	16.9%	16.8%	16.7%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Incremental Participant Costs (1995)

Measures:	SMF Cost	LMF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 180	$ 180
2. Weatherization (Window Caulk & Weather Strip)	$ 181	$ 188
3. Duct Insulation (1.5" FG w/R-5 Vap Bl)	$ 210	
4. R38 Ceiling Insulation	$ 312	

Impacts per Participant	Weight	Deka kWh	Deka Winter kW	Deka Summer kW	Cost
SMF-EFCAC					
Measures 1 and 2	0.16667	2,513	1.94	0.18	$60
SMF-EBRAC					
Measure 2	0.21429	1,843	1.33	0.05	$39
LMF-EFCAC					
Measures 1 and 2	0.35714	2,278	1.42	0.10	$131
LMF-EFRAC					
Measure 2	0.26190	1,462	0.93	0.02	$49
Weighted Total		2010	1.36	0.07	$280

Weighted Avg. Impacts per Participant:	Post Impact Baseline	Deka
Peak Demand (KW)	1.090	0.110
Energy (kWh/year)	6,996	2,095

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.4	3.4
Energy (GWH)	56.8	57.0	57.5	57.9	58.4	58.9	59.4	59.9	60.4	60.9	61.4	62.0	62.5	63.0	63.5	64.0	64.5
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.06	0.12	0.18	0.23	0.29	0.35	0.40	0.46	0.51	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Energy (GWH)	1.13	2.25	3.35	4.45	5.52	6.59	7.65	8.69	9.73	10.75	10.75	10.75	10.75	10.75	10.75	10.75	10.75
Fixed Admin. Costs:																	
Admin/staff	$45,142	$47,129	$49,202	$51,367	$53,628	$55,987	$58,451	$61,022	$63,707	$66,510	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$8,000	$8,352	$8,719	$9,103	$9,504	$9,922	$10,358	$10,814	$11,290	$11,787	$0	$0	$0	$0	$0	$0	$0
Marketing	$4,000	$4,176	$4,360	$4,552	$4,752	$4,961	$5,179	$5,407	$5,645	$5,893	$0	$0	$0	$0	$0	$0	$0
Evaluation	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$68,428	$71,439	$74,582	$77,864	$81,290	$84,867	$88,601	$92,499	$96,569	$100,818	$0	$0	$0	$0	$0	$0	$0
Utility Variable Costs:	1995$																
Free Measure(s)	$280	$306	$319	$333	$348	$363	$379	$396	$414	$432	$451	$0	$0	$0	$0	$0	$0
Audit Cost	$40	$44	$46	$48	$50	$52	$54	$56	$59	$62	$64	$0	$0	$0	$0	$0	$0
Total Variable:	$320	$350	$365	$381	$398	$415	$434	$453	$472	$493	$515	$0	$0	$0	$0	$0	$0

3D. WATER BED MATTRESS PADS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All MF Customers — 25.9%
3. APPLICABILITY = Water Bed Saturation — 13.8%
4. EQUIPMENT LIFE = — 3 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

ASSUMPTIONS:

2. 90% acceptance rate
3. 69% savings in energy using a $20 mattress pad (E-Source 69% savings).
4. Summer energy usage = 142.86 kWh. 50% savings = 71.43 kWh. Demand savings = 71.43/2928 hours (Jun-Sep) = .024 kW
4. Winter energy usage is 3.5X summer usage.
5. Heater is operated year round.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	540	534	527	521	515	510	504	499	494	489	39,261	39,585	39,913	40,244	40,569	40,897	41,227
Eligible (less cum. part.)	74	74	73	72	71	70	69	69	68	67	38,625	38,949	39,277	39,608	39,933	40,261	40,591
Percent participating (annual)	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	67	66	65	65	64	63	62	62	61	61	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	67	66	65	65	64
Total participants	67	66	65	65	64	63	62	62	61	61	0	0	67	66	65	65	64
Cumulative participants	67	133	198	263	327	390	452	514	575	636	636	636	636	636	636	636	636
Cumulative partic. rate:	12.4%	24.9%	37.6%	50.5%	63.5%	76.5%	89.7%	103.0%	116.4%	130.1%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Weighted Avg Impact	Baseline	Duke
Peak Demand (KW)	0.100	0.069
Energy (kWh/year)	1351	931

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	2.8	2.8	2.8	2.8	2.8
Energy (GWH)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	36.6	36.9	37.2	37.5	37.8	38.1	38.4
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.00	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Energy (GWH)	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Fixed Admin. Costs:																	
Admin/staff	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$2,000	$2,088	$2,180	$2,276	$2,376	$2,480	$2,590	$2,704	$2,823	$2,947	$0	$0	$0	$0	$0	$0	$0
Marketing	$1,000	$1,044	$1,090	$1,138	$1,188	$1,240	$1,295	$1,352	$1,411	$1,473	$0	$0	$0	$0	$0	$0	$0
Evaluation	$2,821	$2,946	$3,075	$3,210	$3,352	$3,499	$3,653	$3,814	$3,982	$4,157	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$17,107	$17,860	$18,646	$19,466	$20,322	$21,217	$22,150	$23,125	$24,142	$25,205	$0	$0	$0	$0	$0	$0	$0

Utility Variable Costs:	1995$ Wholesale$	Weight															
Free equipment																	
Mattress Pad	$20.00	100%															
Free Measures	$20	$22	$23	$24	$25	$26	$27	$28	$30	$31	$32	$0	$0	$0	$0	$0	$0
Audit Cost	$10	$11	$11	$12	$12	$13	$14	$14	$15	$15	$16	$0	$0	$0	$0	$0	$0
Total Variable:		$33	$34	$36	$37	$39	$41	$42	$44	$46	$48	$0	$0	$0	$0	$0	$0

4: AIR CONDITIONING & WATER HEATER CYCLING PROGRAM

4A. CENTRAL AIR CONDITIONER / HEAT PUMP CYCLING

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All Single-Family Residential customers — 70.5%
3. APPLICABILITY = SF CAC/HP Saturation: — 61.8%
4. CYCLING STRATEGY = 50% Jun-Sep, 75% May & Oct
5. EQUIPMENT LIFE = — 15 years
6. PARTICIPANT DROPOUT RATE — 4%
7. PARTICIPANT RENEWAL — 98%
8. FREE RIDERS = — 15%

ASSUMPTIONS:

1. Contractor overhead = $152,808/8000units = $19/unit (ANB quote on 1995 contract).
2. Customers are required to have a CAC/HP switch if they want a WH switch.

	Baseline	Data	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all "eligibility" applic)			584,295	588,909	593,542	598,322	603,252	608,344	613,602	619,014	624,122	629,277	634,479	639,729	645,026	650,370	655,624	660,920	666,258
Eligible (less cum. part.)			584,295	580,495	576,770	573,244	569,919	566,804	563,900	561,191	558,218	555,335	552,540	557,790	563,087	568,432	573,685	578,981	584,319
Percent participating (annual)			1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants			8,764	8,707	8,652	8,599	8,549	8,502	8,459	8,418	8,373	8,330	0	0	0	0	0	0	0
Participant dropouts			351	348	346	344	342	340	338	337	335	333	0	0	0	0	0	0	0
Participant renewals			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants			8,413	8,359	8,306	8,255	8,207	8,162	8,121	8,081	8,038	7,997	0	0	0	0	0	8,413	8,359
Cumulative participants			8,413	16,772	25,078	33,333	41,540	49,702	57,823	65,904	73,942	81,939	81,939	81,939	81,939	81,939	81,939	81,939	81,939
Cumulative partic. rate:			1.4%	2.8%	4.2%	5.6%	6.9%	8.2%	9.4%	10.6%	11.8%	13.0%	12.9%	12.8%	12.7%	12.6%	12.5%	12.4%	12.3%
Free riders each year			1315	1306	1298	1290	1282	1275	1269	1263	1256	1250	0	0	0	0	0	0	0
Cumulative free riders			1315	2621	3918	5208	6491	7766	9035	10298	11553	12803	12803	12803	12803	12803	12803	12803	12803
Impacts per Participant:																			
Peak Demand (KW)	3.50	0.85	Reduced average per unit impact of 0.89 kW by 5% for ineffective switches.																
Technical Potential (based on 100% participation)																			
Peak Demand (MW)			496.7	500.6	504.5	508.6	512.8	517.1	521.6	526.2	530.5	534.9	539.3	543.8	548.3	552.8	557.3	561.8	566.3
Program Induced Meter Level Impacts (net of free riders):																			
Peak Demand (MW)			6.0	12.0	18.0	23.9	29.8	35.6	41.5	47.3	53.0	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8
Radio Transmitter	$27,000		$29,541	$30,900	$32,321	$33,808	$35,363	$36,990	$38,692	$40,471	$42,333								
Radio Tower	$270,000		$295,411	$309,000	$323,214	$338,082	$353,634	$369,901	$386,916	$404,715	$423,332								
Transmitter Maintenance (annual)	$1,125		$1,231	$1,288	$1,347	$1,409	$1,473	$1,541	$1,612	$1,686	$1,764	$1,845	$1,930	$2,019	$2,112	$2,209	$2,310	$2,417	$2,528
# of Transmitters			3	3	3	3	3	3	10	17	24	24	24	24	24	24	24	24	24
# of Towers											1.0								
Fixed Admin. Costs:																			
UE Admin/staff			$203,141	$212,079	$221,411	$231,153	$241,324	$251,942	$263,027	$274,601	$286,683	$299,297	$156,233	$163,107	$170,284	$177,777	$185,599	$193,765	$202,291
Contractor Admin/staff			$166,516	$173,843	$181,492	$189,477	$197,814	$206,518	$215,605	$225,092	$234,996	$245,336	$128,065	$133,700	$139,583	$145,724	$152,136	$158,830	$165,819
Marketing			$78,878	$82,347	$85,970	$89,752	$93,702	$97,824	$102,129	$106,622	$111,314	$116,212	$0	$0	$0	$0	$0	$0	$0
Evaluation			$50,785	$53,020	$55,353	$57,788	$60,331	$62,986	$65,757	$68,650	$71,671	$74,824	$39,058	$40,777	$42,571	$44,444	$46,400	$48,441	$50,573
Transmitter Maintenance			$3,323	$3,476	$3,636	$3,803	$3,978	$4,161	$14,509	$25,801	$36,100	$39,852	$41,666	$43,603	$45,609	$47,707	$49,901	$52,197	$54,598
Total Fixed:			$502,642	$524,765	$547,861	$571,975	$597,149	$623,432	$661,027	$700,765	$742,763	$775,521	$365,042	$381,187	$398,047	$415,652	$434,036	$453,234	$473,280
Utility Variable Costs:	1995$																		
Incentive (One-time)	$80		$87	$91	$95	$99	$104	$108	$113	$118	$123	$128	$0	$0	$0	$0	$0	$0	$0
Installation Labor	$50		$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Billing Process	$5		$5	$6	$6	$6	$6	$7	$7	$7	$8	$8	$0	$0	$0	$0	$0	$0	$0
Switch Removal cost	$50		$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Total Variable:			$202	$211	$220	$229	$240	$250	$261	$273	$285	$297	$168	$175	$183	$191	$199	$208	$217
Utility Fixed Equipment Costs:																			
Radio Controller	$45,000		$49,235																
Load Management Switch	$95		$104	$109	$114	$119	$124	$130	$136	$142	$149	$156	$0	$0	$0	$0	$0	$0	$0
Radio Transmitters & 1 tower			$79,761						$243,757	$254,870	$647,697								

48. WATER HEATER CYCLING

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All Single-Family Residential customers = 70.5%
3. APPLICABILITY = Electric Water Heater Saturation = 22.6%
4. CYCLING STRATEGY = 33%
5. EQUIPMENT LIFE = 15 years
6. PARTICIPANT DROPOUT RATE = 4.0%
7. PARTICIPANT RENEWAL = 96.0%
8. FREE RIDERS = 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all "eligibility" applic)	161,617	162,893	164,174	165,497	166,860	168,269	169,723	171,220	172,633	174,059	175,498	176,950	178,415	179,893	181,346	182,811	184,288
Eligible (less cum. part.)	161,617	161,923	162,271	162,658	163,085	163,553	164,066	164,618	165,062	165,558	166,043	167,495	168,960	170,439	171,892	173,357	174,833
Percent participating (annual)	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	970	972	974	976	979	981	984	988	990	993	0	0	0	0	0	0	0
Participant dropouts	0	39	39	39	39	39	39	39	40	40	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	931	933
Total participants	970	933	935	937	940	942	945	949	950	953	0	0	0	0	0	931	933
Cumulative participants	970	1,903	2,838	3,775	4,715	5,657	6,602	7,551	8,501	9,454	9,454	9,454	9,454	9,454	9,454	9,454	9,454
Cumulative partic. rate:	0.6%	1.2%	1.7%	2.3%	2.8%	3.4%	3.9%	4.4%	4.9%	5.4%	5.4%	5.3%	5.3%	5.3%	5.2%	5.2%	5.1%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Impacts per Participant:	Baseline	Delta	Weight	Weighted Average Impacts Baseline	Weighted Average Impacts Delta
Peak Demand (KW) - Existing	0.443	0.393	51.9%	0.230	0.204
Peak Demand (KW) - Replacement	0.428	0.380	32.7%	0.140	0.124
Peak Demand (KW) - New	0.372	0.330	15.4%	0.057	0.051

Weighted Avg. Impact Peak Demand (KW)	0.338	0.287															
Technical Potential (based on 100% participation) Peak Demand (MW)		46.4	46.8	47.1	47.5	47.9	48.3	48.7	49.1	49.5	50.0	50.4	50.8	51.2	51.6	52.0	52.5	52.9
Program Induced Meter Level Impacts (net of free riders): Peak Demand (MW)		0.3	0.5	0.8	1.1	1.4	1.6	1.9	2.2	2.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Fixed Admin. Costs:																		
UE Admin/staff		$22,571	$23,564	$24,601	$25,684	$26,814	$27,994	$29,225	$30,511	$31,854	$33,255	$17,359	$18,123	$18,920	$19,753	$20,622	$21,529	$22,477
Contract Admin/staff		$18,430	$19,241	$20,088	$20,971	$21,894	$22,857	$23,863	$24,913	$26,009	$27,154	$14,174	$14,798	$15,449	$16,129	$16,838	$17,579	$18,353
Marketing		$8,764	$9,150	$9,552	$9,972	$10,411	$10,869	$11,348	$11,847	$12,368	$12,912	$0	$0	$0	$0	$0	$0	$0
Evaluation		$5,643	$5,891	$6,150	$6,421	$6,703	$6,998	$7,306	$7,626	$7,963	$8,314	$4,340	$4,531	$4,730	$4,938	$5,156	$5,382	$5,619
Transmitter Maintenance		$369	$386	$404	$423	$442	$462	$1,812	$2,867	$4,233	$4,428	$4,632	$4,845	$5,068	$5,301	$5,545	$5,800	$6,066
Total Fixed:		$55,777	$58,232	$60,795	$63,471	$66,265	$69,181	$73,355	$77,766	$82,428	$86,063	$40,505	$42,297	$44,167	$46,121	$48,161	$50,291	$52,515
Variable Costs:	1995$																	
Incentive	$40	$44	$46	$48	$50	$52	$54	$56	$59	$62	$64	$0	$0	$0	$0	$0	$0	$0
Installation Labor	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Billing Process	$5	$5	$6	$6	$6	$6	$7	$7	$7	$8	$8	$0	$0	$0	$0	$0	$0	$0
Switch Removal cost	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Total Variable:		$158	$165	$172	$180	$188	$196	$205	$214	$223	$233	$168	$175	$183	$191	$199	$208	$217
Utility Fixed Equipment Costs:																		
Radio Controller	$5,000	$5,471																
Load Management Switch	$95	$104	$109	$114	$119	$124	$130	$136	$142	$149	$156	$0	$0	$0	$0	$0	$0	$0
Radio Transmitters & 1 tower		$8,862						$27,084	$28,330	$71,986								

5: RESIDENTIAL REFRIGERATOR / FREEZER REMOVAL PROGRAM

5A. REFRIGERATOR REMOVAL

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All Residential customers = 100.0%
3. APPLICABILITY = Saturation of 2nd Refrigerators: = 18.0%
4. EQUIPMENT LIFE = 6 years
5. PARTICIPANT RENEWALS = 100%
6. FREE RIDERS = 30%

ASSUMPTIONS:

1. Dawn Gizzy (AIICA) estimates 1997 annual cost of $75/unit for scheduling, removal and recycling.
2. Assume all customers will be solicited in a ten year period.
3. Same annual UE staff requirements as 1993.
4. Direct mail advertising will be utilized.
5. Maximum of two operational units per household.
6. Bill Message advertising

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic) - 2nd ref.	181,796	183,232	184,673	186,160	187,694	189,279	190,915	192,598	194,188	195,792	197,410	199,044	200,692	202,355	203,989	205,637	207,298
Available participants (turnover) - 1st ref.	50,615	51,015	51,416	51,830	52,257	52,698	53,154	53,622	54,065	54,512	54,962	55,417	55,876	56,339	56,794	57,253	57,715
Total available participants	232,411	234,246	236,089	237,990	239,952	241,977	244,069	246,221	248,253	250,303	252,373	254,461	256,568	258,694	260,783	262,890	265,013
Eligible (less cum.part.)	232,411	231,689	230,868	229,952	228,925	227,974	227,102	226,302	225,392	224,512	223,663	225,751	227,858	229,984	232,073	234,180	236,303
Percent participating (annual)	1.10%	1.15%	1.22%	1.30%	1.30%	1.30%	1.30%	1.30%	1.30%	1.30%	0%	0%	0%	0%	0%	0%	0%
New participants	2,557	2,664	2,817	2,989	2,976	2,964	2,952	2,942	2,930	2,919	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	2,557	2,664	2,817	2,989	2,976	2,964	2,952	2,942	2,930
Total participants	2,557	2,664	2,817	2,989	2,976	2,964	2,952	2,942	5,487	5,583	2,817	2,989	2,976	2,964	2,952	2,942	2,930
Cumulative participants	2,557	5,221	8,038	11,027	14,003	16,967	19,919	22,861	25,791	28,710	28,710	28,710	28,710	28,710	28,710	28,710	28,710
Cumulative partic. rate:	1.1%	2.2%	3.4%	4.6%	5.8%	7.0%	8.2%	9.3%	10.4%	11.5%	11.4%	11.3%	11.2%	11.1%	11.0%	10.9%	10.8%
Free riders	767	799	845	897	893	889	886	883	879	876	0	0	0	0	0	0	0
Cumulative free riders	767	1,566	2,411	3,308	4,201	5,090	5,976	6,858	7,737	8,613	8,613	8,613	8,613	8,613	8,613	8,613	8,613

	Avg. Age of Removed Unit in 1996 (years)	AIIAM UEC	10% Degrad. Adjustment	Shipment Weighting Factor	Wted Avg UEC
Manual defrost	17	601	661	9.0%	59
Partial Auto Defrost	17	1,013	1,114	11.8%	131
Auto defrost - top freezer	17	1,422	1,564	62.3%	975
Auto defrost - side or bottom freezer	17	1,791	1,970	16.8%	331

Impacts per Participant	Baseline	Delta
Peak Demand (KW)	0.178	0.178
Energy (KWH)	1,288	1,288

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	41.4	41.7	42.0	42.4	42.7	43.1	43.4	43.8	44.2	44.6	44.9	45.3	45.7	46.0	46.4	46.8	47.2
Energy (GWH)	299.3	301.7	304.1	306.5	309.1	311.7	314.4	317.1	319.7	322.4	325.1	327.7	330.5	333.2	335.9	338.6	341.3
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.3	0.7	1.0	1.4	1.7	2.1	2.5	2.8	3.2	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Energy (GWH)	2.3	4.7	7.2	9.9	12.6	15.3	18.0	20.6	23.3	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9
Fixed Admin. Costs:																	
UE Admin/staff	$73,178	$76,398	$79,760	$83,269	$86,933	$90,758	$94,751	$98,920	$103,273	$107,817	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$18,295	$19,100	$19,940	$20,817	$21,733	$22,690	$23,688	$24,730	$25,818	$26,954	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$96,473	$100,718	$105,149	$109,776	$114,606	$119,649	$124,913	$130,409	$136,147	$142,138	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contractor Removal Cost	$75	$82	$85	$89	$93	$97	$101	$106	$111	$115	$120	$0	$0	$0	$0	$0	$0

5B. FREEZER REMOVAL

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All Residential customers 100.0%
3. APPLICABILITY = Saturation of Stand Alone Freezers: 32.5%
4. EQUIPMENT LIFE = 8 years
5. PARTICIPANT RENEWALS 100%
6. FREE RIDERS = 30%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	329,097	331,696	334,306	336,998	339,775	342,643	345,604	348,652	351,530	354,433	357,363	360,320	363,303	366,314	369,273	372,255	375,262
Eligible (less cum.part.)	329,097	331,367	333,480	335,438	337,209	339,065	341,009	343,034	344,883	346,751	348,641	351,598	354,581	357,592	360,551	363,533	366,540
Percent participating (annual)	0.10%	0.15%	0.22%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0%	0%	0%	0%	0%	0%	0%
New participants	329	497	734	1,006	1,012	1,017	1,023	1,029	1,035	1,040	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	329	497	734	1,006	1,012	1,017	1,023	1,029	1,035
Total participants	329	497	734	1,006	1,012	1,017	1,023	1,029	1,364	1,537	734	1,006	1,012	1,017	1,023	1,029	1,035
Cumulative participants	329	826	1,560	2,566	3,578	4,595	5,618	6,647	7,682	8,722	8,722	8,722	8,722	8,722	8,722	8,722	8,722
Cumulative partic. rate:	0.1%	0.2%	0.5%	0.8%	1.1%	1.3%	1.6%	1.9%	2.2%	2.5%	2.4%	2.4%	2.4%	2.4%	2.4%	2.3%	2.3%
Free riders	99	149	220	302	304	305	307	309	311	312	0	0	0	0	0	0	0
Cumulative free riders	99	248	468	770	1,073	1,379	1,685	1,994	2,305	2,617	2,617	2,617	2,617	2,617	2,617	2,617	2,617

	Avg. Age of Removed Unit in 1996 (years)	AHAM UEC	10% Degrad. Adjustment	Shipment Weighting Factor	Wted Avg UEC
Chest, manual defrost	17	786	865	53.4%	461
Upright, manual defrost	17	1,024	1,126	38.9%	438
Upright, automatic defrost	17	1,506	1,657	7.4%	122

Impacts per Participant	Baseline	Deka
Peak Demand (KW)	0.126	0.126
Energy (KWH)	773	773

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	41.5	41.8	42.1	42.5	42.8	43.2	43.5	43.9	44.3	44.7	45.0	45.4	45.8	46.2	46.5	46.9	47.3
Energy (GWH)	254.4	256.4	258.4	260.5	262.6	264.8	267.2	269.5	271.7	274.0	276.2	278.5	280.8	283.2	285.4	287.8	290.1
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Energy (GWH)	0.2	0.4	0.8	1.4	1.9	2.5	3.0	3.6	4.2	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Fixed Admin. Costs:																	
UE Admin/staff	$73,178	$76,398	$79,760	$83,269	$86,933	$90,758	$94,751	$98,920	$103,273	$107,817	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$18,295	$19,100	$19,940	$20,817	$21,733	$22,690	$23,688	$24,730	$25,818	$26,954	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$96,473	$100,718	$105,149	$109,776	$114,606	$119,649	$124,913	$130,409	$136,147	$142,138	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contractor Removal Cost	$75	$82	$85	$89	$93	$97	$101	$106	$111	$115	$120	$0	$0	$0	$0	$0	$0

6: RESIDENTIAL NEW CONSTRUCTION PROGRAM

6A. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All SF and MF new construction customers = 88.5%
3. APPLICABILITY: Electric Space Heat Saturation = 30.9%
4. EQUIPMENT LIFE = 25 years
5. PARTICIPANT RENEWAL = 100%
6. FREE RIDERS = 2%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Eligible (avail*turnover less last yr)	2,210	2,189	2,198	2,267	2,339	2,415	2,494	2,567	2,423	2,445	2,467	2,490	2,513	2,535	2,492	2,512	2,532
Percent participating (annual)	5%	10%	15%	20%	25%	30%	30%	30%	30%	30%	0%	0%	0%	0%	0%	0%	0%
New participants	110	219	330	453	585	725	748	770	727	734	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	110	219	330	453	585	725	748	770	727	734	0	0	0	0	0	0	0
Cumulative participants	110	329	659	1,112	1,697	2,422	3,170	3,940	4,667	5,401	5,401	5,401	5,401	5,401	5,401	5,401	5,401
Cumulative partic. rate	5.0%	7.5%	10.0%	12.5%	15.1%	17.8%	18.7%	21.1%	22.1%	22.9%	20.8%	18.9%	17.4%	16.1%	15.0%	14.0%	13.1%
Free riders	2	4	7	9	12	15	15	15	15	15	0	0	0	0	0	0	0
Cumulative free riders	2	7	13	22	34	48	63	79	93	108	108	108	108	108	108	108	108

Incremental Participant Costs

Measures:	SF Cost	SMF Cost	LMF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 300	$ 180	$ 180
2. Weatherization (Window Caulk & Weather Strip)	$ 316	$ 181	$ 188
3. R5 Basement Wall Insulation (Conditioned)	$ 570		
4. Duct Insulation (1.5" FG w/R-5 Vap Bl)	$ 350	$ 210	
5. R38 Ceiling Insulation		$ 312	
6. Setback Thermostat	$ 69		$ 47
7. Air-to-Air Heat Exchanger	$ 1,050		

Impacts per Participant	Weight	Deka kWh	Deka Winter kW	Deka Summer kW	Cost
SF	0.57576	5,031	3.79	0.16	$683
SMF	0.16162	2,137	1.60	0.13	$58
LMF	0.26263	1,933	1.21	0.05	$97
Weighted Total		3750	2.76	0.13	$838

Weighted Avr. Impacts	Post Impact Baseline	Deka
Peak Demand (kW)	1.450	0.220
Annual Energy (kWh)	11,695	3,356

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.49	0.48	0.48	0.50	0.51	0.53	0.55	0.56	0.53	0.54	0.54	0.55	0.55	0.56	0.55	0.55	0.56
Energy (GWH)	7.42	7.35	7.38	7.61	7.85	8.11	8.37	8.61	8.13	8.21	8.28	8.36	8.43	8.51	8.36	8.43	8.50
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.02	0.07	0.14	0.24	0.37	0.52	0.68	0.85	1.01	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Energy (GWH)	0.36	1.08	2.17	3.66	5.56	7.97	10.43	12.96	15.35	17.76	17.76	17.76	17.76	17.76	17.76	17.76	17.76
Fixed Admin. Costs:																	
Admin/staff	$131,721	$137,517	$143,568	$149,884	$156,479	$163,365	$170,553	$178,057	$185,891	$194,071	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$90,000	$46,980	$49,047	$51,205	$53,458	$55,810	$58,266	$60,830	$63,506	$66,301	$0	$0	$0	$0	$0	$0	$0
Evaluation	$32,930	$34,379	$35,892	$37,471	$39,120	$40,841	$42,638	$44,514	$46,473	$48,518	$0	$0	$0	$0	$0	$0	$0
Annual E-Seal Membership Fee	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,518	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$264,651	$229,316	$239,406	$249,940	$260,937	$272,418	$284,405	$296,919	$309,983	$323,622	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Installed Measure Cost	$838	$917	$957	$999	$1,043	$1,089	$1,137	$1,187	$1,239	$1,294	$1,351	$0	$0	$0	$0	$0	$0
Rebate Processing	$5	$5	$6	$6	$6	$7	$7	$7	$8	$8	$8	$0	$0	$0	$0	$0	$0
Total Variable	$843	$922	$963	$1,005	$1,049	$1,095	$1,144	$1,194	$1,247	$1,301	$1,359						

66. SHADING AIR CONDITIONER / HEAT PUMP W/ TRELLIS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SF and MF new construction customers — 88.5%
3. APPLICABILITY: Central air conditioner/Heat pump saturation — 94.1%
4. EQUIPMENT LIFE = 15 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 5%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Eligible (turnover*eligibility*applicability)	110	219	330	453	585	725	748	770	727	734	7,501	7,570	7,639	7,708	7,576	7,637	7,699
Percent participating (annual)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	11	22	33	45	59	73	75	77	73	73	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	22
Total participants	11	22	33	45	59	73	75	77	73	73	0	0	0	0	0	11	22
Cumulative participants	11	33	66	111	170	243	318	395	468	541	541	541	541	541	541	541	541
Cumulative partic. rate	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	4.2%	2.8%	1.9%	1.5%	1.2%	1.1%	0.9%
Free riders	1	1	2	2	3	4	4	4	4	4	0	0	0	0	0	0	0
Cumulative free riders	1	2	3	6	9	12	16	20	23	27	27	27	27	27	27	27	27

Impacts per Participant:

	Total kWh	Deka	Total kW	Deka	Equipment Saturation	Weighted Impact: Total kWh	Deka	Total kW	Deka
Central AC (kWh)	3,066	204	2.833	0.283	90.3%	2,769	184	2.558	0.256
Heat Pump (kWh)	10,976	203	3.013	0.301	9.7%	1,065	20	0.292	0.029

Weighted Avg. Impacts	Baseline	Deka
Peak Demand (kW)	1.667	0.180
Annual Energy (kWh)	3,836	247

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Energy (GWH)	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	1.8	1.9	1.9	1.9	1.9	1.9	1.9
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.002	0.006	0.011	0.019	0.029	0.042	0.054	0.068	0.080	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093
Energy (GWH)	0.003	0.008	0.015	0.026	0.040	0.057	0.075	0.093	0.110	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
Fixed Admin. Costs:																	
Admin staff	$14,636	$15,280	$15,952	$16,654	$17,387	$18,152	$18,950	$19,784	$20,655	$21,563	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$10,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$3,659	$3,820	$3,988	$4,163	$4,347	$4,538	$4,738	$4,946	$5,164	$5,391	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$28,295	$24,320	$25,390	$26,507	$27,673	$28,891	$30,162	$31,489	$32,874	$34,321	$0	$0	$0	$0	$0	$0	$0
Variable Costs: 1995$																	
Participant Costs $210	$230	$240	$250	$261	$273	$285	$297	$311	$324	$339	$353	$369	$385	$402	$420	$438	$458

Residential "Probable Environmental" Case

CUSTOMER FORECAST	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Residential Sector	1,012,298	1,020,292	1,028,319	1,036,600	1,045,142	1,053,964	1,063,074	1,072,449	1,081,300	1,090,231	1,099,243	1,108,338	1,117,515	1,126,775	1,135,877	1,145,052	1,154,301	1,163,625

GENERAL ASSUMPTIONS:

O&M Escalation Rate	4.40%	
Capital Escalation Rate	4.60%	
Rebate Processing Cost:	$5	
Cost of EMA audit:	$200	per home
Cost of Service Call:	$150	per home
Cost of CAA Audit:	$100	per home
Annual Marketing Cost for Low Income	$10,000	
Annual Fixed Cost for CAA	$20,000	
Cost of Blower Door Test	$200	per home
Cost of Switch Installation	$50	per switch
Cost of Participant Sign-Up	$10	per home (includes direct mail and telemarketing combined)
Cost of Contractor Services for LM	$19	per switch
Equipment Incentive:	0.67	of incremental cost

UNION ELECTRIC LABOR COSTS (FULLY LOADED - 1997$):

	$/yr
Program Manager	$95,037
Analyst /Field Staff	$83,157
Clerical	$47,518

OTHER ASSUMPTIONS:

Cost of Brochure:	$1.25
Evaluation %:	25%

1: RESIDENTIAL AUDIT & FINANCING PROGRAM

1. Increased participation by 25%
2. Increased fixed administrative cost by 12.5%
3. Increased energy rate by 25%

1A-B. WATER HEATING & LIGHTING MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SF customers with electric space & water heat — 17.2%
3. APPLICABILITY: Electric Water Heater saturation — 100.0%
4. EQUIPMENT LIFE = — 12 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

PHASE I		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)		173,750	175,122	176,500	177,922	179,388	180,902	182,466	184,075	185,594	187,127	188,674	190,235	191,810	193,399	194,961	196,536	198,124
Eligible (less cum.part.)		173,750	174,688	175,629	176,612	177,636	178,706	179,935	181,207	182,386	183,577	184,780	186,341	187,916	189,505	191,067	192,642	194,230
Percent participating (annual)		0.25%	0.25%	0.25%	0.25%	0.25%	0.19%	0.19%	0.19%	0.19%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants each year		434	437	439	442	444	335	337	340	342	344	0	0	0	0	0	0	0
Participant renewals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	434	437
Total participants each year		434	437	439	442	444	335	337	340	342	344	0	0	0	0	0	434	437
Cumulative participants		434	871	1,310	1,752	2,196	2,531	2,868	3,208	3,550	3,894	3,894	3,894	3,894	3,894	3,894	3,894	3,894
Cumulative partic. rate:		0.2%	0.5%	0.7%	1.0%	1.2%	1.4%	1.6%	1.7%	1.9%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Free riders each year		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weighted Avg Impact:																		
Peak Demand (kW)	0.341	0.111																
Energy (kWh/year)	3,737	1,163																
Technical Potential (based on 100% participation)																		
Peak Demand (MW)		19.3	19.4	19.6	19.7	19.9	20.1	20.3	20.4	20.6	20.6	20.9	21.1	21.3	21.5	21.6	21.8	22.0
Energy (GWH)		205.5	207.2	208.8	210.5	212.2	214.0	215.9	217.8	219.6	221.4	223.2	225.0	226.9	228.8	230.6	232.5	234.4
Program Induced Meter Level Impacts (net of free riders):																		
Peak Demand (MW)		0.05	0.10	0.15	0.19	0.24	0.28	0.32	0.36	0.39	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Energy (GWH)		0.51	1.03	1.55	2.07	2.60	2.99	3.39	3.80	4.20	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fixed Admin. Costs:																	
UE Admin/staff	$56,426	$58,911	$61,503	$64,209	$67,034	$69,984	$73,063	$76,278	$79,634	$83,138	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$10,859	$11,337	$11,836	$12,357	$12,901	$13,468	$14,061	$14,679	$15,325	$16,000	$0	$0	$0	$0	$0	$0	$0
Evaluation	$14,107	$14,728	$15,376	$16,052	$16,759	$17,496	$18,266	$19,069	$19,909	$20,785	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$81,569	$85,598	$89,804	$104,196	$108,780	$113,567	$118,563	$123,780	$129,227	$134,913	$0	$0	$0	$0	$0	$0	$0

	1995$																
Utility Variable Costs:																	
Tank wrap	$25																
Pipe insulation	$3																
Compact fluorescent bulb	$8																
Total Free Measures	$36	$40	$42	$43	$45	$47	$49	$52	$54	$56	$59	$0	$0	$0	$0	$0	$0
Utility Audit Cost	$100	$109	$114	$119	$124	$129	$135	$141	$147	$154	$161	$0	$0	$0	$0	$0	$0
Total Variable:		$149	$155	$162	$169	$177	$185	$193	$201	$210	$219	$0	$0	$0	$0	$0	$0
Participant Audit Cost	$100	$109	$114	$119	$124	$129	$135	$141	$147	$154	$161	$0	$0	$0	$0	$0	$0

1C. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All SF customers with electric space & water heat — 17.2%
3. APPLICABILITY = Customers completing Phase I
4. EQUIPMENT LIFE = — 25 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 5%

PHASE II	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	434	437	439	442	444	335	337	340	342	344	0	0	0	0	0	0	0
Cumulative Eligible	434	871	1,310	1,752	2,196	2,531	2,868	3,208	3,550	3,894	0	0	0	0	0	0	0
Percent participating (annual)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	43	44	44	44	44	34	34	34	34	34	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	43	44	44	44	44	34	34	34	34	34	0	0	0	0	0	0	0
Cumulative participants	43	87	131	175	219	253	287	321	355	389	389	389	389	389	389	389	389
Cumulative partic. rate:	9.91%	9.99%	10.00%	9.99%	9.87%	10.00%	10.01%	10.01%	10.00%	9.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Free riders	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0
Cumulative free riders	2	4	7	9	11	13	14	16	18	19	19	19	19	19	19	19	19

Incremental Participant Costs (1995)

Measures:	SF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 300
2. Weatherization (Window Caulk & Weather Strip)	$ 316
3. R5 Basement Wall Insulation (Conditioned)	$ 570
4. Duct Insulation (1.5" FG w/R-5 Vap Br)	$ 350
5. Setback Thermostat	$ 107
6. Air-to-Air Heat Exchanger	$ 1,050

Impacts per Participant	Weight	Duke kWh	Duke Winter kW	Duke Summer kW	Cost
SF-EFCAC					
Measures 1, 2 3, 4, 5 and 6	0.46481	6,718	4.37	0.20	$1,252
SF-HP					
Measures 2, 3, 5 and 6	0.24561	1,981	5.57	0.23	$502
SF-EFRAC					
Measures 2, 3, 5 and 6	0.28947	4,909	1.35	0.05	$591
Weighted Total		5031	3.79	0.16	$2,345

Weighted Avg. Impact	Post Impact Baseline	Duke
Peak Demand (KW)	1.710	0.300
Energy (kWh/year)	15,161	4,287

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.13	0.13	0.13	0.13	0.13	0.10	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy (GWH)	1.86	1.87	1.88	1.89	1.90	1.44	1.44	1.46	1.47	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.01	0.02	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Energy (GWH)	0.18	0.35	0.53	0.71	0.89	1.03	1.17	1.31	1.45	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Fixed Admin. Costs:																	
Admin/staff	$45,142	$47,129	$49,202	$51,367	$53,628	$55,987	$58,451	$61,022	$63,707	$66,510	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$8,688	$9,070	$9,469	$9,885	$10,320	$10,775	$11,249	$11,744	$12,260	$12,800	$0	$0	$0	$0	$0	$0	$0
Evaluation	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$73,255	$76,478	$79,843	$83,356	$87,024	$90,853	$94,851	$99,024	$103,381	$107,930	$0	$0	$0	$0	$0	$0	$0
Utility Variable Costs: 1995$																	
Blower Door Test $200	$218	$228	$238	$248	$259	$270	$282	$295	$308	$321	$0	$0	$0	$0	$0	$0	$0
Participant Measure Cost $2,345	$2,566	$2,679	$2,797	$2,920	$3,048	$3,182	$3,322	$3,469	$3,621	$3,780	$0	$0	$0	$0	$0	$0	$0

10. SHADING AIR CONDITIONER / HEAT PUMP W/TRELLIS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SF customers with electric space & water heat — 17.2%
3. APPLICABILITY = Customers with Central AC or Heat Pump — 81.8%
4. MEASURE LIFE = — 15 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 5%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility *applic)	142,161	143,284	144,411	145,574	146,774	148,013	149,292	150,609	151,852	153,106	154,371	155,649	156,937	158,238	159,516	160,804	162,103
Eligible (less cum. part.)	142,161	143,151	144,162	145,226	146,335	147,495	148,709	149,861	151,138	152,326	153,524	154,802	156,090	157,391	158,669	159,957	161,256
Percent participating (annual)	0.09%	0.08%	0.07%	0.06%	0.05%	0.04%	0.04%	0.04%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	133	116	99	91	79	65	65	66	66	67	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	116
Total participants	133	116	99	91	79	65	65	66	66	67	0	0	0	0	0	133	116
Cumulative participants	133	249	348	439	518	583	648	714	780	847	847	847	847	847	847	847	847
Cumulative partic. rate:	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.4%	0.5%	0.5%	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Free Riders	7	6	5	5	4	3	3	3	3	3	0	0	0	0	0	0	0
Cumulative free riders	7	12	17	22	26	29	32	36	39	42	42	42	42	42	42	42	42

Impacts per Participant:

	Total kWh	Deka	Total kW	Deka	Equipment Saturation	Weighted Impact: Total kWh	Deka	Total kW	Deka
SF Central AC	3,139	214	3.270	0.327	90.3%	2,835	193	2.953	0.295
SF Heat Pump	16,043	208	3.430	0.343	9.7%	1,556	20	0.333	0.033
Total						4,391	213	3.288	0.329

Weighted Avg Impact	Baseline	Deka
Peak Demand (KW)	3.286	0.329
Energy (kWh/year)	4,391	213

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	46.7	47.1	47.4	47.8	48.2	48.6	49.1	49.5	49.9	50.3	50.7	51.1	51.6	52.0	52.4	52.8	53.3
Energy (GWH)	30.3	30.6	30.8	31.1	31.3	31.6	31.9	32.1	32.4	32.7	32.9	33.2	33.5	33.8	34.0	34.3	34.6
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.04	0.06	0.11	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Energy (GWH)	0.03	0.05	0.07	0.09	0.11	0.12	0.13	0.14	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Fixed Admin. Costs:																	
Admin/staff	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$2,172	$2,267	$2,367	$2,471	$2,580	$2,694	$2,812	$2,936	$3,065	$3,200	$0	$0	$0	$0	$0	$0	$0
Evaluation	$2,021	$2,846	$3,075	$3,210	$3,352	$3,499	$3,653	$3,814	$3,982	$4,157	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$15,314	$19,120	$18,961	$20,839	$21,756	$22,713	$23,713	$24,756	$25,845	$26,983	$0	$0	$0	$0	$0	$0	$0
Participant Measure Cost	1995$ $210	$230	$240	$250	$261	$273	$285	$297	$311	$324	$339	$353	$369	$385	$402	$420	$438	$456

2: RESIDENTIAL SETBACK THERMOSTAT FOR GAS HEAT CUSTOMERS

1. Increased participation by 25%
2. Increased energy rate by 25%

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: SF Residential Customers = 71.1%
3. APPLICABILITY = Gas Space Heat Saturation = 66.4%
4. Penetration rate half of give-away portion of program
5. MEASURE LIFE = 5 years
6. PARTICIPANT RENEWAL = 100%
7. FREE RIDERS = 20%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	478,317	482,095	485,887	489,800	493,836	498,005	502,309	506,739	510,921	515,141	519,400	523,697	528,033	532,409	536,709	541,044	545,415
Eligible (less cum. part.)	478,317	481,198	484,088	487,093	490,218	493,466	497,277	501,210	504,891	508,606	512,356	516,653	520,989	525,365	529,665	534,000	538,371
Percent participating (annual)	0.19%	0.19%	0.19%	0.19%	0.19%	0.10%	0.10%	0.10%	0.10%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	897	902	908	913	919	493	497	501	505	509	0	0	0	0	0	0	0
Participant renewals	0	0	897	902	1,805	1,815	2,724	2,308	3,221	2,809	3,726	3,318	3,726	3,318	3,726	3,318	3,726
Total participants	897	902	1,805	1,815	2,724	2,308	3,221	2,809	3,726	3,318	3,726	3,318	3,726	3,318	3,726	3,318	3,726
Cumulative participants	897	1,799	2,707	3,620	4,539	5,032	5,528	6,030	6,535	7,044	7,044	7,044	7,044	7,044	7,044	7,044	7,044
Cumulative partic. rate:	0.2%	0.4%	0.6%	0.7%	0.9%	1.0%	1.1%	1.2%	1.3%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Free Riders	179	180	182	183	184	99	99	100	101	102	0	0	0	0	0	0	0
Cumulative free riders	179	360	541	724	908	1,006	1,106	1,206	1,307	1,409	1,409	1,409	1,409	1,409	1,409	1,409	1,409

Weighted Avr Impact	Baseline	Delta
Peak Demand (KW)	1.680	0.100
Energy (kWh/year)	2,920	496

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	47.8	48.2	48.6	49.0	49.4	49.8	50.2	50.7	51.1	51.5	51.9	52.4	52.8	53.2	53.7	54.1	54.5
Energy (GWH)	237.2	239.1	241.0	242.9	244.9	247.0	249.1	251.3	253.4	255.5	257.6	259.8	261.9	264.1	266.2	268.4	270.5
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.07	0.14	0.22	0.29	0.36	0.40	0.44	0.48	0.52	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Energy (GWH)	0.36	0.71	1.07	1.44	1.80	2.00	2.19	2.39	2.59	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Fixed Admin. Costs:																	
Admin/staff	$28,511	$29,766	$31,075	$32,443	$33,870	$35,360	$36,916	$38,540	$40,236	$42,007	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,516	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Evaluation	$7,128	$7,441	$7,769	$8,111	$8,466	$8,840	$9,229	$9,635	$10,059	$10,502	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$45,639	$47,647	$49,743	$51,932	$54,217	$56,603	$59,093	$61,693	$64,408	$67,242	$0	$0	$0	$0	$0	$0	$0
Variable Costs: (1995$)																	
Incremental Partic.Costs	$85	$93	$97	$101	$106	$110	$115	$120	$126	$131	$137	$143	$149	$156	$163	$170	$177	$185

3: RESIDENTIAL LOW-INCOME PROGRAM

1. Increased participation by 25%
2. Increased fixed administrative cost by 12.5%
3. Increased energy rate by 25%

3A-B. WATER HEATING & LIGHTING MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All MF Customers — 25.9% (for HH incomes less than $15,000)
3. APPLICABILITY: Electric Water Heating Saturation — 70.9%
4. EQUIPMENT LIFE = — 12 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility*applic)	675	664	652	642	631	621	612	603	594	585	0	0	0	207,045	208,717	210,403	212,103
Eligible (less cum.part.)	478	471	462	455	447	440	434	427	421	415	0	0	0	202,595	204,267	205,953	207,653
Percent participating (annual)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%
New participants	478	471	462	455	447	440	434	427	421	415	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	478	471
Total participants	478	471	462	455	447	440	434	427	421	415	0	0	0	0	0	478	471
Cumulative participants	478	949	1,411	1,866	2,313	2,753	3,187	3,614	4,035	4,450	4,450	4,450	4,450	4,450	4,450	4,450	4,450
Cumulative partic. rate:	70.6%	142.9%	216.4%	290.7%	368.6%	443.3%	520.8%	599.3%	679.3%	760.7%	0.0%	0.0%	0.0%	2.1%	2.1%	2.1%	2.1%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Impacts per Participant:	Baseline	Data
Peak Demand (KW)	0.307	0.049
Energy (kWh/year)	3,378	1,183

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	10.2	10.3	10.4
Energy (GWH)	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	244.9	246.9	248.9	250.9
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.02	0.05	0.07	0.09	0.11	0.13	0.16	0.18	0.20	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Energy (GWH)	0.57	1.12	1.67	2.21	2.74	3.26	3.77	4.28	4.77	5.26	5.26	5.26	5.26	5.26	5.26	5.26	5.26
Fixed Admin. Costs:																	
Admin/staff	$56,426	$58,911	$61,503	$64,209	$67,034	$69,984	$73,063	$76,278	$79,634	$83,136	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,518	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Marketing	$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$14,107	$14,728	$15,378	$16,052	$16,759	$17,496	$18,266	$19,069	$19,909	$20,785	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$86,227	$100,481	$104,881	$109,496	$114,314	$119,344	$124,595	$130,077	$135,800	$141,776	$0	$0	$0	$0	$0	$0	$0

Utility Variable Costs:	1995$																
Free Measures:	$36	$40	$42	$43	$45	$47	$49	$52	$54	$56	$59	$0	$0	$0	$0	$0	$0	$0
Audit Cost	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$0	$0	$0	$0	$0	$0	$0
Total Variable:		$94	$98	$103	$107	$112	$117	$122	$128	$133	$139	$0	$0	$0	$0	$0	$0	$0

3C. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All MF Customers — 25.9% (for HH incomes less than $15,000)
3. APPLICABILITY = MF w/Electric Space Heat Saturation — 10.3%
4. EQUIPMENT LIFE = — 25 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *eligibility*applic.)	27,009	27,222	27,437	27,658	27,885	28,121	28,364	28,614	28,850	29,089	29,329	29,572	29,818	30,064	30,306	30,551	30,798
Eligible (less cum. part.)	27,009	26,547	26,098	25,667	25,252	24,857	24,479	24,117	23,750	23,395	23,050	23,293	23,537	23,785	24,027	24,272	24,519
Percent participating (annual)	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	675	664	652	642	631	621	612	603	594	585	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	675	664	652	642	631	621	612	603	594	585	0	0	0	0	0	0	0
Cumulative participants	675	1,339	1,991	2,633	3,264	3,885	4,497	5,100	5,694	6,279	6,279	6,279	6,279	6,279	6,279	6,279	6,279
Cumulative partic. rate:	2.5%	4.9%	7.3%	9.5%	11.7%	13.8%	15.9%	17.8%	19.7%	21.6%	21.4%	21.2%	21.1%	20.9%	20.7%	20.6%	20.4%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Incremental Participant Costs (1995)

Measures:	SMF Cost	LMF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 180	$ 180
2. Weatherization (Window Caulk & Weather Strip)	$ 181	$ 188
3. Duct Insulation (1.5" FG w/R-5 Vap Br)	$ 210	
4. R38 Ceiling Insulation	$ 312	

Impacts per Participant	Weight	Duke kWh	Duke Winter kW	Duke Summer kW	Cost
SMF-EFCAC					
Measures 1, 2, 3 and 4	0.16667	2,514	1.94	0.18	$147
SMF-EBRAC					
Measures 2 and 4	0.21429	1,843	1.33	0.05	$106
LMF-EFCAC					
Measures 1 and 2	0.35714	2,278	1.42	0.10	$131
LMF-EFRAC					
Measure 2	0.26190	1,462	0.93	-0.02	$49
Weighted Total		2010	1.36	0.07	$433

Weighted Avg. Impacts per Participant:	Post Impact Baseline	Duke
Peak Demand (KW)	1.090	0.110
Energy (kWh/year)	6,998	2,095

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.4	3.4
Energy (GWH)	56.6	57.0	57.5	57.9	58.4	58.9	59.4	59.9	60.4	60.9	61.4	62.0	62.5	63.0	63.5	64.0	64.5
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.07	0.15	0.22	0.29	0.36	0.43	0.49	0.56	0.63	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Energy (GWH)	1.41	2.81	4.17	5.52	6.84	8.14	9.42	10.68	11.93	13.15	13.15	13.15	13.15	13.15	13.15	13.15	13.15
Fixed Admin. Costs:																	
Admin/staff		$45,142	$47,129	$49,202	$51,367	$53,628	$55,987	$58,451	$61,022	$63,707	$66,510	$0	$0	$0	$0	$0	$0
Contract Labor		$8,000	$8,352	$8,719	$9,103	$9,504	$9,922	$10,358	$10,814	$11,290	$11,787	$0	$0	$0	$0	$0	$0
Marketing		$4,000	$4,176	$4,360	$4,552	$4,752	$4,961	$5,179	$5,407	$5,645	$5,893	$0	$0	$0	$0	$0	$0
Evaluation		$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0
Total Fixed:		$76,982	$80,369	$83,905	$87,597	$91,451	$95,475	$99,676	$104,062	$108,640	$113,421	$0	$0	$0	$0	$0	$0
Utility Variable Costs:	1995$																
Free Measure(s)	$433	$474	$495	$517	$540	$563	$588	$614	$641	$669	$699	$0	$0	$0	$0	$0	$0
Audit Cost	$40	$44	$46	$48	$50	$52	$54	$56	$58	$62	$64	$0	$0	$0	$0	$0	$0
Total Variable:	$473	$518	$541	$564	$589	$615	$642	$671	$700	$731	$763	$0	$0	$0	$0	$0	$0

3D. WATER BED MATTRESS PADS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All MF Customers — 25.9%
3. APPLICABILITY = Water Bed Saturation — 13.8%
4. EQUIPMENT LIFE = — 3 years
5. PARTICIPANT RENEWAL — 100%
6. FREE RIDERS = — 0%

ASSUMPTIONS:

2. 90% acceptance rate
3. 69% savings in energy using a $20 mattress pad (E-Source 69% savings).
4. Summer energy usage = 142.86 kWh. 50% savings = 71.43 kWh. Demand savings = 71.43/2928 hours (Jun-Sep) = .024 kW
4. Winter energy usage is 3.5X summer usage.
5. Heater is operated year round.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	675	664	652	642	631	621	612	603	594	585	39,261	39,565	39,913	40,244	40,569	40,897	41,227
Eligible (less cum. part.)	93	91	90	88	87	86	84	83	82	81	38,481	38,805	39,133	39,464	39,789	40,117	40,447
Percent participating (annual)	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
New participants	84	82	81	80	78	77	76	75	74	73	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	84	82	81	80	78
Total participants	84	82	81	80	78	77	76	75	74	73	0	0	84	82	81	80	78
Cumulative participants /	84	166	247	327	405	482	558	633	707	780	780	780	780	780	780	780	780
Cumulative partic. rate:	12.4%	25.0%	37.9%	50.9%	64.2%	77.6%	91.2%	105.0%	119.0%	133.3%	2.0%	2.0%	2.0%	1.9%	1.9%	1.9%	1.9%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Weighted Avg Impact	Baseline	Date
Peak Demand (KW)	0.100	0.069
Energy (kWh/year)	1351	931

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	2.8	2.8	2.8	2.8	2.8
Energy (GWH)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	36.6	36.9	37.2	37.5	37.8	38.1	38.4
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Energy (GWH)	0.08	0.15	0.23	0.30	0.38	0.45	0.52	0.59	0.66	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Fixed Admin. Costs:																	
Admin/staff	$11,286	$11,782	$12,301	$12,842	$13,407	$13,997	$14,613	$15,256	$15,927	$16,628	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$2,000	$2,088	$2,180	$2,276	$2,376	$2,480	$2,590	$2,704	$2,823	$2,947	$0	$0	$0	$0	$0	$0	$0
Marketing	$1,000	$1,044	$1,090	$1,138	$1,188	$1,240	$1,295	$1,352	$1,411	$1,473	$0	$0	$0	$0	$0	$0	$0
Evaluation	$2,821	$2,946	$3,075	$3,210	$3,352	$3,499	$3,653	$3,814	$3,982	$4,157	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$19,245	$20,092	$20,976	$21,899	$22,863	$23,869	$24,919	$26,015	$27,160	$28,355	$0	$0	$0	$0	$0	$0	$0

Utility Variable Costs:	1995$																
Free equipment	Wholesale$	Weight															
Mattress Pad	$20.00	100%															
Free Measures	$20	$22	$23	$24	$25	$26	$27	$28	$30	$31	$32	$0	$0	$0	$0	$0	$0	$0
Audit Cost	$10	$11	$11	$12	$12	$13	$14	$14	$15	$15	$16	$0	$0	$0	$0	$0	$0	$0
Total Variable:		$33	$34	$36	$37	$39	$41	$42	$44	$46	$48	$0	$0	$0	$0	$0	$0	$0

4: AIR CONDITIONING & WATER HEATER CYCLING PROGRAM

4A. CENTRAL AIR CONDITIONER / HEAT PUMP CYCLING

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBLITY: All Single-Family Residential customers — 70.5%
3. APPLICABILITY = SF CAC/HP Saturation: — 81.8%
4. CYCLING STRATEGY = 50% Jun-Sep, 75% May & Oct
5. EQUIPMENT LIFE = — 15 years
6. PARTICIPANT DROPOUT RATE — 4%
7. PARTICIPANT RENEWAL — 96%
8. FREE RIDERS = — 15%

ASSUMPTIONS:

1. Increased participation by 33.5%
2. Increased UE administration/staff, marketing and evaluation costs by 16.75%
3. Increased energy rate by 25%
4. Contractor overhead = $152,808/8000units = $19/unit (ANB quote on 1995 contract).
5. Customers are required to have a CAC/HP switch if they want a WH switch.

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all "eligibility" applic)		584,295	588,909	593,542	598,322	603,252	608,344	613,602	619,014	624,122	629,277	634,479	639,729	645,026	650,370	655,624	660,920	666,258
Eligible (less cum. part.)		584,295	577,676	571,204	565,003	559,072	553,417	548,036	542,913	537,584	532,405	527,372	532,621	537,818	543,263	548,517	553,812	559,151
Percent participating (annual)		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants		11,701	11,568	11,438	11,314	11,195	11,082	10,974	10,872	10,765	10,661	0	0	0	0	0	0	0
Participant dropouts		468	463	458	453	448	443	439	435	431	426	0	0	0	0	0	11,233	11,105
Participant renewals		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,233	11,105
Total participants		11,233	11,105	10,980	10,861	10,747	10,639	10,535	10,437	10,334	10,235	0	0	0	0	0	11,233	11,105
Cumulative participants		11,233	22,338	33,319	44,180	54,927	65,566	76,101	86,538	96,873	107,107	107,107	107,107	107,107	107,107	107,107	107,107	107,107
Cumulative partic. rate:		1.9%	3.8%	5.6%	7.4%	9.1%	10.8%	12.4%	14.0%	15.5%	17.0%	16.9%	16.7%	16.6%	16.5%	16.3%	16.2%	16.1%
Free riders each year		1755	1735	1716	1697	1679	1662	1646	1631	1615	1599	0	0	0	0	0	0	0
Cumulative free riders		1755	3490	5206	6903	8582	10245	11891	13522	15138	16736	16736	16736	16736	16736	16736	16736	16736
Impacts per Participant:	Baseline	Deka																
Peak Demand (KW)	3.50	0.85	Reduced average per unit impact of 0.89 kW by 5% for ineffective switches.															
Technical Potential (based on 100% participation)																		
Peak Demand (MW)		496.7	500.6	504.5	508.6	512.8	517.1	521.6	526.2	530.5	534.9	539.3	543.8	548.3	552.8	557.3	561.8	566.3
Program Induced Meter Level Impacts (net of free riders):																		
Peak Demand (MW)		8.1	16.0	23.9	31.7	39.4	47.0	54.6	62.1	69.5	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8
Radio Transmitter	$27,000	$29,541	$30,900	$32,321	$33,808	$35,363	$36,990	$38,692	$40,471	$42,333								
Radio Tower	$270,000	$295,411	$309,000	$323,214	$338,082	$353,634	$369,901	$386,916	$404,715	$423,332								
Transmitter Maintenance (annual)	$1,125	$1,231	$1,288	$1,347	$1,409	$1,473	$1,541	$1,612	$1,686	$1,764	$1,845	$1,930	$2,019	$2,112	$2,209	$2,310	$2,417	$2,528
# of Transmitters		3	3	3	3	3	3	10	17	24	24	24	24	24	24	24	24	24
# of Towers										1.0								
Fixed Admin. Costs:																		
UE Admin/staff		$237,167	$247,603	$258,497	$269,871	$281,746	$294,142	$307,085	$320,596	$334,703	$349,429	$162,402	$190,426	$198,807	$207,554	$216,687	$226,221	$236,174
Contractor Admin/staff		$222,319	$232,101	$242,313	$252,975	$264,106	$275,727	$287,859	$300,525	$313,748	$327,553	$170,982	$178,506	$186,360	$194,560	$203,120	$212,058	$221,386
Marketing		$122,948	$128,358	$134,006	$139,902	$146,058	$152,484	$159,194	$166,198	$173,511	$181,145	$0	$0	$0	$0	$0	$0	$0
Evaluation		$69,223	$61,901	$64,624	$67,468	$70,436	$73,536	$76,771	$80,149	$83,676	$87,357	$45,601	$47,607	$49,702	$51,889	$54,172	$56,555	$59,044
Transmitter Maintenance		$3,323	$3,476	$3,636	$3,803	$3,978	$4,161	$14,509	$25,601	$38,100	$39,852	$41,686	$43,603	$45,609	$47,707	$49,901	$52,197	$54,598
Total Fixed:		$854,981	$873,439	$703,077	$734,020	$766,324	$800,050	$845,417	$893,269	$943,736	$985,337	$440,671	$460,144	$480,477	$501,709	$523,880	$547,031	$571,204
Utility Variable Costs:	1995$																	
Incentive (One-time)	$80	$87	$91	$95	$99	$104	$108	$113	$118	$123	$128	$0	$0	$0	$0	$0	$0	$0
Installation Labor	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Billing Process	$5	$5	$6	$6	$6	$6	$7	$7	$7	$8	$8	$0	$0	$0	$0	$0	$0	$0
Switch Removal cost	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Total Variable:		$202	$211	$220	$229	$240	$250	$261	$273	$285	$297	$168	$175	$183	$191	$199	$208	$217
Utility Fixed Equipment Costs:																		
Radio Controller	$45,000	$49,235																
Load Management Switch	$95	$104	$109	$114	$119	$124	$130	$136	$142	$149	$156	$0	$0	$0	$0	$0	$0	$0
Radio Transmitters & 1 tower		$79,761						$243,757	$254,870	$647,897								

48. WATER HEATER CYCLING

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All Single-Family Residential customers — 70.5%
3. APPLICABILITY = Electric Water Heater Saturation — 22.8%
4. CYCLING STRATEGY = 33%
5. EQUIPMENT LIFE = — 15 years
6. PARTICIPANT DROPOUT RATE — 4.0%
7. PARTICIPANT RENEWAL — 86.0%
8. FREE RIDERS = — 0%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all "eligibility" applic)	161,617	162,893	164,174	165,497	166,860	168,269	169,723	171,220	172,633	174,059	175,498	176,950	178,415	179,893	181,346	182,811	184,288
Eligible (less cum. part.)	161,617	161,598	161,637	161,716	161,837	162,001	162,209	162,459	162,823	162,798	162,985	164,437	165,902	167,380	168,833	170,298	171,775
Percent participating (annual)	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	1,295	1,294	1,295	1,295	1,296	1,298	1,299	1,301	1,303	1,304	0	0	0	0	0	0	0
Participant dropouts	0	52	52	52	52	52	52	52	52	52	0	0	0	0	0	1,243	1,242
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,243	1,242
Total participants	1,295	1,242	1,243	1,243	1,244	1,246	1,247	1,249	1,251	1,252	0	0	0	0	0	12,513	12,513
Cumulative participants	1,295	2,537	3,780	5,024	6,268	7,514	8,761	10,010	11,261	12,513	12,513	12,513	12,513	12,513	12,513	12,513	12,513
Cumulative partic. rate:	0.8%	1.6%	2.3%	3.0%	3.8%	4.5%	5.2%	5.8%	6.5%	7.2%	7.1%	7.1%	7.0%	7.0%	6.9%	6.8%	6.8%
Free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative free riders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Impacts per Participant:	Baseline	Deka	Weight	Weighted Average Impacts Baseline	Weighted Average Impacts Deka
Peak Demand (KW) - Existing	0.443	0.393	51.9%	0.230	0.204
Peak Demand (KW) - Replacement	0.428	0.380	32.7%	0.140	0.124
Peak Demand (KW) - New	0.372	0.330	15.4%	0.057	0.051

Weighted Avg. Impact Peak Demand (KW)	0.339	0.287															
Technical Potential (based on 100% participation) Peak Demand (MW)		46.4	46.8	47.1	47.5	47.9	48.3	48.7	49.1	49.5	50.0	50.4	50.8	51.2	51.6	52.0	52.5	52.9
Program Induced Meter Level Impacts (net of free riders): Peak Demand (MW)		0.4	0.7	1.1	1.4	1.8	2.2	2.5	2.9	3.2	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Fixed Admin. Costs:																		
UE Admin/staff		$26,352	$27,511	$26,722	$29,966	$31,305	$32,682	$34,121	$35,622	$37,189	$38,825	$20,267	$21,159	$22,090	$23,062	$24,078	$25,136	$26,242
Contract Admin/staff		$24,605	$25,686	$26,818	$27,998	$29,230	$30,516	$31,859	$33,260	$34,724	$36,252	$18,923	$19,758	$20,625	$21,533	$22,480	$23,469	$24,502
Marketing		$13,661	$14,262	$14,890	$15,545	$16,229	$16,943	$17,688	$18,466	$19,279	$20,127	$0	$0	$0	$0	$0	$0	$0
Evaluation		$7,691	$8,878	$7,180	$7,496	$7,826	$8,171	$8,530	$8,905	$9,297	$9,706	$5,067	$5,290	$5,522	$5,765	$6,019	$6,284	$6,560
Transmitter Maintenance		$369	$386	$404	$423	$442	$462	$1,612	$2,867	$4,233	$4,426	$4,632	$4,845	$5,068	$5,301	$5,545	$5,800	$6,066
Total Fixed:		$72,678	$74,725	$76,014	$81,447	$85,032	$88,774	$93,810	$99,121	$104,723	$109,339	$48,889	$51,049	$53,305	$55,661	$58,120	$60,689	$63,370
Variable Costs:	1995$																	
Incentive	$40	$44	$46	$48	$50	$52	$54	$56	$59	$62	$64	$0	$0	$0	$0	$0	$0	$0
Installation Labor	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Billing Process	$5	$5	$6	$6	$6	$6	$7	$7	$7	$8	$8	$0	$0	$0	$0	$0	$0	$0
Switch Removal cost	$50	$54	$57	$59	$62	$65	$68	$71	$74	$77	$80	$84	$88	$91	$95	$100	$104	$109
Total Variable:		$156	$165	$172	$180	$188	$196	$205	$214	$223	$233	$168	$175	$183	$191	$199	$208	$217
Utility Fixed Equipment Costs:																		
Radio Controller	$5,000	$5,471																
Load Management Switch	$95	$104	$109	$114	$119	$124	$130	$136	$142	$149	$156	$0	$0	$0	$0	$0	$0	$0
Radio Transmitters & 1 tower		$8,862						$27,084	$28,330	$71,968								

5: RESIDENTIAL REFRIGERATOR / FREEZER REMOVAL PROGRAM

5A. REFRIGERATOR REMOVAL

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All Residential customers — 100.0%
3. APPLICABILITY = Saturation of 2nd Refrigerators: — 18.0%
4. EQUIPMENT LIFE = — 6 years
5. PARTICIPANT RENEWALS — 100%
6. FREE RIDERS = — 30%

ASSUMPTIONS:

1. Increased participation by 250%
2. Increased fixed administrative cost by 125%
3. Increased energy rate by 25%
4. Dawn Glizy (ARCA) estimates 1997 annual cost of $75/unit for scheduling, removal and recycling.
5. Maximum of two operational units per household.
6. Bill Message advertising

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic) - 2nd ref.	181,796	183,232	184,673	186,160	187,694	189,279	190,915	192,598	194,188	195,792	197,410	199,044	200,692	202,355	203,989	205,637	207,298
Available participants (turnover) - 1st ref.	50,615	51,015	51,416	51,830	52,257	52,698	53,154	53,622	54,065	54,512	54,962	55,417	55,876	56,339	56,794	57,253	57,715
Total available participants	232,411	234,246	236,089	237,990	239,952	241,977	244,069	246,221	248,253	250,303	252,373	254,461	256,568	258,694	260,783	262,890	265,013
Eligible (less cum.part.)	232,411	225,298	218,073	210,662	203,039	195,826	189,008	182,560	176,286	170,315	164,636	166,724	168,831	170,957	173,046	175,153	177,278
Percent participating (annual)	3.85%	4.03%	4.27%	4.55%	4.55%	4.55%	4.55%	4.55%	4.55%	4.55%	0%	0%	0%	0%	0%	0%	0%
New participants	8,948	9,068	9,312	9,585	9,238	8,910	8,600	8,306	8,021	7,749	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	8,948	9,068	9,312	9,585	9,238	8,910	8,600	8,306	8,021
Total participants	8,948	9,068	9,312	9,585	9,238	8,910	8,600	8,306	16,969	16,817	9,312	9,585	9,238	8,910	8,600	8,306	8,021
Cumulative participants	8,948	18,016	27,328	36,913	46,151	55,061	63,661	71,967	79,988	87,737	87,737	87,737	87,737	87,737	87,737	87,737	87,737
Cumulative partic. rate:	3.9%	7.7%	11.6%	15.5%	19.2%	22.8%	26.1%	29.2%	32.2%	35.1%	34.8%	34.5%	34.2%	33.9%	33.6%	33.4%	33.1%
Free riders	2,684	2,720	2,794	2,876	2,771	2,673	2,580	2,492	2,406	2,325	0	0	0	0	0	0	0
Cumulative free riders	2,684	5,405	8,198	11,074	13,845	16,518	19,098	21,590	23,996	26,321	26,321	26,321	26,321	26,321	26,321	26,321	26,321

	Avg. Age of Removed Unit in 1996 (years)	AHAM UEC	10% Degrad. Adjustment	Shipment Weighting Factor	Wted Avg UEC
Manual defrost	17	601	661	9.0%	59
Partial Auto Defrost	17	1,013	1,114	11.8%	131
Auto defrost - top freezer	17	1,422	1,564	62.3%	975
Auto defrost - side or bottom freezer	17	1,781	1,970	16.8%	331

Impacts per Participant	Baseline	Deke
Peak Demand (KW)	0.178	0.178
Energy (KWH)	1,288	1,288

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	41.4	41.7	42.0	42.4	42.7	43.1	43.4	43.8	44.2	44.6	44.9	45.3	45.7	46.0	46.4	46.8	47.2
Energy (GWH)	299.3	301.7	304.1	306.5	309.1	311.7	314.4	317.1	319.7	322.4	325.1	327.7	330.5	333.2	335.9	338.6	341.3
Program Induced Meter Level Impacts (net of free riders):																	
Peak Demand (MW)	1.1	2.2	3.4	4.6	5.8	6.9	7.9	9.0	10.0	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
Energy (GWH)	8.1	16.2	24.6	33.3	41.6	49.6	57.4	64.9	72.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1	79.1
Fixed Admin. Costs:																	
UE Admin/staff	$73,178	$76,398	$79,760	$83,269	$86,933	$90,756	$94,751	$98,920	$103,273	$107,817	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$18,295	$19,100	$19,940	$20,817	$21,733	$22,690	$23,688	$24,730	$25,818	$26,954	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$217,064	$226,615	$236,586	$246,996	$257,864	$269,210	$281,055	$293,421	$306,332	$319,810	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contractor Removal Cost	$75	$82	$85	$89	$93	$97	$101	$106	$111	$115	$120	$0	$0	$0	$0	$0	$0

6B. FREEZER REMOVAL

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2008
2. ELIGIBILITY: All Residential customers = 100.0%
3. APPLICABILITY = Saturation of Stand Alone Freezers: = 32.5%
4. EQUIPMENT LIFE = 8 years
5. PARTICIPANT RENEWALS = 100%
6. FREE RIDERS = 30%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Available participants (all *applic)	329,097	331,696	334,306	336,998	339,775	342,643	345,604	348,652	351,530	354,433	357,363	360,320	363,303	366,314	369,273	372,255	375,262
Eligible (less cum.part.)	329,097	330,544	331,419	331,559	330,855	330,249	329,742	329,328	328,748	328,199	327,683	330,640	333,623	336,634	339,593	342,575	345,582
Percent participating (annual)	0.35%	0.53%	0.77%	1.05%	1.05%	1.05%	1.05%	1.05%	1.05%	1.05%	0%	0%	0%	0%	0%	0%	0%
New participants	1,152	1,735	2,552	3,481	3,474	3,468	3,462	3,456	3,452	3,446	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	1,152	1,735	2,552	3,481	3,474	3,468	3,462	3,456	3,452
Total participants	1,152	1,735	2,552	3,481	3,474	3,468	3,462	3,456	4,604	5,181	2,552	3,481	3,474	3,468	3,462	3,456	3,452
Cumulative participants	1,152	2,887	5,439	8,920	12,394	15,862	19,324	22,782	28,234	29,680	29,680	29,680	29,680	29,680	29,680	29,680	29,680
Cumulative partic. rate:	0.4%	0.9%	1.6%	2.6%	3.6%	4.6%	5.6%	6.5%	7.5%	8.4%	8.3%	8.2%	8.2%	8.1%	8.0%	8.0%	7.9%
Free riders	346	521	766	1,044	1,042	1,040	1,039	1,037	1,036	1,034	0	0	0	0	0	0	0
Cumulative free riders	346	866	1,632	2,676	3,718	4,759	5,797	6,835	7,870	8,904	8,904	8,904	8,904	8,904	8,904	8,904	8,904

	Avg. Age of Removed Unit in 1996 (years)	AHAM UEC	10% Degrad. Adjustment	Shipment Weighting Factor	Wtad Avg UEC
Chest, manual defrost	17	786	865	53.4%	461
Upright, manual defrost	17	1,024	1,126	38.9%	438
Upright, automatic defrost	17	1,506	1,657	7.4%	122

Impacts per Participant	Baseline	Deka															
Peak Demand (KW)	0.126	0.126															
Energy (KWH)	773	773															
Technical Potential (based on 100% participation)																	
Peak Demand (MW)		41.5	41.8	42.1	42.5	42.8	43.2	43.5	43.9	44.3	44.7	45.0	45.4	45.8	46.2	46.5	46.9	47.3
Energy (GWH)		254.4	256.4	258.4	260.5	262.6	264.9	267.2	269.5	271.7	274.0	276.2	278.5	280.8	283.2	285.4	287.8	290.1
Program Induced Meter Level Impacts (net of free riders):																		
Peak Demand (MW)		0.1	0.3	0.5	0.8	1.1	1.4	1.7	2.0	2.3	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Energy (GWH)		0.6	1.6	2.9	4.8	6.7	8.6	10.5	12.3	14.2	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Fixed Admin. Costs:																		
UE Admin/staff		$73,178	$76,398	$79,760	$83,269	$86,933	$90,758	$94,751	$98,920	$103,273	$107,817	$0	$0	$0	$0	$0	$0	$0
Contractor Admin/staff		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing		$5,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,056	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation		$18,295	$19,100	$19,940	$20,817	$21,733	$22,690	$23,688	$24,730	$25,818	$26,954	$0	$0	$0	$0	$0	$0	$0
Total Fixed:		$217,064	$226,615	$236,586	$246,996	$257,864	$269,210	$281,055	$293,421	$306,332	$319,810	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																	
Incentive	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Contractor Removal Cost	$75	$82	$85	$89	$93	$97	$101	$106	$111	$115	$120	$0	$0	$0	$0	$0	$0	$0

6: RESIDENTIAL NEW CONSTRUCTION PROGRAM

1. More captive electric customers will participate in Green Key, while more customers with a choice will chose gas, because it's cheaper. As a result, participation is not expected to change.
2. Increased energy rate by 25%

6A. BUILDING SHELL MEASURES

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SF and MF new construction customers 88.5%
3. APPLICABILITY: Electric Space Heat Saturation 30.9%
4. EQUIPMENT LIFE = 25 years
5. PARTICIPANT RENEWAL 100%
6. FREE RIDERS = 2%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Eligible (avail*turnover less last yr)	2,210	2,189	2,198	2,267	2,339	2,415	2,494	2,567	2,423	2,445	2,467	2,490	2,513	2,535	2,492	2,512	2,532
Percent participating (annual)	5%	10%	15%	20%	25%	30%	30%	30%	30%	30%	0%	0%	0%	0%	0%	0%	0%
New participants	110	219	330	453	585	725	748	770	727	734	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total participants	110	219	330	453	585	725	748	770	727	734	0	0	0	0	0	0	0
Cumulative participants	110	329	659	1,112	1,697	2,422	3,170	3,940	4,667	5,401	5,401	5,401	5,401	5,401	5,401	5,401	5,401
Cumulative partic. rate	5.0%	7.5%	10.0%	12.5%	15.1%	17.8%	19.7%	21.1%	22.1%	22.9%	20.8%	18.9%	17.4%	16.1%	15.0%	14.0%	13.1%
Free riders	2	4	7	9	12	15	15	15	15	15	0	0	0	0	0	0	0
Cumulative free riders	2	7	13	22	34	48	63	79	93	108	108	108	108	108	108	108	108

Incremental Participant Costs

Measures:	SF Cost	SMF Cost	LMF Cost
1. Duct Sealing (Fiberglass Mastic)	$ 300	$ 180	$ 180
2. Weatherization (Window Caulk & Weather Strip)	$ 316	$ 181	$ 188
3. R5 Basement Wall Insulation (Conditioned)	$ 570		
4. Duct Insulation (1.5" FG w/R-5 Vap Br)	$ 350	$ 210	
5. R38 Ceiling Insulation		$ 312	
6. Setback Thermostat	$ 69	$ 47	
7. Air-to-Air Heat Exchanger	$ 1,050		

Impacts per Participant	Weight	Duke kWh	Duke Winter kW	Duke Summer kW	Cost
SF	0.57576	5,031	3.79	0.16	$1,529
SMF	0.18182	2,137	1.60	0.13	$143
LMF	0.26263	1,833	1.21	0.05	$97
Weighted Total		3750	2.76	0.13	$1,768

Weighted Avr. Impacts	Post Impact Baseline	Duke
Peak Demand (kW)	1.450	0.220
Annual Energy (kWh)	11,695	3,356

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.49	0.48	0.48	0.50	0.51	0.53	0.55	0.56	0.53	0.54	0.54	0.55	0.55	0.56	0.55	0.55	0.56
Energy (GWH)	7.42	7.35	7.36	7.61	7.85	8.11	8.37	8.61	8.13	8.21	8.26	8.36	8.43	8.51	8.36	8.43	8.50
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.02	0.07	0.14	0.24	0.37	0.52	0.68	0.85	1.01	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Energy (GWH)	0.36	1.08	2.17	3.66	5.58	7.97	10.43	12.96	15.35	17.76	17.76	17.76	17.76	17.76	17.76	17.76	17.76
Fixed Admin. Costs:																	
Admin/staff	$131,721	$137,517	$143,568	$149,884	$156,479	$163,365	$170,553	$178,057	$185,891	$194,071	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$90,000	$46,980	$49,047	$51,205	$53,458	$55,810	$58,266	$60,830	$63,506	$66,301	$0	$0	$0	$0	$0	$0	$0
Evaluation	$32,930	$34,379	$35,892	$37,471	$39,120	$40,841	$42,638	$44,514	$46,473	$48,518	$0	$0	$0	$0	$0	$0	$0
Annual E-Seal Membership Fee	$10,000	$10,440	$10,899	$11,379	$11,880	$12,402	$12,948	$13,518	$14,113	$14,733	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$264,651	$229,316	$239,406	$249,940	$260,937	$272,418	$284,405	$296,919	$309,983	$323,622	$0	$0	$0	$0	$0	$0	$0
Variable Costs:	1995$																
Installed Measure Cost	$1,768	$1,934	$2,019	$2,108	$2,201	$2,298	$2,399	$2,505	$2,615	$2,730	$2,850	$0	$0	$0	$0	$0	$0
Rebate Processing	$5	$5	$6	$6	$6	$6	$7	$7	$7	$8	$8	$0	$0	$0	$0	$0	$0
Total Variable	$1,773	$1,940	$2,025	$2,114	$2,207	$2,304	$2,406	$2,512	$2,622	$2,738	$2,858						

6B. SHADING AIR CONDITIONER / HEAT PUMP W/ TRELLIS

1. IMPLEMENTATION STARTING IN 1997, CONTINUING UNTIL 2006
2. ELIGIBILITY: All SFand MF new construction customers 88.5%
3. APPLICABILITY: Central air conditioner/Heat pump saturation 94.1%
4. EQUIPMENT LIFE = 15 years
5. PARTICIPANT RENEWAL 100%
6. FREE RIDERS = 5%

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Eligible (turnover*eligibility*applicability)	110	219	330	453	585	725	748	770	727	734	7,501	7,570	7,639	7,708	7,576	7,637	7,699
Percent participating (annual)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New participants	11	22	33	45	59	73	75	77	73	73	0	0	0	0	0	0	0
Participant renewals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	22
Total participants	11	22	33	45	59	73	75	77	73	73	0	0	0	0	0	11	22
Cumulative participants	11	33	66	111	170	243	318	395	468	541	541	541	541	541	541	541	541
Cumulative partic. rate	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	4.2%	2.8%	1.9%	1.5%	1.2%	1.1%	0.9%
Free riders	1	1	2	2	3	4	4	4	4	4	0	0	0	0	0	0	0
Cumulative free riders	1	2	3	6	9	12	16	20	23	27	27	27	27	27	27	27	27

Impacts per Participant:

	Total kWh	Deka	Total kW	Deka	Equipment Saturation	Weighted Impact: Total kWh	Deka	Total kW	Deka
Central AC (kWh)	3,066	204	2.833	0.283	90.3%	2,769	184	2.558	0.256
Heat Pump (kWh)	10,976	203	3.013	0.301	9.7%	1,065	20	0.292	0.029

Weighted Avg. Impacts	Baseline	Deka
Peak Demand (kW)	1.887	0.180
Annual Energy (kWh)	3,836	247

Technical Potential (based on 100% participation)																	
Peak Demand (MW)	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Energy (GWH)	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Program Induced Meter Level Impacts (net of free riders)																	
Peak Demand (MW)	0.002	0.006	0.011	0.019	0.029	0.042	0.054	0.068	0.080	0.093	0.093	0.093	0.093	0.093	0.093	0.093	0.093
Energy (GWH)	0.003	0.008	0.015	0.026	0.040	0.057	0.075	0.093	0.110	0.127	0.127	0.127	0.127	0.127	0.127	0.127	0.127
Fixed Admin. Costs:																	
Admin/staff	$14,636	$15,260	$15,952	$16,654	$17,387	$18,152	$18,950	$19,784	$20,655	$21,563	$0	$0	$0	$0	$0	$0	$0
Contract Labor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing	$10,000	$5,220	$5,450	$5,689	$5,940	$6,201	$6,474	$6,759	$7,058	$7,367	$0	$0	$0	$0	$0	$0	$0
Evaluation	$3,659	$3,820	$3,988	$4,163	$4,347	$4,538	$4,738	$4,946	$5,164	$5,391	$0	$0	$0	$0	$0	$0	$0
Total Fixed:	$28,295	$24,320	$25,390	$26,507	$27,673	$28,891	$30,162	$31,489	$32,874	$34,321	$0	$0	$0	$0	$0	$0	$0
Variable Costs: 1995$																	
Participant Costs $210	$230	$240	$250	$261	$273	$285	$297	$311	$324	$339	$353	$369	$385	$402	$420	$438	$458

APPENDIX D

COMMERCIAL SECTOR PLSA ASSUMPTIONS

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS

GENERAL

Program name	C1A
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1A
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	192569.89	0.02	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	201042.97	0.02	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	209888.86	0.02	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	219123.97	0.02	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	228765.42	0.03	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	238831.10	0.03	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	249339.67	0.03	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	260310.62	0.03	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	271764.28	0.03	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	283721.91	0.03	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS

Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
		Total	24.40	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	22.80	0.00	0.00
		Total	22.80	0.00	0.00
		Difference	-1.60	0.00	0.00

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.33	0.00	0.00
1998	0.34	0.00	0.00
1999	0.36	0.00	0.00
2000	0.37	0.00	0.00
2001	0.39	0.00	0.00
2002	0.41	0.00	0.00
2003	0.42	0.00	0.00
2004	0.44	0.00	0.00
2005	0.46	0.00	0.00
2006	0.48	0.00	0.00
2007	0.50	0.00	0.00
2008	0.53	0.00	0.00
2009	0.55	0.00	0.00
2010	0.57	0.00	0.00
2011	0.60	0.00	0.00
2012	0.62	0.00	0.00
2013	0.65	0.00	0.00
2014	0.68	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1A - WALK THROUGH AUDIT AND ANALYSIS
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	4900000.00	10.00	0.00	4900000.00	4410000.00	0.00
1998	4900000.00	10.00	0.00	9800000.00	8820000.00	0.00
1999	4900000.00	10.00	0.00	14700000.00	13230000.00	0.00
2000	4900000.00	10.00	0.00	19600000.00	17640000.00	0.00
2001	4900000.00	10.00	0.00	24500000.00	22050000.00	0.00
2002	4900000.00	10.00	0.00	29400000.00	26460000.00	0.00
2003	4900000.00	10.00	0.00	34300000.00	30870000.00	0.00
2004	4900000.00	10.00	0.00	39200000.00	35280000.00	0.00
2005	4900000.00	10.00	0.00	44100000.00	39690000.00	0.00
2006	4900000.00	10.00	0.00	49000000.00	44100000.00	0.00
2007	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2008	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2009	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2010	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2011	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2012	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2013	0.00	-nan	-nan	49000000.00	44100000.00	0.00
2014	0.00	-nan	-nan	49000000.00	44100000.00	0.00

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS

GENERAL

Program name	C1B
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1B
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	203469.25	0.09	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	212421.90	0.09	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	221768.46	0.10	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	231526.28	0.10	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	241713.43	0.10	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	252348.82	0.11	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	263452.17	0.11	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	275044.07	0.12	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	287146.01	0.12	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	299780.43	0.13	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
		Total	24.40	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	21.20	0.00	0.00
		Total	21.20	0.00	0.00
		Difference	-3.20	0.00	0.00

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.54	0.00	0.00
1998	0.57	0.00	0.00
1999	0.59	0.00	0.00
2000	0.62	0.00	0.00
2001	0.65	0.00	0.00
2002	0.68	0.00	0.00
2003	0.71	0.00	0.00
2004	0.74	0.00	0.00
2005	0.77	0.00	0.00
2006	0.80	0.00	0.00
2007	0.84	0.00	0.00
2008	0.88	0.00	0.00
2009	0.91	0.00	0.00
2010	0.95	0.00	0.00
2011	1.00	0.00	0.00
2012	1.04	0.00	0.00
2013	1.09	0.00	0.00
2014	1.13	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1B - ENGINEERING STUDY-LIGHTING EMPHASIS
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	2800000.00	10.00	0.00	2800000.00	2520000.00	0.00
1998	2800000.00	10.00	0.00	5600000.00	5040000.00	0.00
1999	2800000.00	10.00	0.00	8400000.00	7560000.00	0.00
2000	2800000.00	10.00	0.00	11200000.00	10080000.00	0.00
2001	2800000.00	10.00	0.00	14000000.00	12600000.00	0.00
2002	2800000.00	10.00	0.00	16800000.00	15120000.00	0.00
2003	2800000.00	10.00	0.00	19600000.00	17640000.00	0.00
2004	2800000.00	10.00	0.00	22400000.00	20160000.00	0.00
2005	2800000.00	10.00	0.00	25200000.00	22680000.00	0.00
2006	2800000.00	10.00	0.00	28000000.00	25200000.00	0.00
2007	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2008	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2009	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2010	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2011	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2012	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2013	0.00	-nan	-nan	28000000.00	25200000.00	0.00
2014	0.00	-nan	-nan	28000000.00	25200000.00	0.00

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS

GENERAL

Program name	C1C
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1C
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	203469.25	0.22	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	212421.90	0.23	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	221768.46	0.24	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	231526.28	0.25	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	241713.43	0.26	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	252348.82	0.27	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	263452.17	0.28	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	275044.07	0.29	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	287146.01	0.31	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	299780.43	0.32	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	20 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
C4B_BAS	EQUIPMENT REPLACEMENT-COOLING-BEFORE	Electric	24.90000	0.00	0.00
C4C_BAS	EQUIPMENT REPLACEMENT-VENTILATION-BEFORE	Electric	23.60000	0.00	0.00
		Total	72.90	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	18.30	0.00	0.00
C4B_DSM	EQUIPMENT REPLACEMENT-COOLING-AFTER	Electric	21.20	0.00	0.00
C4C_DSM	EQUIPMENT REPLACEMENT-VENTILATION-AFTER	Electric	20.00	0.00	0.00
		Total	59.50	0.01	0.00
		Difference	-13.40	0.00	0.00

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	1.42	0.00	0.00
1998	1.48	0.00	0.00
1999	1.54	0.00	0.00
2000	1.61	0.00	0.00
2001	1.68	0.00	0.00
2002	1.76	0.00	0.00
2003	1.83	0.00	0.00
2004	1.92	0.00	0.00
2005	2.00	0.00	0.00
2006	2.09	0.00	0.00
2007	2.18	0.00	0.00
2008	2.28	0.00	0.00
2009	2.38	0.00	0.00
2010	2.48	0.00	0.00
2011	2.59	0.00	0.00
2012	2.70	0.00	0.00
2013	2.82	0.00	0.00
2014	2.95	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0:00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1C - COMPREHENSIVE BLDG MODELING-ALL SYSTEMS
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1400000.00	10.00	0.00	1400000.00	1260000.00	0.00
1998	1400000.00	10.00	0.00	2800000.00	2520000.00	0.00
1999	1400000.00	10.00	0.00	4200000.00	3780000.00	0.00
2000	1400000.00	10.00	0.00	5600000.00	5040000.00	0.00
2001	1400000.00	10.00	0.00	7000000.00	6300000.00	0.00
2002	1400000.00	10.00	0.00	8400000.00	7560000.00	0.00
2003	1400000.00	10.00	0.00	9800000.00	8820000.00	0.00
2004	1400000.00	10.00	0.00	11200000.00	10080000.00	0.00
2005	1400000.00	10.00	0.00	12600000.00	11340000.00	0.00
2006	1400000.00	10.00	0.00	14000000.00	12600000.00	0.00
2007	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2008	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2009	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2010	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2011	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2012	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2013	0.00	-nan	-nan	14000000.00	12600000.00	0.00
2014	0.00	-nan	-nan	14000000.00	12600000.00	0.00

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY

GENERAL

Program name	C2A
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C2A
Transmission scenario	NONE
Distribution scenario	NONE

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	119892.96	0.04	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	125168.25	0.05	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	130675.65	0.05	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	136425.38	0.05	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	142428.10	0.05	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	148694.94	0.05	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	155237.51	0.06	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	162067.96	0.06	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	169198.95	0.06	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	176643.71	0.06	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_SGS	UE_SGS
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_BAS	SMALL CUSTOMER-LIGHTING-BEFORE	Electric	25.20000	0.01	0.00
		Total	25.20	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_DSM	SMALL CUSTOMER-LIGHTING-AFTER	Electric	23.60	0.00	0.00
		Total	23.60	0.00	0.00
		Difference	-1.60	0.00	0.00

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.16	0.00	0.00
1998	0.17	0.00	0.00
1999	0.18	0.00	0.00
2000	0.19	0.00	0.00
2001	0.19	0.00	0.00
2002	0.20	0.00	0.00
2003	0.21	0.00	0.00
2004	0.22	0.00	0.00
2005	0.23	0.00	0.00
2006	0.24	0.00	0.00
2007	0.25	0.00	0.00
2008	0.26	0.00	0.00
2009	0.27	0.00	0.00
2010	0.29	0.00	0.00
2011	0.30	0.00	0.00
2012	0.31	0.00	0.00
2013	0.33	0.00	0.00
2014	0.34	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C2A - SMALL CUSTOMER MAIL IN SURVEY
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1000000.00	10.00	0.00	1000000.00	900000.00	0.00
1998	1000000.00	10.00	0.00	2000000.00	1800000.00	0.00
1999	1000000.00	10.00	0.00	3000000.00	2700000.00	0.00
2000	1000000.00	10.00	0.00	4000000.00	3600000.00	0.00
2001	1000000.00	10.00	0.00	5000000.00	4500000.00	0.00
2002	1000000.00	10.00	0.00	6000000.00	5400000.00	0.00
2003	1000000.00	10.00	0.00	7000000.00	6300000.00	0.00
2004	1000000.00	10.00	0.00	8000000.00	7200000.00	0.00
2005	1000000.00	10.00	0.00	9000000.00	8100000.00	0.00
2006	1000000.00	10.00	0.00	10000000.00	9000000.00	0.00
2007	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2008	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2009	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2010	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2011	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2012	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2013	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2014	0.00	-nan	-nan	10000000.00	9000000.00	0.00

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT

GENERAL

Program name	C2B
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C2B
Transmission scenario	NONE
Distribution scenario	NONE

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	119892.96	0.09	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	125168.25	0.09	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	130675.65	0.10	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	136425.38	0.10	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	142428.10	0.10	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	148694.94	0.11	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	155237.51	0.11	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	162067.96	0.12	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	169198.95	0.12	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	176643.71	0.13	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_SGS	UE_SGS
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_BAS	SMALL CUSTOMER-LIGHTING-BEFORE	Electric	25.20000	0.01	0.00
		Total	25.20	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_DSM	SMALL CUSTOMER-LIGHTING-AFTER	Electric	21.40	0.00	0.00
		Total	21.40	0.00	0.00
		Difference	-3.80	0.00	0.00

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.33	0.00	0.00
1998	0.34	0.00	0.00
1999	0.36	0.00	0.00
2000	0.37	0.00	0.00
2001	0.39	0.00	0.00
2002	0.41	0.00	0.00
2003	0.42	0.00	0.00
2004	0.44	0.00	0.00
2005	0.46	0.00	0.00
2006	0.48	0.00	0.00
2007	0.50	0.00	0.00
2008	0.53	0.00	0.00
2009	0.55	0.00	0.00
2010	0.57	0.00	0.00
2011	0.60	0.00	0.00
2012	0.62	0.00	0.00
2013	0.65	0.00	0.00
2014	0.68	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C2B - SMALL CUSTOMER ON-SITE AUDIT & REPORT
Market Segment: TOTALMKT - Total Market Summary

		PENETRATION				
Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1000000.00	10.00	0.00	1000000.00	900000.00	0.00
1998	1000000.00	10.00	0.00	2000000.00	1800000.00	0.00
1999	1000000.00	10.00	0.00	3000000.00	2700000.00	0.00
2000	1000000.00	10.00	0.00	4000000.00	3600000.00	0.00
2001	1000000.00	10.00	0.00	5000000.00	4500000.00	0.00
2002	1000000.00	10.00	0.00	6000000.00	5400000.00	0.00
2003	1000000.00	10.00	0.00	7000000.00	6300000.00	0.00
2004	1000000.00	10.00	0.00	8000000.00	7200000.00	0.00
2005	1000000.00	10.00	0.00	9000000.00	8100000.00	0.00
2006	1000000.00	10.00	0.00	10000000.00	9000000.00	0.00
2007	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2008	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2009	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2010	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2011	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2012	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2013	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2014	0.00	-nan	-nan	10000000.00	9000000.00	0.00

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE

GENERAL

Program name	C3
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C3
Transmission scenario	NONE
Distribution scenario	NONE

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	2.18	0.00	0.00	0.00	0.00	181670.53	0.07	0.00	0.00	0.00	0.00
1998	2.28	0.00	0.00	0.00	0.00	189664.04	0.07	0.00	0.00	0.00	0.00
1999	2.38	0.00	0.00	0.00	0.00	198009.25	0.07	0.00	0.00	0.00	0.00
2000	2.48	0.00	0.00	0.00	0.00	206721.66	0.07	0.00	0.00	0.00	0.00
2001	2.59	0.00	0.00	0.00	0.00	215817.41	0.08	0.00	0.00	0.00	0.00
2002	2.70	0.00	0.00	0.00	0.00	225313.38	0.08	0.00	0.00	0.00	0.00
2003	2.82	0.00	0.00	0.00	0.00	235227.17	0.08	0.00	0.00	0.00	0.00
2004	2.95	0.00	0.00	0.00	0.00	245577.16	0.09	0.00	0.00	0.00	0.00
2005	3.08	0.00	0.00	0.00	0.00	256382.56	0.09	0.00	0.00	0.00	0.00
2006	3.21	0.00	0.00	0.00	0.00	267663.39	0.10	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	15 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS

Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_BAS	NEW CONSTRUCTION COMPREHENSIVE-BEFORE	Electric	17.70000	0.00	0.00
		Total	17.70	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_DSM	NEW CONSTRUCTION COMPREHENSIVE-AFTER	Electric	13.90	0.00	0.00
		Total	13.90	0.00	0.00
		Difference	-3.80	0.00	0.00

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	2.18	0.00	0.00
1998	2.28	0.00	0.00
1999	2.38	0.00	0.00
2000	2.48	0.00	0.00
2001	2.59	0.00	0.00
2002	2.70	0.00	0.00
2003	2.82	0.00	0.00
2004	2.95	0.00	0.00
2005	3.08	0.00	0.00
2006	3.21	0.00	0.00
2007	3.35	0.00	0.00
2008	3.50	0.00	0.00
2009	3.65	0.00	0.00
2010	3.82	0.00	0.00
2011	3.98	0.00	0.00
2012	4.16	0.00	0.00
2013	4.34	0.00	0.00
2014	4.53	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C3 - NEW CONSTRUCTION DESIGN ASSISTANCE
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1000000.00	10.00	0.00	1000000.00	900000.00	0.00
1998	1000000.00	10.00	0.00	2000000.00	1800000.00	0.00
1999	1000000.00	10.00	0.00	3000000.00	2700000.00	0.00
2000	1000000.00	10.00	0.00	4000000.00	3600000.00	0.00
2001	1000000.00	10.00	0.00	5000000.00	4500000.00	0.00
2002	1000000.00	10.00	0.00	6000000.00	5400000.00	0.00
2003	1000000.00	10.00	0.00	7000000.00	6300000.00	0.00
2004	1000000.00	10.00	0.00	8000000.00	7200000.00	0.00
2005	1000000.00	10.00	0.00	9000000.00	8100000.00	0.00
2006	1000000.00	10.00	0.00	10000000.00	9000000.00	0.00
2007	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2008	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2009	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2010	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2011	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2012	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2013	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2014	0.00	-nan	-nan	10000000.00	9000000.00	0.00

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY

GENERAL

Program name	C3-FINAN
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C3
Transmission scenario	NONE
Distribution scenario	NONE

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	181670.53	0.07	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	189664.04	0.07	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	198009.25	0.07	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	206721.66	0.07	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	215817.41	0.08	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	225313.38	0.08	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	235227.17	0.08	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	245577.16	0.09	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	256382.56	0.09	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	267663.39	0.10	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	15 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS

Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_BAS	NEW CONSTRUCTION COMPREHENSIVE-BEFORE	Electric	17.80000	0.00	0.00
		Total	17.80	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_DSM	NEW CONSTRUCTION COMPREHENSIVE-AFTER	Electric	13.90	0.00	0.00
		Total	13.90	0.00	0.00
		Difference	-3.90	0.00	0.00

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	2.18	0.00	0.00
1998	2.28	0.00	0.00
1999	2.38	0.00	0.00
2000	2.48	0.00	0.00
2001	2.59	0.00	0.00
2002	2.70	0.00	0.00
2003	2.82	0.00	0.00
2004	2.95	0.00	0.00
2005	3.08	0.00	0.00
2006	3.21	0.00	0.00
2007	3.35	0.00	0.00
2008	3.50	0.00	0.00
2009	3.65	0.00	0.00
2010	3.82	0.00	0.00
2011	3.98	0.00	0.00
2012	4.16	0.00	0.00
2013	4.34	0.00	0.00
2014	4.53	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C3-FINAN - NEW CONST DESIGN ASSISTANCE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

Year	New Participants	PENETRATION New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1000000.00	10.00	0.00	1000000.00	900000.00	0.00
1998	1000000.00	10.00	0.00	2000000.00	1800000.00	0.00
1999	1000000.00	10.00	0.00	3000000.00	2700000.00	0.00
2000	1000000.00	10.00	0.00	4000000.00	3600000.00	0.00
2001	1000000.00	10.00	0.00	5000000.00	4500000.00	0.00
2002	1000000.00	10.00	0.00	6000000.00	5400000.00	0.00
2003	1000000.00	10.00	0.00	7000000.00	6300000.00	0.00
2004	1000000.00	10.00	0.00	8000000.00	7200000.00	0.00
2005	1000000.00	10.00	0.00	9000000.00	8100000.00	0.00
2006	1000000.00	10.00	0.00	10000000.00	9000000.00	0.00
2007	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2008	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2009	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2010	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2011	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2012	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2013	0.00	-nan	-nan	10000000.00	9000000.00	0.00
2014	0.00	-nan	-nan	10000000.00	9000000.00	0.00

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING

GENERAL

Program name	C4
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C4
Transmission scenario	NONE
Distribution scenario	NONE

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.54	0.00	0.00	0.00	0.00	148972.45	0.16	0.00	0.00	0.00	0.00
1998	0.57	0.00	0.00	0.00	0.00	155527.24	0.17	0.00	0.00	0.00	0.00
1999	0.59	0.00	0.00	0.00	0.00	162370.44	0.18	0.00	0.00	0.00	0.00
2000	0.62	0.00	0.00	0.00	0.00	169514.74	0.19	0.00	0.00	0.00	0.00
2001	0.65	0.00	0.00	0.00	0.00	176973.39	0.19	0.00	0.00	0.00	0.00
2002	0.68	0.00	0.00	0.00	0.00	184760.22	0.20	0.00	0.00	0.00	0.00
2003	0.71	0.00	0.00	0.00	0.00	192889.67	0.21	0.00	0.00	0.00	0.00
2004	0.74	0.00	0.00	0.00	0.00	201376.81	0.22	0.00	0.00	0.00	0.00
2005	0.77	0.00	0.00	0.00	0.00	210237.39	0.23	0.00	0.00	0.00	0.00
2006	0.80	0.00	0.00	0.00	0.00	219487.84	0.24	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	20 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS

Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_BAS	OFF PEAK COOLING-NEW-BEFORE	Electric	27.30000	0.00	0.00
		Total	27.30	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_DSM	OFF PEAK COOLING-NEW-AFTER	Electric	27.30	0.00	0.00
		Total	27.30	0.00	0.00
		Difference	0.00	0.00	0.00

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.54	0.00	0.00
1998	0.57	0.00	0.00
1999	0.59	0.00	0.00
2000	0.62	0.00	0.00
2001	0.65	0.00	0.00
2002	0.68	0.00	0.00
2003	0.71	0.00	0.00
2004	0.74	0.00	0.00
2005	0.77	0.00	0.00
2006	0.80	0.00	0.00
2007	0.84	0.00	0.00
2008	0.88	0.00	0.00
2009	0.91	0.00	0.00
2010	0.95	0.00	0.00
2011	1.00	0.00	0.00
2012	1.04	0.00	0.00
2013	1.09	0.00	0.00
2014	1.13	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C4 - THERMAL STORAGE/OFF-PEAK COOLING
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	500000.00	10.00	0.00	500000.00	450000.00	0.00
1998	500000.00	10.00	0.00	1000000.00	900000.00	0.00
1999	500000.00	10.00	0.00	1500000.00	1350000.00	0.00
2000	500000.00	10.00	0.00	2000000.00	1800000.00	0.00
2001	500000.00	10.00	0.00	2500000.00	2250000.00	0.00
2002	500000.00	10.00	0.00	3000000.00	2700000.00	0.00
2003	500000.00	10.00	0.00	3500000.00	3150000.00	0.00
2004	500000.00	10.00	0.00	4000000.00	3600000.00	0.00
2005	500000.00	10.00	0.00	4500000.00	4050000.00	0.00
2006	500000.00	10.00	0.00	5000000.00	4500000.00	0.00
2007	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2008	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2009	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2010	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2011	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2012	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2013	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2014	0.00	-nan	-nan	5000000.00	4500000.00	0.00

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY

GENERAL

Program name	C4-FINAN
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C4
Transmission scenario	NONE
Distribution scenario	NONE

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	148972.45	0.16	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	155527.24	0.17	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	162370.44	0.18	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	169514.74	0.19	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	176973.39	0.19	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	184760.22	0.20	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	192889.67	0.21	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	201376.81	0.22	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	210237.39	0.23	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	219487.84	0.24	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	20 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UE_LGS	UE_LGS
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_BAS	OFF PEAK COOLING-NEW-BEFORE	Electric	27.30000	0.00	0.00
		Total	27.30	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_DSM	OFF PEAK COOLING-NEW-AFTER	Electric	27.30	0.00	0.00
		Total	27.30	0.00	0.00
		Difference	0.00	0.00	0.00

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.54	0.00	0.00
1998	0.57	0.00	0.00
1999	0.59	0.00	0.00
2000	0.62	0.00	0.00
2001	0.65	0.00	0.00
2002	0.68	0.00	0.00
2003	0.71	0.00	0.00
2004	0.74	0.00	0.00
2005	0.77	0.00	0.00
2006	0.80	0.00	0.00
2007	0.84	0.00	0.00
2008	0.88	0.00	0.00
2009	0.91	0.00	0.00
2010	0.95	0.00	0.00
2011	1.00	0.00	0.00
2012	1.04	0.00	0.00
2013	1.09	0.00	0.00
2014	1.13	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C4-FINAN - THERMAL STORAGE-FINANCE ONLY
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	500000.00	10.00	0.00	500000.00	450000.00	0.00
1998	500000.00	10.00	0.00	1000000.00	900000.00	0.00
1999	500000.00	10.00	0.00	1500000.00	1350000.00	0.00
2000	500000.00	10.00	0.00	2000000.00	1800000.00	0.00
2001	500000.00	10.00	0.00	2500000.00	2250000.00	0.00
2002	500000.00	10.00	0.00	3000000.00	2700000.00	0.00
2003	500000.00	10.00	0.00	3500000.00	3150000.00	0.00
2004	500000.00	10.00	0.00	4000000.00	3600000.00	0.00
2005	500000.00	10.00	0.00	4500000.00	4050000.00	0.00
2006	500000.00	10.00	0.00	5000000.00	4500000.00	0.00
2007	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2008	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2009	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2010	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2011	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2012	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2013	0.00	-nan	-nan	5000000.00	4500000.00	0.00
2014	0.00	-nan	-nan	5000000.00	4500000.00	0.00

Program author: RLM
Creation Date: 1-23-95

Notes: My assumption is that the program will require 1 FTE for program management, 1/6 FTE for clerical staff and $20,000 in annual marketing costs. The total administrative costs are therefore $106,680 in 1995. Adding $70,000 for evaluation brings the total to $176,680 escalating at 4.4% The evaluation cost was derived from the assumption that program C1A will need $5,000 per participant for evaluation. 140 participants over 10 years equates to 14 participants per year or $70,000 per year. A participant is assumed to be 350,000 square feet.

The cost of the audit is $.02 per square foot for the utility. This is higher than actually seen in our pilot program to reflect the fact that some customers will receive the audit and then do nothing in terms of efficiency improvements (or they will continue on with the next phase of the study without doing anything).

Participants will be required to pay for the full incremental cost of the lighting measures. We assume that they will finance the measures using third party financing. The utility will pay for the cost of the walk through audit.

Participation is assumed to be about 49,000,000 square feet over the life of the program, or 4,900,000 square feet per year. Free riders are 10%

The impact of the program is about 6.5% of the annual energy usage.

Program author: RLM
Creation Date: 1-23-95

Notes:

My assumption is that the program will require 1 FTE for program management, 1/6 FTE for clerical staff and $20,000 dollars annually for marketing. Adding $80,000 for evaluation equates to $186,680 per year escalating at 4.4% The evaluation cost was based on the assumption that each participant will need $10,000 of evaluation. Assuming 80 participants over 10 years equates to 8 participants per year or $80,000 for evaluation. A participant is assumed to be 350,000 square feet.

The cost of the audit to the utility is $.075 per square foot which is higher than actually seen in our pilot program to reflect the fact that some customers will receive the audit and then do nothing in terms of efficiency improvements (or they will continue the next phase of the study without doing anything).

Rest of comments are the similar to Program C1A except participation is estimated to be 2,800,000 square feet per year and the impact is approximately 13% of the base annual energy usage. The impact is greater in this program because the participant would be more likely to perform higher cost retrofits because of the engineering analysis. This includes T8 lamps with electronic ballasts, etc. Customers in Program C1A would be inclined to do lower cost options like controls, etc.

Program author: RLM
Creation Date: 1-25-94

Notes:

My assumption here is that the program will require 1 FTE for program management, 1/6 FTE for clerical staff and $20,000 annual marketing expense. Adding $80,000 for evaluation will bring the yearly administrative cost to $186,680 escalating at 4.4% The evaluation cost was derived from the assumption that the program would require $20,000 of evaluation per participant. Assuming 40 participants over 10 years equates to 4 customers per year of $80,000 per year.

The cost of the audit is $.20 per square foot which is higher than what we have actually seen in our pilot program to reflect the fact that some customers will receive the audit and do nothing in terms of energy efficiency improvements.

Rest of comments are similar to Program C1A except participation is estimated to be 1,400,000 per year and the impact is assumed to be 25% for lighting, 15% for cooling and 15% for ventilation. The impact is higher because the level of detail of the study should help ensure that customers are more likely to perform the full extent of recommended improvements.

Program author: RLM
Creation Date: 1-24-95

Notes:

This program assumes 1/2 FTE will be needed for program management, 1/4 FTE for clerical work and $30,000 annually for marketing. Adding $30,000 for evaluation brings the annual fixed administrative cost to $110,000 escalating at 4.4%

Participants will be required to pay for the full cost of the measures installed (in this case lighting), although financing will be offerred.

The utility will pay for the full cost of the do it yourself mail audit. We have assumed $.04 per square foot which is quite a bit higher than what we expect in the pilot program. This was done to reflect the fact that a pool of customers will do nothing because of the program or will continue on to the next phase without doing anything.

Participation is assumed to be 1,000,000 square feet per year or about 400 customers per year if they are 2500 square foot customers.

Impact is about 6.5% of the total base energy usage. About the same for the walk through audit in program C1A. This makes sense given most (if not all) of the impact in this program will likely come from lighting.

Program author: RLM
Creation Date: 1-24-95

Notes:

The assumption is that 1/2 FTE will be needed for program management, 1/4 for clerical staff and $30,000 for annual marketing expense. Adding $30,000 for annual evaluation brings to the total to $110,000 escalating at 4.4%

Participants will pay for the full cost of the measures installed (in this case lighting), although financing will be offerred.

The utility will pay most, but not all of the walk through audit. If the customer installs the measures recommended, the cost of the audit will be refunded. We have assumed a cost of $.08 per square foot which is quite a bit higher than what we expect in the pilot program. This reflects the fact that a pool of customers will do nothing because of the program.

Participation is assumed to be 1,000,000 square feet per year (200 customers per year assuming 5000 square feet per facility). The impact is about 15% over the base annual energy usage. It is higher because of the assumption that the customer will be more likely to do more expensive lighting retrofits (T8s and electronic ballasts) because of the expert audit.

Program author: RLM
Creation Date: 1-24-95

Notes:

The program assumes that 1 FTE for program management will be required, 1/6 FTE clerical staff and $20,000 annually for marketing. Adding $60,000 for evaluation brings the annual fixed administrative expenses to $166,680 escalating at 4.4%

Participants will be required to pay for for the incremental cost of the measures installed. However, the utility will reimburse the builder (or the customer) for the cost of such measures. Like in the Residential New Construction Program, incentives are being offerred because of the strong barriers inherent in new construction. It should be noted that the program was first evaluated with financing offerred to the customer (with no rebates). The result was that the program failed the Participant Test. This says that the program is not cost effective for the participant and thus participation would not occur. Hence, another reason for evaluating it with rebates.

The utility will also pay for any design assistance associated with upgrading the efficiency of the building.

Participation is assumed to be 1,000,000 square feet per year. The impact is assumed to be about 2% better than the base annual energy usage.

Program author: RLM
Creation Date: 1-24-95

Notes:

The program assumes 1/2 FTE for program management and 1/6 FTE for clerical. $30,000 for annual marketing expenses. Adding 60,000 for evaluation brings the annual fixed administrative expenses to $136,680 escalating at 4.4%

The customer will be required to pay the full cost of the equipment. However, the customer will receive a reimbursement of the cost of the equipment. Like in New Construction, the program was first evaluated with financing offerred and no rebates. The result was the program did not pass the Participant Test. This says that participation will likely not occur. As a next step, the program was evaluated with incentives. The result was that the program was not cost effective from a Total Resource standpoint.

Since the customer is not assumed to save any energy, the program assumes a rate credit of $3 per kw month shaved from the customers bill.

The utility will also pay for an engineering study to determine the feasability of thermal storage.

Participation is assumed to be 500,000 square feet per year (which is about 1.5 good sized customers per year).

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC

GENERAL

Program name	C1A_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1A_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	240712.37	0.02	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	251303.71	0.02	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	262361.07	0.02	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	273904.96	0.02	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	285956.78	0.03	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	298538.88	0.03	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	311674.59	0.03	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	325388.27	0.03	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	339705.35	0.03	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	354652.39	0.03	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UELGSPEC	UELGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
		Total	24.40	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	22.80	0.00	0.00
		Total	22.80	0.00	0.00
		Difference	-1.60	0.00	0.00

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.33	0.00	0.00
1998	0.34	0.00	0.00
1999	0.36	0.00	0.00
2000	0.37	0.00	0.00
2001	0.39	0.00	0.00
2002	0.41	0.00	0.00
2003	0.42	0.00	0.00
2004	0.44	0.00	0.00
2005	0.46	0.00	0.00
2006	0.48	0.00	0.00
2007	0.50	0.00	0.00
2008	0.53	0.00	0.00
2009	0.55	0.00	0.00
2010	0.57	0.00	0.00
2011	0.60	0.00	0.00
2012	0.62	0.00	0.00
2013	0.65	0.00	0.00
2014	0.68	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1A_PEC - WALK THROUGH AUDIT AND ANALYSIS--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	7350000.00	10.00	0.00	7350000.00	6615000.00	0.00
1998	7350000.00	10.00	0.00	14700000.00	13230000.00	0.00
1999	7350000.00	10.00	0.00	22050000.00	19845000.00	0.00
2000	7350000.00	10.00	0.00	29400000.00	26460000.00	0.00
2001	7350000.00	10.00	0.00	36750000.00	33075000.00	0.00
2002	7350000.00	10.00	0.00	44100000.00	39690000.00	0.00
2003	7350000.00	10.00	0.00	51450000.00	46305000.00	0.00
2004	7350000.00	10.00	0.00	58800000.00	52920000.00	0.00
2005	7350000.00	10.00	0.00	66150000.00	59535000.00	0.00
2006	7350000.00	10.00	0.00	73500000.00	66150000.00	0.00
2007	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2008	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2009	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2010	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2011	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2012	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2013	0.00	-nan	-nan	73500000.00	66150000.00	0.00
2014	0.00	-nan	-nan	73500000.00	66150000.00	0.00

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC

GENERAL

Program name	C1B_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1B_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	254336.57	0.09	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	265527.37	0.09	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	277210.58	0.10	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	289407.84	0.10	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	302141.79	0.10	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	315436.03	0.11	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	329315.21	0.11	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	343805.08	0.12	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	358932.51	0.12	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	374725.54	0.13	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual -	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UELGSPEC	UELGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS

Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
		Total	24.40	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	21.20	0.00	0.00
		Total	21.20	0.00	0.00
		Difference	-3.20	0.00	0.00

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.54	0.00	0.00
1998	0.57	0.00	0.00
1999	0.59	0.00	0.00
2000	0.62	0.00	0.00
2001	0.65	0.00	0.00
2002	0.68	0.00	0.00
2003	0.71	0.00	0.00
2004	0.74	0.00	0.00
2005	0.77	0.00	0.00
2006	0.80	0.00	0.00
2007	0.84	0.00	0.00
2008	0.88	0.00	0.00
2009	0.91	0.00	0.00
2010	0.95	0.00	0.00
2011	1.00	0.00	0.00
2012	1.04	0.00	0.00
2013	1.09	0.00	0.00
2014	1.13	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1B_PEC - ENGINEERING STUDY-LIGHTING EMPHASIS--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	4200000.00	10.00	0.00	4200000.00	3780000.00	0.00
1998	4200000.00	10.00	0.00	8400000.00	7560000.00	0.00
1999	4200000.00	10.00	0.00	12600000.00	11340000.00	0.00
2000	4200000.00	10.00	0.00	16800000.00	15120000.00	0.00
2001	4200000.00	10.00	0.00	21000000.00	18900000.00	0.00
2002	4200000.00	10.00	0.00	25200000.00	22680000.00	0.00
2003	4200000.00	10.00	0.00	29400000.00	26460000.00	0.00
2004	4200000.00	10.00	0.00	33600000.00	30240000.00	0.00
2005	4200000.00	10.00	0.00	37800000.00	34020000.00	0.00
2006	4200000.00	10.00	0.00	42000000.00	37800000.00	0.00
2007	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2008	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2009	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2010	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2011	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2012	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2013	0.00	-nan	-nan	42000000.00	37800000.00	0.00
2014	0.00	-nan	-nan	42000000.00	37800000.00	0.00

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC

GENERAL

Program name	C1C_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C1C_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	254336.57	0.22	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	265527.37	0.23	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	277210.58	0.24	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	289407.84	0.25	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	302141.79	0.26	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	315436.03	0.27	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	329315.21	0.28	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	343805.08	0.29	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	358932.51	0.31	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	374725.54	0.32	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	20 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UELGSPEC	UELGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_BAS	EQUIPMENT REPLACEMENT-LIGHTING-BEFORE	Electric	24.40000	0.00	0.00
C4B_BAS	EQUIPMENT REPLACEMENT-COOLING-BEFORE	Electric	24.90000	0.00	0.00
C4C_BAS	EQUIPMENT REPLACEMENT-VENTILATION-BEFORE	Electric	23.60000	0.00	0.00
		Total	72.90	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C4A_DSM	EQUIPMENT REPLACEMENT-LIGHTING-AFTER	Electric	18.30	0.00	0.00
C4B_DSM	EQUIPMENT REPLACEMENT-COOLING-AFTER	Electric	21.20	0.00	0.00
C4C_DSM	EQUIPMENT REPLACEMENT-VENTILATION-AFTER	Electric	20.00	0.00	0.00
		Total	59.50	0.01	0.00
		Difference	-13.40	0.00	0.00

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	1.42	0.00	0.00
1998	1.48	0.00	0.00
1999	1.54	0.00	0.00
2000	1.61	0.00	0.00
2001	1.68	0.00	0.00
2002	1.76	0.00	0.00
2003	1.83	0.00	0.00
2004	1.92	0.00	0.00
2005	2.00	0.00	0.00
2006	2.09	0.00	0.00
2007	2.18	0.00	0.00
2008	2.28	0.00	0.00
2009	2.38	0.00	0.00
2010	2.48	0.00	0.00
2011	2.59	0.00	0.00
2012	2.70	0.00	0.00
2013	2.82	0.00	0.00
2014	2.95	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C1C_PEC - COMPREHENSIVE BLDG MODL-ALL SYSTEMS--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	2100000.00	10.00	0.00	2100000.00	1890000.00	0.00
1998	2100000.00	10.00	0.00	4200000.00	3780000.00	0.00
1999	2100000.00	10.00	0.00	6300000.00	5670000.00	0.00
2000	2100000.00	10.00	0.00	8400000.00	7560000.00	0.00
2001	2100000.00	10.00	0.00	10500000.00	9450000.00	0.00
2002	2100000.00	10.00	0.00	12600000.00	11340000.00	0.00
2003	2100000.00	10.00	0.00	14700000.00	13230000.00	0.00
2004	2100000.00	10.00	0.00	16800000.00	15120000.00	0.00
2005	2100000.00	10.00	0.00	18900000.00	17010000.00	0.00
2006	2100000.00	10.00	0.00	21000000.00	18900000.00	0.00
2007	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2008	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2009	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2010	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2011	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2012	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2013	0.00	-nan	-nan	21000000.00	18900000.00	0.00
2014	0.00	-nan	-nan	21000000.00	18900000.00	0.00

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC

GENERAL

Program name	C2A_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C2A_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	149866.20	0.04	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	156460.31	0.05	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	163344.57	0.05	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	170531.73	0.05	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	178035.12	0.05	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	185868.67	0.05	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	194046.89	0.06	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	202584.95	0.06	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	211498.69	0.06	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	220804.63	0.06	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UESGSPEC	UESGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_BAS	SMALL CUSTOMER-LIGHTING-BEFORE	Electric	25.20000	0.01	0.00
		Total	25.20	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_DSM	SMALL CUSTOMER-LIGHTING-AFTER	Electric	23.60	0.00	0.00
		Total	23.60	0.00	0.00
		Difference	-1.60	0.00	0.00

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.16	0.00	0.00
1998	0.17	0.00	0.00
1999	0.18	0.00	0.00
2000	0.19	0.00	0.00
2001	0.19	0.00	0.00
2002	0.20	0.00	0.00
2003	0.21	0.00	0.00
2004	0.22	0.00	0.00
2005	0.23	0.00	0.00
2006	0.24	0.00	0.00
2007	0.25	0.00	0.00
2008	0.26	0.00	0.00
2009	0.27	0.00	0.00
2010	0.29	0.00	0.00
2011	0.30	0.00	0.00
2012	0.31	0.00	0.00
2013	0.33	0.00	0.00
2014	0.34	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C2A_PEC - SMALL CUSTOMER MAIL IN SURVEY--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1500000.00	10.00	0.00	1500000.00	1350000.00	0.00
1998	1500000.00	10.00	0.00	3000000.00	2700000.00	0.00
1999	1500000.00	10.00	0.00	4500000.00	4050000.00	0.00
2000	1500000.00	10.00	0.00	6000000.00	5400000.00	0.00
2001	1500000.00	10.00	0.00	7500000.00	6750000.00	0.00
2002	1500000.00	10.00	0.00	9000000.00	8100000.00	0.00
2003	1500000.00	10.00	0.00	10500000.00	9450000.00	0.00
2004	1500000.00	10.00	0.00	12000000.00	10800000.00	0.00
2005	1500000.00	10.00	0.00	13500000.00	12150000.00	0.00
2006	1500000.00	10.00	0.00	15000000.00	13500000.00	0.00
2007	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2008	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2009	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2010	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2011	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2012	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2013	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2014	0.00	-nan	-nan	15000000.00	13500000.00	0.00

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC

GENERAL

Program name	C2B_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C2B_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	149866.20	0.09	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	156460.31	0.09	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	163344.57	0.10	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	170531.73	0.10	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	178035.12	0.10	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	185868.67	0.11	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	194046.89	0.11	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	202584.95	0.12	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	211498.69	0.12	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	220804.63	0.13	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	10 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UESGSPEC	UESGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_BAS	SMALL CUSTOMER-LIGHTING-BEFORE	Electric	25.20000	0.01	0.00
		Total	25.20	0.01	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C2A_DSM	SMALL CUSTOMER-LIGHTING-AFTER	Electric	21.40	0.00	0.00
		Total	21.40	0.00	0.00
		Difference	-3.80	0.00	0.00

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.33	0.00	0.00
1998	0.34	0.00	0.00
1999	0.36	0.00	0.00
2000	0.37	0.00	0.00
2001	0.39	0.00	0.00
2002	0.41	0.00	0.00
2003	0.42	0.00	0.00
2004	0.44	0.00	0.00
2005	0.46	0.00	0.00
2006	0.48	0.00	0.00
2007	0.50	0.00	0.00
2008	0.53	0.00	0.00
2009	0.55	0.00	0.00
2010	0.57	0.00	0.00
2011	0.60	0.00	0.00
2012	0.62	0.00	0.00
2013	0.65	0.00	0.00
2014	0.68	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C2B_PEC - SMALL CUSTOMER ON-SITE AUDIT--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1500000.00	10.00	0.00	1500000.00	1350000.00	0.00
1998	1500000.00	10.00	0.00	3000000.00	2700000.00	0.00
1999	1500000.00	10.00	0.00	4500000.00	4050000.00	0.00
2000	1500000.00	10.00	0.00	6000000.00	5400000.00	0.00
2001	1500000.00	10.00	0.00	7500000.00	6750000.00	0.00
2002	1500000.00	10.00	0.00	9000000.00	8100000.00	0.00
2003	1500000.00	10.00	0.00	10500000.00	9450000.00	0.00
2004	1500000.00	10.00	0.00	12000000.00	10800000.00	0.00
2005	1500000.00	10.00	0.00	13500000.00	12150000.00	0.00
2006	1500000.00	10.00	0.00	15000000.00	13500000.00	0.00
2007	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2008	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2009	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2010	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2011	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2012	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2013	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2014	0.00	-nan	-nan	15000000.00	13500000.00	0.00

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC

GENERAL

Program name	C3_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C3_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	2.18	0.00	0.00	0.00	0.00	227088.17	0.07	0.00	0.00	0.00	0.00
1998	2.28	0.00	0.00	0.00	0.00	237080.04	0.07	0.00	0.00	0.00	0.00
1999	2.38	0.00	0.00	0.00	0.00	247511.57	0.07	0.00	0.00	0.00	0.00
2000	2.48	0.00	0.00	0.00	0.00	258402.08	0.07	0.00	0.00	0.00	0.00
2001	2.59	0.00	0.00	0.00	0.00	269771.77	0.08	0.00	0.00	0.00	0.00
2002	2.70	0.00	0.00	0.00	0.00	281641.72	0.08	0.00	0.00	0.00	0.00
2003	2.82	0.00	0.00	0.00	0.00	294033.96	0.08	0.00	0.00	0.00	0.00
2004	2.95	0.00	0.00	0.00	0.00	306971.46	0.09	0.00	0.00	0.00	0.00
2005	3.08	0.00	0.00	0.00	0.00	320478.20	0.09	0.00	0.00	0.00	0.00
2006	3.21	0.00	0.00	0.00	0.00	334579.24	0.10	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	15 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UELGSPEC	UELGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_BAS	NEW CONSTRUCTION COMPREHENSIVE-BEFORE	Electric	17.70000	0.00	0.00
		Total	17.70	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C5B_DSM	NEW CONSTRUCTION COMPREHENSIVE-AFTER	Electric	13.90	0.00	0.00
		Total	13.90	0.00	0.00
		Difference	-3.80	0.00	0.00

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	2.18	0.00	0.00
1998	2.28	0.00	0.00
1999	2.38	0.00	0.00
2000	2.48	0.00	0.00
2001	2.59	0.00	0.00
2002	2.70	0.00	0.00
2003	2.82	0.00	0.00
2004	2.95	0.00	0.00
2005	3.08	0.00	0.00
2006	3.21	0.00	0.00
2007	3.35	0.00	0.00
2008	3.50	0.00	0.00
2009	3.65	0.00	0.00
2010	3.82	0.00	0.00
2011	3.98	0.00	0.00
2012	4.16	0.00	0.00
2013	4.34	0.00	0.00
2014	4.53	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C3_PEC - NEW CONSTRUCTION DESIGN ASSISTANCE--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	1500000.00	10.00	0.00	1500000.00	1350000.00	0.00
1998	1500000.00	10.00	0.00	3000000.00	2700000.00	0.00
1999	1500000.00	10.00	0.00	4500000.00	4050000.00	0.00
2000	1500000.00	10.00	0.00	6000000.00	5400000.00	0.00
2001	1500000.00	10.00	0.00	7500000.00	6750000.00	0.00
2002	1500000.00	10.00	0.00	9000000.00	8100000.00	0.00
2003	1500000.00	10.00	0.00	10500000.00	9450000.00	0.00
2004	1500000.00	10.00	0.00	12000000.00	10800000.00	0.00
2005	1500000.00	10.00	0.00	13500000.00	12150000.00	0.00
2006	1500000.00	10.00	0.00	15000000.00	13500000.00	0.00
2007	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2008	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2009	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2010	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2011	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2012	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2013	0.00	-nan	-nan	15000000.00	13500000.00	0.00
2014	0.00	-nan	-nan	15000000.00	13500000.00	0.00

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC

GENERAL

Program name	C4_PEC
Evaluation range	1995 to 2014
Reenrolement rate	100.00 %
Need Incentive rate	100.00 %
New Customers?	NO
Generation scenario	C4_PEC
Transmission scenario	NONE
Distribution scenario	NONE

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC

POWER SUPPLIER PROGRAM COSTS ($)

	REBATES					ADMINISTRATIVE COSTS					
	Per Participant		Per kW Reduction		% of Cust.	Annual	Per Participant		Per kW Reduction		% of Cust.
Year	One-Time	Annual	One-Time	Annual	Investment	for Prog	One-time	Annual	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.54	0.00	0.00	0.00	0.00	186215.57	0.16	0.00	0.00	0.00	0.00
1998	0.57	0.00	0.00	0.00	0.00	194409.05	0.17	0.00	0.00	0.00	0.00
1999	0.59	0.00	0.00	0.00	0.00	202963.05	0.18	0.00	0.00	0.00	0.00
2000	0.62	0.00	0.00	0.00	0.00	211893.42	0.19	0.00	0.00	0.00	0.00
2001	0.65	0.00	0.00	0.00	0.00	221216.73	0.19	0.00	0.00	0.00	0.00
2002	0.68	0.00	0.00	0.00	0.00	230950.27	0.20	0.00	0.00	0.00	0.00
2003	0.71	0.00	0.00	0.00	0.00	241112.08	0.21	0.00	0.00	0.00	0.00
2004	0.74	0.00	0.00	0.00	0.00	251721.01	0.22	0.00	0.00	0.00	0.00
2005	0.77	0.00	0.00	0.00	0.00	262796.74	0.23	0.00	0.00	0.00	0.00
2006	0.80	0.00	0.00	0.00	0.00	274359.79	0.24	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC

POWER SUPPLIER CAPITALIZED PROGRAM COSTS ($)

	REBATES			ADMINISTRATIVE COSTS			
	Per Participant		% of Cust.	Annual	Per Particpant		% of Cust.
Year	One-Time	Annual	Investment	For Program	One-Time	Annual	Investment
1995	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC
Market Segment: TOTALMKT - Total Market Summary

GENERAL

Market name	TOTALMKT
Technology lifetime	20 yrs
Cust. discount rate	33.00 %
Dist. Loss Profile	7.538%
Sales tax rate	0.00 %
Units	Square Feet

DEPRECIATION SCHEDULE

Year	Rate

RATE SCHEDULES

Schedule	Before Customer	After Customer
Retail Electric	UELGSPEC	UELGSPEC
Retail Fuel	N_A	N_A

LOAD IMPACTS
Before Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_BAS	OFF PEAK COOLING-NEW-BEFORE	Electric	27.30000	0.00	0.00
		Total	27.30	0.00	0.00

After Customer

Enduse	Description	Fuel	KWh	KW	MMBtu
C6A_DSM	OFF PEAK COOLING-NEW-AFTER	Electric	27.30	0.00	0.00
		Total	27.30	0.00	0.00
		Difference	0.00	0.00	0.00

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC
Market Segment: TOTALMKT - Total Market Summary

PARTICIPANT COSTS ($)

Year	First year Investment	Annual Maintenance Costs	Annual Other Costs
1995	0.00	0.00	0.00
1996	0.00	0.00	0.00
1997	0.54	0.00	0.00
1998	0.57	0.00	0.00
1999	0.59	0.00	0.00
2000	0.62	0.00	0.00
2001	0.65	0.00	0.00
2002	0.68	0.00	0.00
2003	0.71	0.00	0.00
2004	0.74	0.00	0.00
2005	0.77	0.00	0.00
2006	0.80	0.00	0.00
2007	0.84	0.00	0.00
2008	0.88	0.00	0.00
2009	0.91	0.00	0.00
2010	0.95	0.00	0.00
2011	1.00	0.00	0.00
2012	1.04	0.00	0.00
2013	1.09	0.00	0.00
2014	1.13	0.00	0.00

MARKET SEGMENT REBATES ($)

Year	Expensed One Time Rebates	Expensed Annual Rebates	Capitalized One Time Rebates	Capitalized Annual Rebates
1995	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00
1997	0.00	0.00	0.00	0.00
1998	0.00	0.00	0.00	0.00
1999	0.00	0.00	0.00	0.00
2000	0.00	0.00	0.00	0.00
2001	0.00	0.00	0.00	0.00
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.00	0.00
2008	0.00	0.00	0.00	0.00
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00

Program: C4_PEC - THERMAL STORAGE/OFF-PEAK COOLING--PEC
Market Segment: TOTALMKT - Total Market Summary

PENETRATION

Year	New Participants	New Free Riders %	New Free Drivers %	Cumulative Penetration	Cumulative Pen. Net of Free Riders	Cumulative Free Drivers
1995	0.00	-nan	-nan	0.00	0.00	0.00
1996	0.00	-nan	-nan	0.00	0.00	0.00
1997	750000.00	10.00	0.00	750000.00	675000.00	0.00
1998	750000.00	10.00	0.00	1500000.00	1350000.00	0.00
1999	750000.00	10.00	0.00	2250000.00	2025000.00	0.00
2000	750000.00	10.00	0.00	3000000.00	2700000.00	0.00
2001	750000.00	10.00	0.00	3750000.00	3375000.00	0.00
2002	750000.00	10.00	0.00	4500000.00	4050000.00	0.00
2003	750000.00	10.00	0.00	5250000.00	4725000.00	0.00
2004	750000.00	10.00	0.00	6000000.00	5400000.00	0.00
2005	750000.00	10.00	0.00	6750000.00	6075000.00	0.00
2006	750000.00	10.00	0.00	7500000.00	6750000.00	0.00
2007	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2008	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2009	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2010	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2011	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2012	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2013	0.00	-nan	-nan	7500000.00	6750000.00	0.00
2014	0.00	-nan	-nan	7500000.00	6750000.00	0.00

APPENDIX E

INDUSTRIAL SECTOR PLSA ASSUMPTIONS

I-1. Industrial Process Audit Program

A. General Information:

1. Pilot continuing through 1995, full program roll-out in 1997, continuing until 2006.
2. Eligibility: Manufacturing & Water Treatment customers with demand > 400 kW (475 customers eligible)
3. Applicability: Represents 6.5% of industrial accounts
4. Measure Life: 10 years
5. 100% participation renewal.
6. **Probable Environmental Cost**

   The assumed PEC scenario would raise marginal energy and demand charges by 25% and 10% respectively. The rate increase would drive customers to implement more measures because payback period is reduced. The primary effect in would be to change the load impact per customer. One might expect the number of audit participants to also increase. However, the program already assumes a cumulative penetration that is quite high (assumed high since burden was on the utility for the initial audit). Assuming that 50% saturation is aggressive and that further penetration would simply lead to increase the free ridership (industry is process driven), **no additional participation is assumed**.

   Increased payback should drive the number of Level II audits, though. We'll assume the number of Level II's increase by slightly more than a factor of two. Overall, Utility field and evaluation costs are assumed to escalate by a factor of 25% due to increased Level II participation.

   Shorter paybacks due to higher rates should drive the installation of more measures. We'll assume that the **impact** increases with kWH costs (i.e. 25%).

   Participant costs will increase as new measures are installed - assumed to increase with kWH costs (.i.e. 25%).

7. Capacity Equivalence: 1.141
   DSManager Nominal Run Uses File: T1
   DSManager PEC Run Uses File: T1_PEC

B. Participant Costs:

Nominal	Probable Environmental Scenario
$15,000 per participant	$18,750 per participant

I-1. Industrial Process Audit Program (Continued)

C. Administrative Costs - Expensed

Audit Costs:
Level I: $4,000/participant
Level II: $20,000/participant (including reimbursement)

Total Annual Utility Costs:

	Nominal Case Annual Expenses (1995$)	Nominal Case Per Part. 1-Time	PEC Case Annual Expenses (1995$)	PEC Case Per Part 1-Time
UE Salaries (Field & Implementation)				
Project Manager 0.1 m-yrs	$ 8,000		$ 10,000	
Field Representatives 0.9 m-yrs	$ 72,000		$ 90,000	
Clerical (Tracking) 0.05 m-yrs	$ 2,000		$ 2,500	
UE Salaries (Dev & Eval) 0.2 m-yrs	$ 16,000		$ 20,000	
Program Evaluation (non-UE)	$ 50,000		$ 62,500	
Outside Consultants				
Level I ($4,000/part.)		$100,000		$100,000
Level II (See Incentives Below)				
Customer Incentives (Level II - 50%)		$ 60,000		$140,000
Other Direct Sales Expenses				
Ally Relationships	$ 1,000		$ 1,250	
Direct Mail/Promotional	$ 3,000		$ 3,750	
Capital Costs	$ 0		$ 0	
Training Costs				
In House	$ 0		$ 0	
Conferences	$ 5,000		$ 6,250	
Advertising (print, media, etc.)	$ 5,000		$ 6,250	
Total Field & Impl.	$162,000	$160,000	$202,500	$240,000
		$6,400/yr		$9,600/yr

D. Administrative Costs - Capitalized: None

I-1. Industrial Process Audit Program (Continued)

E. Rate Schedule

In this program, the average customer demand exceeds 1,000 kW. As such, most customers will be assumed to MO Small Primary Service. For the PEC case, energy costs will be increased by 25% and demand costs will be increased by 10%.

		Nominal Case	Probable Environmental Scenario
Rate Basis		MO Small Primary	MO Small Primary
DSManager File Name		UE_SPS	UESPSPEC
Summer Demand Charges ($/kW)		$3.07	$3.39
Winter Demand Charges ($/kW)		$1.12	$1.23
Summer Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.0759 $0.0572 $0.0383	$0.0949 $0.0715 $0.0479
Winter Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.0478 $0.0356 $0.0278	$0.0598 $0.0445 $0.0348

F. Load Impact

Impact Per Participant:

	Nominal	PEC Scenario
Impact:	37 kW	45 kW
DSManager Before Load Shape	T1_BEFR	T1_AFTR
DSManager After Load Shape	T1_BEFR	T1_AFTR * 0.99349

I-1. Industrial Process Audit Program (Continued)

G. Participation Assumptions

1. Free Riders: 10%
2. New Participants Each Year:

Audit Level	Nominal	PEC Scenario
Level I:	25 (5%)	25 (5%)
Level II:	3 (0.6%)	7 (1.2%)

Cumulative Participation by 2006: 50%

I-2. Demand and Energy Control Program

A. General Information:

1. Pilot continuing through 1996, full program roll-out in 1997, continuing until 2006.
2. Eligibility: All Manufacturing customers with demands > 1,000 kW (200 customers eligible in 1996)
3. Applicability: 2% of industrial accounts
4. Measure Life: 7 years
5. 100% participation renewal.
6. **Probable Environmental Cost**

   The assumed PEC scenario would raise marginal energy and demand charges by 25% and 10% respectively. The demand increase would drive more customers to participate. **Impact** per participate would likely remain unchanged - as the production interruption pain threshold remains unchanged. Since the demand is affected by only 10%, it is assumed that the participation is affected by just 10%. **Utility** field and evaluation costs are assumed to escalate by a factor of 10% due to increased participation. **Participant** costs are unaffected since system costs should not change - in fact the increased local market for such could drive prices lower.

7. Capacity Equivalence: 0.725
   DSManager Nominal Run Uses File: T2
   DSManager PEC Run Use File: T2_PEC

B. Participant Costs:

$40,000 per participant to cover nominal control/monitoring system costs.

I-2. Demand and Energy Control Program (Continued)

C. Administrative Costs - Expensed

1. Total Annual Utility Costs (Administrative + Per Participant):

	Nominal Case Annual Expenses (1995$)	Per Part 1-Time	PEC Case Annual Expenses (1995$)	Per Part 1-Time
UE Salaries (Field & Implementation)				
Field Representatives 0.15 m-yrs	$ 12,000		$ 13,200	
Technical and Clerical 0.20 m-yrs	$ 10,000		$ 11,000	
UE Salaries (Dev & Eval) 0.2 m-yrs	$ 16,000		$ 17,600	
Program Evaluation (non-UE)	$ 20,000		$ 22,000	
Customer Incentives (Seminars)	$ 5,000		$ 5,500	
Other Direct Sales Expenses				
Ally Relationships	$ 2,000		$ 2,200	
Direct Mail/Promotional	$ 8,000		$ 8,800	
Capital Costs	$ 0			
In House Training Costs	$ 1,000		$ 1,100	
Advertising (print, media, etc.)	$ 15,000	$ 0	$ 16,500	$.....0
Total Program Costs	$ 89,000	$ 0	$ 97,900	$ 0

D. Administrative Costs - Capitalized: None

E. Rate Schedule

In this program, the average customer demand exceeds 1,000 kW. As such, most customers will be assumed to MO Small Primary Service. Unfortunately, DSManager can not calculate the true impact of the program on the customer's bill (DSManager looks at peak demand, not billing demand). In order to account for the typical customer reducing their billing demand twice as much as their on-peak demand for a program like this, the MO Small Primary demand rates were multiplied by a factor of 2.

For the PEC case it is assumed that energy costs increase 25% and demand costs increase 10% above the nominally assumed rate.

I-2. Demand and Energy Control Program (Continued)

		Nominal Case	Probable Environmental Scenario
Rate Basis		MO Small Primary*	MO Small Primary*
DSManager File Name		UE_SPSX2	UESPSXPC
Summer Demand Charges ($/kW)		$6.14	$7.68
Winter Demand Charges ($/kW)		$2.24	$2.80
Summer Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.1518 $0.1144 $0.0766	$0.1898 $0.1430 $0.0958
Winter Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.0956 $0.0712 $0.0556	$0.1195 $0.0890 $0.0695

F. Load Impact

Impact Per Participant: 374 kW

G. Participation Assumptions

1. Free Riders: 20%
2. New Participants[1] Each Year:

Nominal	Probable Environmental Scenario
5	5.5

3. Cumulative Participation by 2006: 25%

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[1] Participant is defined as someone who attends the seminar and takes further steps to consider installing or improving their demand control system. Examples of further steps include: requesting vendor proposals, requesting additional UE demand profiles, or installing a demand recording meter on their site.

I-3. Energy-Efficient Motors and Adjustable Speed Drives Program

A. General Information:

1. Pilot continuing through 1996, full program roll-out in 1997, continuing until 2006.
2. Eligibility: All Manufacturing & Water Treatment customers with demands > 100 kW (1,400 customers eligible in 1996).
3. Applicability: 18% of industrial accounts, 96% of industrial energy-use.
4. Measure Life: 15 years
5. 100% participation renewal.
6. **Probable Environmental Cost**

The assumed PEC scenario would raise marginal energy and demand charges by 25% and 10% respectively. The rate increase would lead customers to implement more measures because payback period is reduced. The primary effect in both subprograms is therefore increased **load** impact.

As rates increase one might also expect more customers to get interested in the program. For this scenario, it was assumed that participation would increase by 25% for each subprogram. This is considered to be conservatively high given that: (A) Eighty-eight percent of large customers surveyed in 1993 expressed interest in the MotorMiser program yet less than 20% responded for the software when offered and (B) Of those receiving software less than 30% had used the software after one year. Industrial customers express interest for both the software and audit subprograms; however, few are driven to truly perform. This reluctance stems from industrialist's 'production driven" goals and the relatively low percentage of energy in their product. A 25% rate increase may drive some additional customers to participate but it is suspected that the Energy Policy Act changes required in October of 1997 will drive others to ignore energy-efficiency motors (i.e., the government has taken care of the problem for them).

Software Subprogram

A conservative **increase of 25% participation** was assumed for the software program despite the arguments above. This increase is expected from smaller customers would likely feel the 'crunch" from rate increases. For the software program, measure payback is directly proportional to energy rates. Assuming that customers purchase energy-efficiency motors based on payback, then **load impact** per participant should increase with energy rates. We'll assume that load impact per customer increase with kWH costs. More participants means more **utility** man-hours and software expense - both assumed to increase by 25%. **Participant** costs will increase with new measures - assumed also to increase with kWH costs (.i.e. 25%) However, the premium paid for an energy efficient motor remains unchanged.

I-3. MotorMiser Program (Continued)

6. Probable Environmental Cost (Continued)

Audit Subprogram

For the audit subprogram, the number of participants is not assumed to change since the payback would not speed the number of free audit takers. The number of cumulative audits over the program life is believed to be aggressive even assuming rate increases. Between the industrial process audit and the motor audit subprogram very little room is left for growth. It is believed that the rate increase will increase the number of measures implemented by the customers (as paybacks reduce). It is assumed that the **impact** increases as energy rates rise (i.e., 25%). **Utility** costs are assumed to escalate by a factor of 25% due to increased measures taken and followed. **Participant** costs will increase with new measures - assumed also to increase with kWH costs (.i.e. 25%).

7. Capacity Equivalence: 1.36

DSManager Nominal Run Uses File: T3
DSManager PEC Run Uses File: T3_PEC

B. Participant Costs:

Subprogram	Nominal	PEC Scenario
Software	$250	$312.5
Audit	$7,200	$9,000

C. Administrative Costs - Capitalized: None

D. Administrative Costs - Expensed

Utility Per Participant Costs:
$100 per software participant
$4,000 per audit participant

I-3. MotorMiser Program (Continued)

D. Administrative Costs - Expensed (Continued)

1. Nominal Case

Total Annual Utility Costs (Administrative + Per participant):

Cost (1995$)		Annual Expenses	Software Subprogram	Audit Subprogram
UE Salaries (Field & Implementation)				
Project Manager	0.1 m-yrs	$ 8,000	$ 2,400	$ 5,600
Field Representatives	0.4 m-yrs	$ 32,000	$ 9,600	$ 22,400
Clerical (Tracking)	0.05 m-yrs	$ 2,000	$ 600	$ 1,400
Outside Consultants(Field) ($4,000/part.)		$ N/A		$ N/A
UE Salaries (Dev & Eval)	0.2 m-yrs	$ 16,000	$ 4,800	$ 11,200
Program Evaluation (non-UE)		$ 20,000	$ 6,000	$ 14,000
Customer Incentives		$ 0		
Other Direct Sales Expenses				
Ally Relationships		$ 2,000	$ 600	$ 1,400
Direct Mail/Promotional		$ 8,000	$ 2,400	$ 5,600
Software Costs ($100/part.)		$ N/A	$ N/A	
Training Costs				
In House		$ 1,000	$ 300	$ 700
Conferences		$ 5,000	$ 1,500	$ 3,500
Advertising (print, media, etc.)		$ 15,000	$ 4,500	$ 10,500
Total Annual Program Costs		$109,000	$ 32,700	$ 76,300
Per Participant			$100/part-yr	$4,000/part-yr

I-3. MotorMiser Program (Continued)

D. Administrative Costs - Expensed (Continued)

2. Probable Environmental Cost Scenario

Total Annual Utility Costs (Administrative + Per participant):

		Annual Expenses (1995$)	Software Subprogram	Audit Subprogram
UE Salaries (Field & Implementation)				
Project Manager	0.1 m-yrs	$ 10,000	$ 3,000	$ 7,000
Field Representatives	0.4 m-yrs	$ 40,000	$ 12,000	$ 28,000
Clerical (Tracking)	0.05 m-yrs	$ 2,500	$ 750	$ 1,750
Outside Consultants (Field) ($4,000/part.)		$ N/A		$ N/A
UE Salaries (Dev & Eval)	0.2 m-yrs	$ 20,000	$ 6,000	$ 14,000
Program Evaluation (non-UE)		$ 25,000	$ 7,500	$ 17,500
Customer Incentives		$ 0		
Other Direct Sales Expenses				
Ally Relationships		$ 2,500	$ 750	$ 1,750
Direct Mail/Promotional		$ 10,000	$ 3,000	$ 7,000
Software Costs ($100/part.)		$ N/A	$ N/A	
Training Costs				
In House		$ 1,250	$ 375	$ 875
Conferences		$ 6,250	$ 1,875	$ 4,375
Advertising (print, media, etc.)		$ 18,750	$ 5,625	$ 13,125
Total Annual Program Costs		$136,250	$ 40,875	$ 95,375
Per Participant			$100/part-yr	$4,000/part-yr

I-3. MotorMiser Program (Continued)

E. Rate Schedule

Software Subprogram

In the software subprogram, the average customer demand exceeds 600 kW. As such, most customers will be assumed to served on the Large General Service Rate. It is assumed that the PEC case produces a 25% increase in energy costs and a 10% increase in demand costs above the initial assumed rate.

Software Subprogram		Nominal Case	PEC Scenario
Rate Basis		MO LGS	MO LGS
DSManager File		UE_LGS	UELGSPEC
Summer Demand Charges ($/kW)		$3.07	$3.39
Winter Demand Charges ($/kW)		$1.12	$1.23
Summer Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.0825 $0.0622 $0.0417	$0.1031 $0.0778 $0.0521
Winter Energy Charges ($/kWH)	0-150 kWH/kW 150-350 kWH/kW >350 kWH/kW	$0.0518 $0.0387 $0.0302	$0.0648 $0.0484 $0.0378

Audit Subprogram

In the software subprogram, the average customer demand exceeds 1,400 kW. As such, most customers will be assumed to be served on the Small Primary Rate. It is assumed that the PEC case would produce a 25% increase in energy costs and a 10% increase in demand costs above the initial assumed rate.

	Nominal Case	PEC Scenario
Rate Basis	MO Small Primary	MO Small Primary
DSManager File Name	UE_SPS	UESPSPEC

I-3. MotorMiser Program (Continued)

F. Load Impact

Impact Per Participant:

Software Subprogram	Nominal Case	PEC Scenario	Audit Subprogram	Nominal Case	PEC Scenario
Impact Per Participant	1 kW	1.25 kW	Impact Per Participant	17 kW	21.25 kW
DSManager Before Load Shape	T3A_BEFR	T3A_BEFR	DSManager Before Load Shape	T3B_BEFR	T3B_BEFR
DSManager After Load Shape	T3A_AFTR	T3A_AFTR	DSManager After Load Shape	T3B_AFTR	T3B_AFTR * 0.9935

G. Participation Assumptions

1. Free Riders: (Nominal & PEC Case)
   Software: 50%
   Audits: 10%

2. New Participants Each Year:

Subprogram	Nominal	PEC Scenario
Software	42	50
Audit	20	25

3. Cumulative Participation by 2006:

Subprogram	Nominal	PEC Scenario
Software	30%	50%
Audit	15%	20%

I-4. Curtailable Power/Standby Generation Program

A. General Information:

1. Pilot continuing through 1996, full program roll-out in 1997, continuing until 2014.
2. Eligibility: Commercial and Industrial customers with curtailable demands > 1,000 kW (55 to 75 out of 650 customers > 1 MW believed to be capable of participating)
3. Applicability: Represents 0.5% of industrial and commercial accounts
4. Measure Life: 10 years
5. 100 % Participation renewal.
6. **Probable Environmental Cost**

   The assumed PEC scenario would raise marginal energy and demand charges by 25% and 10% respectively. The increase in demand charges should have a direct effect on **participation**. This increase is directly proportional to the increase in demand charge since this is where the customer receives the credit (i.e., scenario expected to increase participation by 10%). Higher energy costs might drive more participants; however, this is limited by the "glass ceiling" of those who can't curtail and the ratio of demand charge to curtail credit (it still is more beneficial to cut demands routinely than to curtail). **Per participant impact** is unaffected. **Utility** costs are assumed to rise as a function of participation (i.e., 10%).

7. Capacity Equivalence: 1.122
   Total Program = [50% standby * 1.108 (based on 2.5% FO rate)]+
   [50% interruptible * 1.136] = 1.122

   DSManager Nominal Run Uses: T4
   DSManager PEC Run Uses: T4_PEC

I-4. Curtailable Power/Standby Generation Program (Continued)

B. Participant Costs:

Expense	Interruptible Customers:	Standby Generating Customers	Average
Load Monitoring Expense	$ 4,000. one-time		$ 2,000. one time
Paralleling/Load Shedding System:		$50,000. one-time	$25,000. one time
One-time Communications Fee:	$ 500. one-time	$ 500. one-time	$ 500. one time
Dedicated Phone Line Costs:	$ 480./year	$ 480./year	$ 480./year
Union Electric Fees:	$ 192./year	$ 192./year	$ 192./year
Replacement Power Costs:		$20,000./year	$10,000./year

C. Administrative Costs - Expensed

		Nominal Case			PEC Case		
		Annual Costs ($1995)	Per Part. Annual	Per Part. One-Time	Annual Costs	Per Part. Annual	Per Part. One-Time
UE Salaries (Field & Implementation)							
Project Manager	0.1 m-yrs	$ 8,000			$ 8,800		
Field Representatives	0.1 m-yrs	$ 8,000			$ 8,800		
Clerical (Billing)	0.05 m-yrs	$ 2,000			$ 2,200		
UE Salaries (Dev & Eval.)	0.2 m-yrs	$ 16,000			$ 17,600		
Training Costs							
Conferences		$ 5,000			$ 5,000		
Communications Systems				$ 500			$ 500
Customer Incentives (fixed rate)			$ 72,000			$ 72,000	
Total Program Costs		$ 39,000	$ 72,000	$ 500	$ 42,400	$ 72,000	$ 500

D. Administrative Costs - Capitalized:

None

I-4. Curtailable Power/Standby Generation Program (Continued)

E. Rate Schedule

In this program, the average customer demand exceeds 3,000 kW. As such most customers will be assumed to be on the MO Small Primary Rate structure. Rate impact is expected to be the sum of an annual $72,000 per customer plus a slight energy credit due to kWh replaced by self generation.

To approximate this impact in the DSManager runs, nominal Small Primary energy rates were used with demand rates set to zero (to ensure that load shape had no affect on billing demand). The curtailment credit was provided by placing a negative administrative expense of $72,000/yr in the participant's assumed expenses.

	Nominal Case	PEC Scenario
Rate Basis	MO Small Primary	MO Small Primary
DSManager File Name	UE_SPST4	UE_SPST4

F. Load Impact

1. Impact Per Participant: 2,000 kW (including system losses) and -100,000 kWH/yr

2. Total Impact

Year	System Reduction	Capacity Equivalence
1996	0 MW	0 MW
1997	18 MW	20 MW
1998	18 MW	20 MW
1999	18 MW	20 MW
2000	36 MW	40 MW
2001	36 MW	40 MW
.	.	.
.	.	.
2014.	36 MW	40 MW

I-4. Curtailable Power/Standby Generation Program (Continued)

G. Participation Assumptions

1. Free Riders: 0% (credit dependent on performance)

2. New Participants:

Type	Nominal Case Additions in 1997 & 2000	PEC Scenario Additions in 1997 & 2000
Interruptible	4.5	5.0
Standby	4.5	5.0

3. Cumulative Participation by 2001: 18 Nominal, 20 PEC

4. Lost revenue:
Assuming that:
   A. Curtailments are requested 100 hours per year,
   B. 50% of the participating customers interrupt their loads and shift the interrupted usage to other periods,
   C. 50% of the participating customers use standby generation to comply, and
   D. The average industrial energy rate is $0.0456/kWH.

The expected revenue loss each year from interruptible participant: $0
The expected revenue loss each year from a stand-by participant: $9,120. (100 hrs*2,000 kW*$0.0456/kWH)
The average expected revenue loss each year is therefore: $4,560.