



Appendix F

Commercial - Electric

- Measure Data (Page F-1)
- Data Sources (Page F-7)
- Base Case Factors (Page F-10)
- Remaining Factors (Page F-14)
- Savings Factors (Page F-18)
- Convertible Factors (Page F-22)

Commercial – Non Electric

- Measure Data (Page F-26)
- Data Sources (Page F-34)
- Base Case Factors (Page F-37)
- Remaining Factors (Page F-41)
- Savings Factors (Page F-44)
- Convertible Factors (Page F-47)

Commercial Measures Not Included (Page F-50)

Commercial Electric Model - Measure Data

Expansion #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Annual kWh Savings	kWh Savings Source	kWh Savings Source Notes	KW demand savings - Summer Coincident (1)	kW demand source	KW Demand Source Notes	Annual MMBtu savings	MMBtu savings source notes	Incremental Cost	Full Cost	Cost Source	Source Notes	Cost/Unit Descriptor	Cost/Unit	Persistence Factor
100 Appliances, Computers & Office Equipment																		
No 346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	33,640	79		28,021	41				\$1		79		n/a	\$1	1
No 347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	25,600	5		27,810	5				\$8,500.00		5		n/a	\$8,500	1
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
360 HVAC Controls																		
No 361	1	HVAC Controls	Retrocommissioning	1.2	1		0.000	26				\$0.02		10	\$/sq ft	n/a	\$0	1
No 362	1	HVAC Controls	Programmable Thermostat	1,637	5		1,300	5				\$12.50		5	\$/unit	n/a	\$13	1
No 363	1	HVAC Controls	EMS install	1	21		0.000	5				\$0.07		21	\$/sq ft	n/a	\$0	1
No 364	1	HVAC Controls	EMS Optimization	0	9		0.000	26				\$0.01		9	\$/sq ft	n/a	\$0	1
No 365	2	HVAC Controls	System/Component Diagnostics	1,308	75	30% energy savings estimate	1,089	41			\$308			75	n/a	n/a	\$308	1
No 366	2	HVAC Controls	LEED Enhanced Commissioning	1,550	100,000	greater savings	0.000	26				\$1		99	\$/sq ft	n/a	\$1	1
No 367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	2,000,000	75.83		0.100	5				\$40,000.00		75	Key Card System Cost	n/a	\$40,000	1
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
380 Space Cooling - Unitary and Split AC																		
No 381	2	Space Cooling - Unitary	HVAC Advanced Tune-Up	826	77		0.688	41				\$450		78		n/a	\$450	1
No 382	2	Space Cooling - Unitary	High Efficiency AC - Unitary and Split Systems (Tier 2)	2,957	55		2,463	41	80% condenser fans			\$910		41		n/a	\$910	1
No 383	2	Space Cooling - Unitary	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	3,379	55		2,815	41	80% condenser fans			\$1,200	41		n/a	\$1,200	1	
No 384	1	Space Cooling - Unitary	Ductless (mini split)	1,596	55		1,329	41	80% condenser fans			\$2,625		123		n/a	\$2,625	1
No 385	2	Space Cooling - Unitary	Comprehensive Track Proper HVAC Sizing	1,000	18		0.000	18	TRM states "NR"			\$225		9		n/a	\$225	1
No 386	1	Space Cooling - Unitary	Improved Duct Sealing	0.56	79		0.708	41				\$0.20			\$/sq ft	n/a	\$0	1
No 387	2	Space Cooling - Unitary	Radiant Ceiling Cooling	2,223	79	Average 17% cooling savings	1,852	41				\$1.00		79		n/a	\$1	1
No 388	2	Space Cooling - Unitary	Dedicated Outdoor Air System	2,223	79		1,852	41				\$1.00		79		n/a	\$1	1
No 389	2	Space Cooling - Unitary	Ground Source Heat Pump - Cooling	5,585	9		4,083	26				\$33,000		9		n/a	\$33,000	1
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
400 Cooking																		
No 401	2	Cooking	HE Steamer	11,081	89	replace combi oven with steamers	2,530	89				\$1,900		89		n/a	\$1,900	1
No 402	2	Cooking	HE Combination Oven	12,746	89	replace combi oven with steamers	2,910	89				\$8,442		89		n/a	\$8,442	1
No 403	2	Cooking	HE Holding Cabinet	3,942	87	replace combi oven with steamers	0,720	88				\$1,713		87		n/a	\$1,713	1
No 404	2	Cooking	HE Fryer - Electric	1,179	85	replace combi oven with steamers	0,230	86				\$4,708		86		n/a	\$4,708	1
No 405	2	Cooking	Demand Ventilation Control	2,500	89		0,285	92				\$10,000		89		n/a	\$10,000	1
No 406	2	Cooking	Induction Cooktops	784	47	replace combi oven with steamers	3,000	47	Average kW demand			\$3,000		51.52		n/a	\$3,000	1
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
Yes																		
500 Lighting																		
No 501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	98	29		0.023	29.41		(0.1)	41	\$16		29		n/a	\$16	1
No 502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	28	30		0.007	30.41		(0.0)	41	\$6		29		n/a	\$6	1
No 503	2	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	164	29		0.039	29.41		(0.2)	41	\$15		29		n/a	\$15	1
No 504	2	Lighting	High Efficiency Fluorescent Fixtures (Low Glare Troffer HPT8/T5 Replacing)	211	29		0.050	29.41		(0.3)	41	\$80		29		n/a	\$80	1
No 505	2	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	609	29		0.145	29.41		(0.6)	41	\$180		29		n/a	\$180	1
No 506	2	Lighting	Fluorescent Fixtures with Reflectors	135	29	replace combi oven with steamers	0.028	29.41		(0.2)	41	\$25		29		n/a	\$25	1
No 507	1	Lighting	CFL Fixture	450	29		0.049	29.41		(0.3)	41	\$35		29		n/a	\$35	1
No 508	2	Lighting	Replace Exterior Quartz Halogen w/PSMH or HPS	367	41		0.017	41	1% better condenser fans	0.0	41	\$45		41		n/a	\$45	1
No 509	2	Lighting	Replace Exterior Metal Halide w/PSMH	255	41		0.011	41	1% better condenser fans	0.0	41	\$38		41		n/a	\$38	1
No 510	1	Lighting	LED Exit Sign	86	41	8760 Hours	0.011	29.41		(0.1)	41	\$65		41		n/a	\$65	1
No 511	1	Lighting	LEC Exit Sign	102	41,30	8760 Hours	0.012	41,30		(0.1)	41	\$65		74		n/a	\$65	1
No 512	2	Lighting	LED Traffic / Pedestrian Signals	485	41		0.101	41		0.0	41	\$103		41		n/a	\$103	1
No 513	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	250	41		0.055	41	No AC savings factor	(0.3)	41	\$38		41		n/a	\$38	1
No 514	2	Lighting	Specialty Fixtures - Halogen Infra-Red Bulb	54	41		0.013	41	change with lowest of class	(0.1)	41	\$6		41		n/a	\$6	1
No 515	2	Lighting	Specialty Fixtures - Integrated Ballast 25W MH	224	41		0.055	41		(0.3)	41	\$40		41		n/a	\$40	1
No 516	2	Lighting	Specialty Fixtures - Induction Fluorescent 23W	163	41		0.044	41		(0.2)	41	\$22		41		n/a	\$22	1
No 517	1	Lighting	Specialty Fixtures - Metal Halide Track	381	41		0.093	41		(0.5)	41	\$152.00		41		Avg. 3 sizes	\$152	1
No 518	2	Lighting	Cold Cathode Screw In	132	91		0.031	41		(0.2)	41	\$14		91		Assumes \$1 cost for incandescent	\$14	1
No 519	2	Lighting	LED Screw In	309	42		0.073	42,41		(0.4)	41	\$79		42		Assumes \$1 cost for incandescent	\$79	1
No 520	2	Lighting	CFL Screw-in	450	41		0.049	41		(0.3)	41	\$3		41		Assumes \$100 cost for incandescent	\$3	1
No 521	2	Lighting	LED Christmas type - decorative lighting	7,783	50		0.000	50		0.0	41	\$651		93		n/a	\$651	1
No 522	1	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	28	30		0.007	30.41		(0.0)	41	\$51.75		104		15% premium for Super T8	\$52	1
No 523	1	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	16	29		0.023	29.41		(0.1)	41	\$45.00		104		n/a	\$45	1
No 524	1	Lighting	Fluorescent Fixtures with Reflectors	135	29	replace combi oven with steamers	0.028	29.41	No AC savings factor	(0.2)	41	\$65.00		106	Grainer	n/a	\$65	1

Commercial Electric Model - Measure Data

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per kWh saved	Societal Test	TRC B/C Ratios	Notes
100 Appliances, Computers & Office Equipment												
101	2	Appliances, Computers	Energy Star Compliant Single Door Refrigerator	13	13	43		\$2.31	\$ 0.03212	1.00	1	n/a
102	2	Appliances, Computers	Energy Star office equipment including computers, monitors, copiers, multi-function machines.	4	4	33		\$75.00	\$ 0.08741	1.00	1	n/a
103	2	Appliances, Computers	TVs - Energy Star over standard	6	6	71		\$20.83	\$ 0.36743	1.00	1	n/a
104	1	Appliances, Computers	Energy Efficient "Smart" Power Strip for PC/Monitor/Printer	4	4	119		\$20.00	\$ 0.02305	1.00	1	n/a
105	1	Appliances, Computers	EZ Save Monitor Power Management Software	1.7	1.7	19		\$15.29	\$ 0.50980	1.00	1	n/a
150 Water Heating End Use												
151	2	Water Heating	Commercial Dishwasher (Under Counter Hi-Temp, Electric DHW)	10	10	46		\$100.00	\$ 0.01357	1.00	1	n/a
152	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp, - Electric DHW)	20	20	46		\$150.00	\$ 0.00791	1.00	1	n/a
153	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp, Non-Electric DHW)	20	20	46		\$150.00	\$ 0.08682556	1.00	1	n/a
154	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/)	7	7	5		\$85.71	\$ 0.13709	1.00	1	n/a
155	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/)	7	7	5		\$85.71	\$ 1.37087	1.00	1	n/a
156	1	Water Heating	Ozone Commercial Laundry System (Electric HW)	7	7	5		\$9,285.71	\$ 0.04781	1.00	1	n/a
157	2	Water Heating	Heat Pump Water Heater	14	14	21		\$290.50	\$ 0.02052	1.00	1	n/a
158	2	Water Heating	Booster Water Heater	10	10	21		\$95.14	\$ 0.15222	1.00	1	n/a
159	1	Water Heating	Point of Use Water Heater	10	10	21		\$35.00	\$ 0.10146	1.00	1	n/a
160	1	Water Heating	Solar Water Heating System	15	15	14		\$5,666.67	\$ 0.08351	1.00	1	n/a
161	2	Water Heating	High Efficiency Electric Water Heater	13	13	56		\$5.38	\$ 0.02103	1.00	1	n/a
162	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle (Included in 2006 Federal Standards) (El)	5	5	53		\$11.00	\$ 0.00281	1.00	1	n/a
200 Pools												
201	2	Pools	Energy Efficient Pool Pump with controls	10	10	65		\$66.40	\$ 0.05902	1.00	0.245377586	n/a
202	2	Pools	High efficiency spas/hot tubs	10	10	9		\$10.00	\$ 0.04000	1.00	3.081368821	n/a
203	1	Pools	Solar Pool Heater	10	10	14		\$400.00	\$ 0.00535	1.00	4.264998578	n/a
204	1	Pools	Heat Pump Pool Heater	10	10	62		\$250.00	\$ 0.02656	1.00	1.351215229	n/a
205	2	Pools	Temperature Control	10	10	62		\$40.00	\$ 0.01417	1.00	0	n/a
206	1	Pools	Pool Cover	10	10	60		\$120.00	\$ 0.00221	1.00	35.07840069	n/a
207	1	Pools	Liquid Pool Cover	1	1	60		\$1,300.00	\$ 0.03737	1.00	3.299047833	n/a
300 Building Envelope												
301	2	Building Envelope	Integrated Building Design (Envelope Only)	30	30	21		\$1,385.22	\$ 0.00261	1.00	1	n/a
302	2	Building Envelope	Energy Efficient Windows (Replace on Burnout)	30	30	21		\$0.01	\$ 0.00121	1.00	1	n/a
303	1	Building Envelope	Interior Storm Windows (Low-e or double clear film)	12	12	9		\$0.38	\$ 0.05357	1.00	1	n/a
304	1	Building Envelope	Cool Roofing (White Coatings)	15	15	60		\$0.08	\$ 0.00	1.00	1	n/a
320 Ventilation												
321	2	Ventilation	Dual Enthalpy Economizer - from Fixed Damper	9.8	9.8	19		\$40.82	\$ 0.01200	1.00	1	n/a
322	2	Ventilation	Dual Enthalpy Economizer - from Dry Bulb	9.8	9.8	19		\$20.41	\$ 0.00816	1.00	1	n/a
323	2	Ventilation	Demand-Controlled Ventilation (CO2 vent control)	15	15	75		\$230.00	\$ 0.02875	1.00	1	n/a
324	2	Ventilation	Heat Recovery	23	23			\$0.60	\$ 0.08555	1.00	1	n/a
325	1	Ventilation	Fan Motor, 40hp, 1800rpm, 94.1%	20	20	125		\$137.35	\$ 0.05666	1.00	1	n/a
326	1	Ventilation	Fan Motor, 15hp, 1800rpm, 92.8%	20	20	125		\$54.45	\$ 0.04284	1.00	1	n/a
327	1	Ventilation	Fan Motor, 5hp, 1800rpm, 90.4%	20	20	125		\$24.75	\$ 0.04575	1.00	1	n/a
328	2	Ventilation	Variable Speed Drive Control, 15 HP	15	15	122		\$231.00	\$ 0.01925	1.00	1	n/a
329	2	Ventilation	Variable Speed Drive Control, 5 HP	15	15	122		\$128.33	\$ 0.02099	1.00	1	n/a
330	2	Ventilation	Variable Speed Drive Control, 40 HP	15	15	122		\$418.67	\$ 0.01308	1.00	1	n/a
331	3	Ventilation	Static Pressure Reset for Fans	10	10	122		\$40.00	\$ 0.00	1.00	1	n/a
332	2	Ventilation	Underfloor Air distribution	15	15	75		\$0.07	\$ 0.00001	1.00	1	n/a
333	2	Ventilation	Cold air distribution (deduce fan HP)	20	20			\$0.00	\$ 0.00	1.00	1	n/a
334	2	Ventilation	Variable Pitch Fans	20	20	125		\$355.00	\$ 0.02219	1.00	1	n/a
335	2	Ventilation	Electronically-Commutated Permanent Magnet Motors (ECPMs)	20	20	125		\$1.75	\$ 0.01227	1.00	1	n/a
336	2	Ventilation	Improved Duct Sealing	15	15	41		\$0.01	\$ 0.02381	1.00	1	n/a
340 Space Cooling - Chillers												
341	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 300 tons	20	20	125		\$810.00	\$ 0.03750	1.00	1	n/a
342	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 500 tons	20	20	125		\$1,350.00	\$ 0.03750	1.00	1	n/a
343	2	Space Cooling - Chillers	Centrifugal Chiller, Optimal Design, 0.4 kW/ton, 500 tons	20	20	125		\$3,000.00	\$ 0.03750	1.00	1	n/a
344	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 300 ton	5	10	5		\$1,020.00	\$ 0.06711	1.00	1	n/a
345	2	Space Cooling - Chillers	Variable Refrigerant Volume/Flow	15	15	79		\$1,215.00	\$ 0.04093	1.00	1	n/a

Commercial Electric Model - Measure Data

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per kWh saved	Societal Test	TRC B/C Ratios	Notes
100 Appliances Computers & Office Equipment												
346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	15	15	41		\$0.07	\$ 0.00000	1.00	1	n/a
347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	10	10	5		\$850.00	\$ 0.03320	1.00	1	n/a
348												
349												
350												
351												
352												
353												
354												
360 HVAC Controls												
361	1	HVAC Controls	Retrocommissioning	7	7	10		\$0.00	\$ 0.00253	1.00	1	n/a
362	1	HVAC Controls	Programmable Thermostat	8	8	125		\$1.56	\$ 0.00095	1.00	1	n/a
363	1	HVAC Controls	EMS install	10	10	11		\$0.01	\$ 0.01461	1.00	1	n/a
364	1	HVAC Controls	EMS Optimization	5	5	3		\$0.00	\$ 0.05625	1.00	1	n/a
365	2	HVAC Controls	System/Component Diagnostics	15	15		Used AC Measure Lik	\$20.50	\$ 0.01568	1.00	1	n/a
366												
367	1	HVAC Controls	LED Enhanced Commissioning	7	7	10		\$0.00	\$ 0.14	1.00	1	n/a
367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	10	10	11	Used EMS Measure Lik	\$4,000.00	\$ 0.00200	1.00	1	n/a
368												
369												
370												
371												
372												
373												
374												
375												
376												
377												
378												
379												
380												
380 Space Cooling - Unitary and Split AC												
381	2	Space Cooling - Unitary	HVAC Advanced Tune-Up	2	2	5		\$225.00	\$ 0.27240	1.00	1	n/a
382	2	Space Cooling - Unitary	High Efficiency AC - Unitary and Split Systems (Tier 2)	15	15	41		\$60.67	\$ 0.02052	1.00	1	n/a
383	2	Space Cooling - Unitary	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	15	15	41		\$80.00	\$ 0.02368	1.00	1	n/a
384	1	Space Cooling - Unitary	Ductless (mini split)	15	15	41		\$175.00	\$ 0.10965	1.00	1	n/a
385	2	Space Cooling - Unitary	Comprehensive Track Proper HVAC Sizing	15	15	18		\$15.00	\$ 0.01500	1.00	1	n/a
386	1	Space Cooling - Unitary	Improved Duct Sealing	15	15	41		\$0.01	\$ 0.02381	1.00	1	n/a
387	2	Space Cooling - Unitary	Radiant Ceiling Cooling	15	15	41		\$0.07	\$ 0.00003	1.00	1	n/a
388	2	Space Cooling - Unitary	Dedicated Outdoor Air System	15	15	41		\$0.07	\$ 0.00003	1.00	1	n/a
389	2	Space Cooling - Unitary	Ground Source Heat Pump - Cooling	15	15	21		\$2,200.00	\$ 0.39391	1.00	1	n/a
390												
391												
392												
393												
394												
395												
396												
397												
398												
399												
400												
400 Cooking												
401	2	Cooking	HE Steamer	10	10	90		\$190.00	\$ 0.01715	1.00	1	n/a
402	2	Cooking	HE Combination Oven	10	10	89		\$844.20	\$ 0.06623	1.00	1	n/a
403	2	Cooking	HE Holding Cabinet	12	12	87		\$142.75	\$ 0.03621	1.00	1	n/a
404	2	Cooking	HE Fryer - Electric	12	12	85		\$392.33	\$ 0.33277	1.00	1	n/a
405	2	Cooking	Demand Ventilation Control	12	12	89		\$833.33	\$ 0.33333	1.00	1	n/a
406	2	Cooking	Induction Cooktops	11	11	9	GDS Estimate	\$272.73	\$ 0.34787	1.00	1	n/a
407												
408												
409												
410												
411												
412												
413												
414												
415												
416												
417												
418												
419												
420												
421												
422												
423												
424												
500 Lighting												
501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	15	13	125		\$1.07	\$ 0.01091	1.00	1	n/a
502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	15	13	125		\$0.37	\$ 0.01331	1.00	1	n/a
503	2	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	15	13	125		\$1.00	\$ 0.00612	1.00	1	n/a
504	2	Lighting	High Efficiency Fluorescent Fixtures (Low Glare Troffer HPT8/T5 Replacing)	15	13	125		\$5.33	\$ 0.02526	1.00	1	n/a
505	2	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	15	13	125		\$12.00	\$ 0.01972	1.00	1	n/a
506	2	Lighting	Fluorescent Fixtures with Reflectors	15	15	125		\$1.67	\$ 0.01236	1.00	1	n/a
507	1	Lighting	CFL Fixture	15	15	29		\$2.33	\$ 0.00519	1.00	1	n/a
508	2	Lighting	Replace Exterior Quartz Halogen w/PSMH or HPS	15	15	41		\$3.00	\$ 0.00817	1.00	1	n/a
509	2	Lighting	Replace Exterior Metal Halide w/PSMH	15	15	41		\$2.50	\$ 0.00979	1.00	1	n/a
510	1	Lighting	LED Exit Sign	13	10	41		\$5.00	\$ 0.05845	1.00	1	n/a
511	1	Lighting	LEC Exit Sign	13	30	73		\$5.00	\$ 0.04894	1.00	1	n/a
512	2	Lighting	LED Traffic / Pedestrian Signals	13	10	41		\$7.92	\$ 0.01633	1.00	1	n/a
513	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	13	15	41		\$2.88	\$ 0.01152	1.00	1	n/a
514	2	Lighting	Specialty Fixtures - Halogen Infra-Red Bulb	13	13	41		\$0.46	\$ 0.00859	1.00	1	n/a
515	2	Lighting	Specialty Fixtures - Integrated Ballast 25W MH	13	13	41		\$3.08	\$ 0.01375	1.00	1	n/a
516	2	Lighting	Specialty Fixtures - Induction Fluorescent 23W	13	13	41		\$1.69	\$ 0.01038	1.00	1	n/a
517	1	Lighting	Specialty Fixtures - Metal Halide Track	13	15	41		\$11.69	\$ 0.03068	1.00	1	n/a
518	2	Lighting	Cold Cathode Screw In	6	12	91		\$2.33	\$ 0.01774	1.00	1	n/a
519	2	Lighting	LED Screw In	13	13	42		\$6.08	\$ 0.01965	1.00	1	n/a
520	2	Lighting	CFL Screw-in	6	6	41		\$0.42	\$ 0.00093	1.00	1	n/a
521	2	Lighting	LED Christmas type - decorative lighting	6	10			\$108.48	\$ 0.01394	1.00	1	n/a
522	1	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	10		29	n/a	\$5.18	\$ 0.18786	1.00	1	n/a
523	1	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	13		29	n/a	\$3.46	\$ 0.21120	1.00	1	n/a
524	1	Lighting	Fluorescent Fixtures with Reflectors	15		29	n/a	\$4.33	\$ 0.03213	1.00	1	n/a

Commercial Electric Model - Measure Data

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per kWh saved	Societal Test	TRC B/C Ratios	Notes
Appliances Computers & Office Equipment												
100												
525	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	15		125	n/a	\$8.67	\$ 0.03462	1.00	1	n/a
526	1	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	15		29	n/a	\$21.67	\$ 0.03560	1.00	1	n/a
527	1	Lighting	Specialty Fixtures - Induction Fluorescent 23W	13		41	n/a	\$3.46	\$ 0.02	1.00	1	n/a
Lighting Controls												
550												
551	1	Lighting Controls	Controls for HID - HVLo	9	9	41		\$22.22	\$ 0.05581	1.00	1	n/a
552	1	Lighting Controls	Controls for HID - Remote Mount Occupancy Sensor	9	9	41		\$13.89	\$ 0.02704	1.00	1	n/a
553	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HID	9	9	41		\$13.89	\$ 0.01289	1.00	1	n/a
554	2	Lighting Controls	Switch Mounted Occupancy Sensor	9	9	41		\$6.11	\$ 0.00952	1.00	1	n/a
555	1	Lighting Controls	Daylight Controlled Dimming Ballast	9	9	41		\$32.00	\$ 0.36156	1.00	1	n/a
556	1	Lighting Controls	Daylight Dimming - New Construction	9	9	18		\$22.22	\$ 0.08818	1.00	1	n/a
557	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	15	15	5		\$266.67	\$ 0.02963	1.00	1	n/a
558	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	15	15	5		\$533.33	\$ 0.02963	1.00	1	n/a
559	2	Lighting Design	15% More Efficient Design - New Construction	15	15	5		\$266.67	\$ 0.00988	1.00	1	n/a
560	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	9	9	94		\$16.11	\$ 0.05733	1.00	1	n/a
561	2	Lighting Design	30% More Efficient Design - New Construction	15	15	125		\$533.33	\$ 0.00988	1.00	1	n/a
Refrigeration												
600												
601	1	Refrigeration	Vending Miser for Soft Drink Vending Machines	5	5	41		\$35.80	\$ 0.02221	1.00	1	n/a
602	1	Refrigeration	Vending Miser for Non-Refrigerated Machines	5	5	41		\$15.80	\$ 0.04083	1.00	1	n/a
603	2	Refrigeration	Refrigerated Case Covers	4.5	4.5	41		\$33.33	\$ 0.01149	1.00	1	n/a
604	1	Refrigeration	Refrigeration Economizer	15	15	41		\$170.53	\$ 0.28422	1.00	1	n/a
605	1	Refrigeration	Commercial Reach-In Cooler	9	9	41		\$11.11	\$ 0.01389	1.00	1	n/a
606	1	Refrigeration	Commercial Reach-In Freezer	9	9	41		\$11.11	\$ 0.01587	1.00	1	n/a
607	1	Refrigeration	Commercial Ice-makers	9	9	41		\$6.22	\$ 0.02074	1.00	1	n/a
608	2	Refrigeration	Evaporator Fan Motor Controls	15	15	41		\$150.27	\$ 0.05779	1.00	1	n/a
609	2	Refrigeration	H.E. Evaporative Fan Motors	15	15	41		\$4.83	\$ 0.00763	1.00	1	n/a
610	2	Refrigeration	Zero-Energy Doors - Coolers	10	10	41		\$27.50	\$ 0.03488	1.00	1	n/a
611	2	Refrigeration	Zero-Energy Doors - Freezers	10	10	41		\$80.00	\$ 0.03512	1.00	1	n/a
612	1	Refrigeration	Door Heater Controls	10	10	41		\$30.00	\$ 0.00857	1.00	1	n/a
613	2	Refrigeration	Discuss Compressor	10				\$83.30	\$ 0.03080	1.00	1	n/a
614	2	Refrigeration	Scroll Compressor	13	13	41		\$49.23	\$ 0.02849	1.00	1	n/a
615	1	Refrigeration	Floating Head Pressure Control	10	10	41		\$73.40	\$ 0.03670	1.00	1	n/a
616	2	Refrigeration	ECM Motors	10				\$25.00	\$ 0.02083	1.00	1	n/a
617	1	Refrigeration	Air Curtains (replacing electric door heaters)	12	12		Used fan motor Ballast	\$157.50	\$ 0.00073	1.00	1	n/a
618	2	Refrigeration	High efficiency designs for large refrigeration freezer system	12				FREE!	FREE!	1.00	1	n/a
619	1	Refrigeration	LED lighting retrofits in refrigeration end-uses/display cases	8	8	124		\$12.38	\$ 0.06707	1.00	1	n/a
Compressed Air												
700												
701	2	Compressed Air	Compressed Air - Non-Controls	7	7	9		\$192.43	\$ 0.01428	1.00	1	n/a
702	1	Compressed Air	Compressed Air - Controls	6	6	9		\$718.83	\$ 0.15041	1.00	1	n/a
Transformers												
715												
716	2	Transformers	Energy Efficient Transformers	30	30	18		\$28.53	\$ 0.01225	1.00	1	n/a
Space Heating												
740												
741	2	Space Heating	High Efficiency Heat Pump	15	15	21		\$66.67	\$ 0.02285	1.00	1	n/a
742	2	Space Heating	Water Source Heat Pump	15	15	125		\$231.00	\$ 0.01124	1.00	1	n/a
743	2	Space Heating	Ground Source Heat Pump	15	15	125		\$2,200.00	\$ 0.12141	1.00	1	n/a
744	1	Space Heating	Ductless (mini split)	15	15	41		\$175.00	\$ 0.10965	1.00	1	n/a
Non-HVAC Motors												
780												
781	2	Non-HVAC Motors	Efficient Motors	20	20	19		\$10.05	\$ 0.00653	1.00	1	n/a
782	2	Non-HVAC Motors	Variable Frequency Drives (VFD)	15	15	29		\$283.33	\$ 0.02266	1.00	1	n/a

Commercial Electric Model - Sources

Sources

- 1 American Council for an Energy Efficient Economy (ACEEE), Selecting Targets for Market Transformation Programs: A National Analysis, 1998.
- 2 California Statewide Commercial Sector Energy Efficiency Potential Study, July, 2002, C.1-3.
- 3 CALIFORNIA STATEWIDE COMMERCIAL SECTOR NATURAL GAS ENERGY EFFICIENCY POTENTIAL STUDY, Study ID #SW061, Prepared for Pacific Gas & Electric Company, Prepared by Mike Rufo and Fred Coito KEMA-XENERGY Inc., May 14, 2003
- 4 California Urban Water Conservation Council, <http://www.cuwcc.org/sprayvalves.lasso>
- 5 Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and the Southwest Connecticut Region, GDS Associates, June 2004
- 6 Database for Energy Efficient Resources (DEER) 2001 Update, California Energy Commission, <http://www.energy.ca.gov/deer/index.html>
- 7 EIA - Technology Forecast Updates - Residential and Commercial Building Technologies - Reference Case, September 2004, Navigant Consulting, Reference No. 117943
- 8 Federal Energy Management Program (FEMP) brochure: "How to Buy an Energy-Efficient Family-Sized Commercial Clothes Washer", http://www.eere.energy.gov/femp/procurement/comm_clotheswashers.html#cost
- 9 GDS Associates Estimate/Calculation
- 10 The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service Territory of PNM, GDS Associates, May 2005
- 11 Keyspan Energy, 2004. Program data provided via email.
- 12 Maine Cost Effectiveness Model, March 2003.
- 13 National Grid, 2000 Energy Initiative Program Data, 2000 DSM Performance Measurement Report, Appendix 3, December 2001 15 hp motor (725 KWh per hp)
- 14 KeySpan Energy, 2005. Cost benefit analysis conducted for solar measures.
- 15 Northeast Utilities, Action Program C&I Persistence Study, Oct. 2001, p. 39
- 16 Quantum Consulting - Pilot program experience from Oakland CA per email communication from Mike Rufo on 2/3/04. and American Council for an Energy Efficient Economy (ACEEE), Selecting Targets for Market Transformation Programs: A National Analysis, 1998.
- 17 RS Means CostWorks 2005, construction cost estimating database for Albuquerque
- 18 RS Means CostWorks 2005, construction cost estimating database for Albuquerque
- 19 Efficiency Vermont Technical Reference User Manual (TRM) No. 2006-41
- 20 WI Focus on Energy Cost Data (VA Hospital)
- 21 Energy Efficiency and Renewable Energy Resource Development Potential in New York State - Final Report, Volume 5 Energy Efficiency Technical Appendices, August 2003.
- 22 National Grid, RFP LJR 05-07, Prescriptive Compressed Air Impact Study p. 10
- 23 NYSERDA final report for Agreement number 5035, Turnkey Pump and Compressed Air System Efficiency Program, Final Report, November 2003, p.12
- 24 Draft Final Report: Phase 2 Evaluation of the Efficiency Vermont Business Programs, December 2005.
- 25 Dairy Farm Energy Audit Summary Report for FlexTech Services, NYSERDA, July 2003.
- 26 GDS Benefit Cost Model with Vermont Avoided Costs
- 27 Email from Efficiency Vermont on March 12, 2006 responding to GDS questions on market penetrations of efficient measures.
- 28 Energy Trust of Oregon - personal communication, noted that they expect 20-50% savings from water and wastewater project.
- 29 Efficiency Maine Technical Reference User Manual (TRM) - No. 2007-1
- 30 NH Saves at Work - Instruction for Completing the Retrofit Lighting Rebate Worksheet - Rated Wattage Table
- 31 Increasing Market Penetration of LED Traffic Signals in New York State: Lighting Research Center, Rensselaer Polytechnic Institute American Council for an Energy Efficient Economy, Prepared for the New York State Energy Research and Development Authority
- 32 Conventional Vs LED Traffic Signals; Operational Characteristics and Economic Feasibility A Project Sponsored by Arkansas Department of Economic Development, July 1, 2003, Report Prepared by Traffic Engineering Division Department of Public Works City of Little Rock
- 33 EPA Energy Star Program
- 34 Energy-Saving Incentives for High Efficiency Scroll Compressors in Walk-in Coolers, 11/06, Emerson Climate Technologies
- 35 Canadian Office of Energy Efficiency
- 36 Small Business Energy Efficiency - Clean Nova Scotia
- 37 Equipment Suppliers Survey, 2007, GDS Associates
- 38 EIA, 2003 CBECS, New England, Non Mall saturation, square footage
- 39 Energy Star Central Air Savings Calculator
- 40 Lawrence Berkeley National Lab, Website, Energy Savings, Lighting Controls
- 41 Efficiency Vermont Technical Reference User Manual (TRM) - No. 2007-47
- 42 EarthLed Store Website
- 43 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Residential Refrigerator Savings (.xls)
- 44 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Consumer Clothes Washer Savings (.xls)
- 45 California Statewide Commercial Sector Energy Efficiency Potential Study, July, 2002, C.2-4. and GDS calculation based on 3.5 KW compressor and 30% run time for cooler (Per Colin Odell)
- 46 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Commercial Dishwasher Savings (.xls)
- 47 Food Service Technology Center, Commercial Cooking Appliance Technology Assessment, 2002
- 48 Smart Power Strip manufacturer's website: <http://bitsitd.net/ConsumerProducts/index.htm>
- 49 EIA, Computers in Commercial Buildings, Table 1, 1999
- 50 City of Lewiston, ME Press Release, November 22, 2006, citing Efficiency Maine savings estimates for 11 ME towns.
- 51 Ckitchen.com
- 52 ConsumerReports.org
- 53 CEE Commercial Kitchens Initiative, Program Guidance on Pre-Rinse Spray Valves
- 54 City of Keene NH, Cities for Climate Protection Campaign, Local Action Plan, February 19, 2004
- 55 Federal Energy Management Program (FEMP), Energy Cost Calculator for Commercial Unitary Systems
- 56 Federal Energy Management Program (FEMP), Energy Cost Calculator for Electric and Gas Water Heaters

Commercial Electric Model - Sources

- 57 ACEEE, Consumer Guide to Home Energy Savings, Online Version
- 58 American Solar Energy Society, FindSolar.com, Solar Pool and Spa Calculator
- 59 US DOE, EERE website, Swimming Pool Covers
- 60 AmeriMerc.com, commercial pool supplies
- 61 US DOE, EERE website, Estimating Heat Pump Swimming Pool Heater Costs and Savings
- 62 Energy Supermarket Knowledgebase, <http://kb.solardirect.com/questions/116/>, Choosing the Right Pool Heating System - Side-by-Side Comparison Guide
- 63 US DOE, EERE website, Installing and Operating a Swimming Pool Pump for Energy Efficiency
- 64 Florida Solar Energy Center, Appliance and Equipment Efficiency Standards for Florida
- 65 ACEEE, Emerging Technologies and Practices
- 66 Energy Ideas Clearinghouse, Energy Efficiency Fact Sheet, Hot Tub and Pool Conservation Tips
- 67 Efficiency Vermont website, Ask Rachael, Pool, Hot Tubs, Saving Water
- 68 Energy Star Roofing Comparison Calculator
- 69 US EPA, Cool Roof Product Information
- 70 Saturn Resource Management, Electricity Consumption by Entertainment Systems
- 71 Energy Star, Assumptions Behind TV Savings Numbers Presented at October 18, 2007, ENERGY STAR TV Stakeholder Meeting
- 72 Opportunities for Appliance and Equipment Efficiency Standards in Texas Maggie Eldridge, Andrew dalasi, and Steven Nadel September 2006 Report Number ASAP-7/ACEEE-A063 Prepared for: Texas State Energy Conservation Office
- 73 Review: An Even Better Exit Sign, by Emily Rabin, Published September 8, 2001
- 74 Exit Signs.com
- 75 ACEE, Emerging Energy Saving Technologies & Practices for the Buildings Sector, 2004
- 76 US DOE, EERE website, Ductless, Mini-Split Air Conditioners
- 77 Advanced Diagnostic Tools for Rooftop Air Conditioners, Jim Braun, Ray W. Herrick Laboratories, Purdue University at CEE meeting, December 2, 2004
- 78 Southern California Edison, Save Energy Money and the Environment, AC Tune-Up Program
- 79 Energy Consumption Characteristics of Commercial Building HVAC Systems, Volume III: Energy Savings Potential, Prepared by TIAX LLC, for DOE Building Technologies Program, July, 2002
- 80 State of California Energy Commission, Fact Sheet: VAV System Static Pressure Reset Strategy
- 81 PDHOnline.org, HVAC Optimization with Cold Air Distribution
- 82 Cold Air Distribution by Sean Badenhorst Krantz, Products and Systems Australia
- 83 Carrier PTAC energy use calculator
- 84 USA Tech Website, Vending Miser savings calculator
- 85 Food Service Technology Center, Electric Fryer Life-Cycle Cost Calculator
- 86 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Electric Fryers
- 87 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Hot Food Holding Cabinet
- 88 Food Service Technology Center, Hot Food Holding Cabinet Life-Cycle Cost Calculator
- 89 EStar CFS: Energy Star Best Practices tool for full-service restaurants. http://www.energystar.gov/index.cfm?c=commercial_food_service.commercial_food_service
- 90 Food Service Technology Center, Electric Steamer Life-Cycle Cost Calculator
- 91 Treehugger.com, New Cold Cathode Fluorescents, 85% less mercury
- 92 Demand Ventilation in Commercial Kitchens, An Emerging Technology Case Study, Food Service Technology Center, November 2004
- 93 US DOE, EERE website, Estimating Heat Pump Swimming Pool Heater Costs and Savings
- 94 Night-Saver.com, Simple Payback Analysis Calculator
- 95 Federal Energy Management Program (FEMP) Energy Cost Calculator for Water-Cooled Electric Chillers
- 96 Variable Refrigerant Flow Systems, ASHRAE Journal, April, 2007
- 97 ACEEE, Saving Energy with Efficient Residential Furnace Air Handlers: A Status Report and Program Recommendations, April, 2003, RPT#A033
- 98 San Francisco State U., ECO No. 3 - Install Air Curtains on Freezer Doors
- 99 The Costs and Benefits of LEED-NC in Colorado, Prepared for the Governor's Office of Energy Management and Conservation by Enermodal Engineering, Inc., October 25, 2006
- 100 THE COST-EFFECTIVENESS OF COMMERCIAL-BUILDINGS COMMISSIONING, A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the U.S., Lawrence Berkley National Lab, December 15, 2004
- 101 Energy Assessment Report for Plymouth State University, GDS Associates, June 2008
- 102 Savings from HeatSavr Actual Users - <https://shop.solardirect.com/pdf/pool-accessories/pool-covers/heatsavr-effectiveness.pdf>
- 103 http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13220
- 104 http://www.windotherm.com/storm-window_specials.htm
- 105 www.santecooper.com/%2Fportal%2Fpage%2Fportal%2FSanteeCooper%2FMyBusiness%2FManaging%2520Energy%2520Costs%2FNotYourAverageT8.pdf
- 106 Super T8s: Super Lamps, Super Ballasts," E SOURCE Report, ER-03-16 September 2003, Platts Research & Consulting
- 107 <http://www.grainger.com/Grainger/categories/lighting/indoor-hid-fixtures/hid-high-bay-fixtures>
- 108 <http://www.novalightingstore.com/American-Fluorescent-Fluorescent-Lighting.asp?id=47183&NpsRfrSrc=Froogle&NpsRfrMfg=33>
- 109 Reading Municipal Light Department Supply Curve Model, GDS Associates, December 2007
- 110 http://srm.biz/Tips.Appliances.Pool_pump_efficiency.htm
- 111 http://web.archive.org/web/20061006153904/http://www.energy.ca.gov/appliances/2003rulemaking/documents/case_studies/CASE_Portable_Spa.pdf
- 112 http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13290
- 113 http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13140
- 114 http://www.ecosystemssolar.com/liquid_solar_pool_covers.htm
- 115 <http://www.toolbase.org/Technology-Inventory/Windows/interior-storm-windows>
- 116 2008 Keysan Equipment List Prices

Commercial Electric Model - Sources

117 <http://www.demand-controlled-ventilation.com/>

118 EFl.org - visited on 8/7/08

119 Energy Star Desktop Computer Calculator

120 EFl.org

121 US DOE, EERE Consumer's Guide to Energy Efficiency and Renewable Energy, "Solar Swimming Pool Heaters" http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13230

122 Utility Comments

123 EERE Website

124 PECl Regional Technical Forum July 1st, 2008. Power Point presented by Ryan Fedie and Jamie Anthony, Portland Energy Conservation, Inc.

125 The New England State Project Working Group Measure Life Report for Residential and Commercial/Industrial Lighting and HVAC Measures, June 2007, prepared by GDS.

126 Energy Star Commercial Heat Pump Calculator

Commercial Electric Model - Base Case Factors

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
				Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
100 Appliances, Computers, Office Equipment														
101	2	Appliances, Computers, Office Equipment	Energy Star Compliant Single Door Refrigerator	20%	20%	20%	20%	30%	10%	20%	20%	0%	0%	9
102	2	Appliances, Computers, Office Equipment	Energy Star office equipment including computers, monitors, copiers, multi-function machines.	60%	50%	20%	60%	10%	40%	30%	50%	50%	0%	9
103	2	Appliances, Computers, Office Equipment	TVs - Energy Star over standard	10%	20%	30%	10%	60%	30%	40%	30%	20%	0%	9
104	1	Appliances, Computers, Office Equipment	Energy Efficient "Smart" Power Strip for PC/Monitor/Printer	30%	25%	10%	30%	5%	20%	15%	25%	25%	0%	9
105	1	Appliances, Computers, Office Equipment	EZ Save Monitor Power Management Software	30%	25%	10%	30%	5%	20%	15%	25%	25%	0%	9
106				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
107				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
108				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
109				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
110				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
111				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
112				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
113				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
114				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
115				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
116				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
117				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
118				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
119				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
120				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
121				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
122				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
123				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
124				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
125				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
126				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
127				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
128				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
129				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
130				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
131				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
132				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
133				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
134				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
135				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
136				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
137				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
138				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
139				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
140				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
141				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
142				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
143				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
144				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
145				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
146				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
147				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
148				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
149				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
150				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
151	2	Water Heating	Commercial Dishwasher (Under Counter Hi-Temp. Electric DHW)	2.0%	2.0%	5.0%	1.0%	2.5%	5.0%	20.0%	5.0%	5.0%	0.0%	9
152	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp. - Electric DHW)	2.0%	2.0%	5.0%	1.0%	2.5%	5.0%	20.0%	5.0%	5.0%	0.0%	9
153	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp. Non-Electric DHW)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	n/a
154	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Electric DHW)	0.5%	1.0%	1.0%	1.0%	15.0%	17.5%	5.0%	5.0%	5.0%	0.0%	9
155	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Non-Electric DHW)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
156	1	Water Heating	Ozone Commercial Laundry System (Electric HW)	0.5%	1.0%	1.0%	1.0%	15.0%	17.5%	5.0%	5.0%	5.0%	0.0%	9
157	2	Water Heating	Heat Pump Water Heater	23.3%	23.3%	21.7%	23.3%	13.3%	10.0%	11.7%	18.3%	18.3%	0.0%	9
158	2	Water Heating	Booster Water Heater	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	5.0%	10.0%	10.0%	0.0%	9
159	1	Water Heating	Point of Use Water Heater	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	5.0%	10.0%	10.0%	0.0%	9
160	1	Water Heating	Solar Water Heating System	23.3%	23.3%	21.7%	23.3%	13.3%	10.0%	11.7%	18.3%	18.3%	0.0%	9
161	2	Water Heating	High Efficiency Electric Water Heater	23.3%	23.3%	21.7%	23.3%	13.3%	10.0%	11.7%	18.3%	18.3%	0.0%	9
162	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle (Included in 2006 Federal Standards) (Electric HW)	4.0%	3.0%	10.0%	2.0%	5.0%	10.0%	40.0%	10.0%	10.0%	0.0%	9
163				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
164				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
165				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
166				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
167				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
168				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
169				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
170				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
171				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
172				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
173				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
174				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
175				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
176				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
177				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
178				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
179				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
180				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
181				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
182				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
183				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
184				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
185				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
186				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
187				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
188				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
189				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
190				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
191				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
192				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
193				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
194				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
195				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
196				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
197				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
198				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
199				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
200				0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
201	2	Pools	Energy Efficient Pool Pump with controls	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	0.0%	9
202	2	Pools	High efficiency spas/hot tubs	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	0.0%	9
203	1	Pools	Solar Pool Heater	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%	9
204	1	Pools	Heat Pump Pool Heater	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	42.5%	0.0%	9
205	2	Pools	Temperature Control	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	0.0%	9
206	1	Pools	Pool Cover											

Commercial Electric Model - Base Case Factors

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
				Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
334	2	Ventilation	Variable Pitch Fans	10%	0%	0%	0%	10%	10%	0%	10%	10%	0%	9
335	2	Ventilation	Electronically-Commutated Permanent Magnet Motors (ECMPs)	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	SURV
336	2	Ventilation	Improved Duct Sealing	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%	9
337		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
338		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
340 Space Cooling - Chillers														
341	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 300 tons	38%	38%	38%	38%	38%	38%	38%	38%	38%	0%	9
342	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 500 tons	38%	38%	38%	38%	38%	38%	38%	38%	38%	0%	9
343	2	Space Cooling - Chillers	Centrifugal Chiller, Optimal Design, 0.4 kW/ton, 500 tons	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
344	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 300 ton	38%	38%	38%	38%	38%	38%	38%	38%	38%	0%	9
345	2	Space Cooling - Chillers	Variable Refrigerant Volume/Flow	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	9
347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	38%	38%	38%	38%	38%	38%	38%	38%	38%	0%	9
348		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
349		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
350		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
351		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
352		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
353		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
360 HVAC Controls														
361	1	HVAC Controls	Retrocommissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
362	1	HVAC Controls	Programmable Thermostat	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	9
363	1	HVAC Controls	EMS Install	38%	38%	38%	38%	38%	38%	38%	38%	38%	0%	9
364	1	HVAC Controls	EMS Optimization	8%	8%	8%	8%	8%	8%	8%	8%	8%	0%	9
365	2	HVAC Controls	System/Component Diagnostics	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
366	2	HVAC Controls	LEED Enhanced Commissioning	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	na
367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	9
368		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
369		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
370		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
371		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
372		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
373		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
380 Space Cooling - Unitary and Split AC														
381	2	Space Cooling - Unitary and Split AC	HVAC Advanced Tune-Up	55%	55%	55%	55%	55%	55%	55%	55%	55%	0%	9
382	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary and Split Systems (Tier 2)	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	9
383	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	9
384	1	Space Cooling - Unitary and Split AC	Ductless (mini split)	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	9
385	2	Space Cooling - Unitary and Split AC	Comprehensive Track Proper HVAC Sizing	13%	13%	13%	13%	13%	13%	13%	13%	13%	0%	9
386	1	Space Cooling - Unitary and Split AC	Improved Duct Sealing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	na
387	2	Space Cooling - Unitary and Split AC	Radiant Ceiling Cooling	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	9
388	2	Space Cooling - Unitary and Split AC	Dedicated Outdoor Air System	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	9
389	2	Space Cooling - Unitary and Split AC	Ground Source Heat Pump - Cooling	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	9
390		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
391		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
392		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
393		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
394		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
395		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
396		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
397		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
398		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
399		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
400 Cooking														
401	2	Cooking	HE Steamer	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	9
402	2	Cooking	HE Combination Oven	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	9
403	2	Cooking	HE Holding Cabinet	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	9
404	2	Cooking	HE Fryer - Electric	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%	9
405	2	Cooking	Demand Ventilation Control	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	9
406	2	Cooking	Induction Cooktops	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	9
407		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
408		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
409		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
410		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
411		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
412		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
413		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
500 Lighting														
501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	14.1%	8.6%	16.7%	18.1%	6.1%	18.6%	7.4%	16.9%	10.4%	0.0%	SURV
502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	14.1%	8.6%	16.7%	18.1%	6.1%	18.6%	7.4%	16.9%	10.4%	0.0%	SURV

Commercial Electric Model - Base Case Factors

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
				Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
503	2	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	14.1%	8.6%	16.7%	18.1%	6.1%	18.6%	7.4%	16.9%	10.4%	0.0%	SURV
504	2	Lighting	High Efficiency Fluorescent Fixtures (Low Glare Troffer HP18/T5 Replacing T12)	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	SURV
505	2	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	SURV
506	2	Lighting	Fluorescent Fixtures with Reflectors	14.1%	8.6%	16.7%	18.1%	6.1%	18.6%	7.4%	16.9%	10.4%	0.0%	SURV
507	1	Lighting	CFL Fixture	2.2%	8.6%	3.4%	1.9%	15.1%	1.0%	14.2%	1.8%	3.9%	0.0%	SURV
508	2	Lighting	Replace Exterior Quartz Halogen w/PSMH or HPS	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
509	2	Lighting	Replace Exterior Metal Halide w/PSMH	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
510	1	Lighting	LED Exit Sign	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	SURV
511	1	Lighting	LEC Exit Sign	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	SURV
512	2	Lighting	LED Traffic / Pedestrian Signals	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
513	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	SURV
514	2	Lighting	Specialty Fixtures - Halogen Infra-Red Bulb	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
515	2	Lighting	Specialty Fixtures - Integrated Ballast 25W MH	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
516	2	Lighting	Specialty Fixtures - Induction Fluorescent 23W	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
517	1	Lighting	Specialty Fixtures - Metal Halide Track	3.8%	16.3%	2.7%	0.5%	4.9%	1.1%	5.3%	1.7%	11.1%	0.0%	SURV
518	2	Lighting	Cold Cathode Screw In	2.2%	8.6%	3.4%	1.9%	15.1%	1.0%	14.2%	1.8%	3.9%	0.0%	SURV
519	2	Lighting	LED Screw In	2.2%	8.6%	3.4%	1.9%	15.1%	1.0%	14.2%	1.8%	3.9%	0.0%	SURV
520	2	Lighting	CFL Screw-in	2.2%	8.6%	3.4%	1.9%	15.1%	1.0%	14.2%	1.8%	3.9%	0.0%	SURV
521	2	Lighting	LED Christmas type - decorative lighting	0.3%	1.4%	0.2%	0.0%	0.4%	0.1%	0.4%	0.1%	0.9%	0.0%	SURV
522	1	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
523	1	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
524	1	Lighting	Fluorescent Fixtures with Reflectors	14.1%	8.6%	16.7%	18.1%	6.1%	18.6%	7.4%	16.9%	10.4%	0.0%	SURV
525	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
526	1	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
527	1	Lighting	Specialty Fixtures - Induction Fluorescent 23W	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
528	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
529	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
530	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
531	2	Lighting Controls	Switch Mounted Occupancy Sensor	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
532	1	Lighting Controls	Daylight Controlled Dimming Ballast	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
533	1	Lighting Controls	Daylight Dimming - New Construction	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
534	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
535	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
536	2	Lighting Design	15% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
537	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
538	2	Lighting Design	30% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
539	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
540	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
541	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
542	2	Lighting Controls	Switch Mounted Occupancy Sensor	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
543	1	Lighting Controls	Daylight Controlled Dimming Ballast	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
544	1	Lighting Controls	Daylight Dimming - New Construction	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
545	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
546	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
547	2	Lighting Design	15% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
548	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
549	2	Lighting Design	30% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
550	Lighting Controls													
551	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
552	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
553	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
554	2	Lighting Controls	Switch Mounted Occupancy Sensor	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
555	1	Lighting Controls	Daylight Controlled Dimming Ballast	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
556	1	Lighting Controls	Daylight Dimming - New Construction	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
557	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
558	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
559	2	Lighting Design	15% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
560	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
561	2	Lighting Design	30% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
562	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
563	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
564	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
565	2	Lighting Controls	Switch Mounted Occupancy Sensor	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
566	1	Lighting Controls	Daylight Controlled Dimming Ballast	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
567	1	Lighting Controls	Daylight Dimming - New Construction	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
568	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
569	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
570	2	Lighting Design	15% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
571	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
572	2	Lighting Design	30% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
573	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
574	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	15.2%	6.3%	0.0%	1.4%	2.8%	1.6%	0.0%	4.9%	20.7%	0.0%	9
575	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
576	2	Lighting Controls	Switch Mounted Occupancy Sensor	35.2%	21.4%	41.9%	45.2%	15.2%	46.5%	18.6%	42.3%	25.9%	0.0%	9
577	1	Lighting Controls	Daylight Controlled Dimming Ballast	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
578	1	Lighting Controls	Daylight Dimming - New Construction	70.5%	42.9%	83.7%	90.3%	30.4%	93.0%	37.1%	84.7%	51.9%	0.0%	9
579	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
580	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
581	2	Lighting Design	15% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
582	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	n/a
583	2	Lighting Design	30% More Efficient Design - New Construction	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	9
584	1	Lighting Controls	Controls for HID - HI/Lo	15.2%	6.3%									

Commercial Electric Model - Base Case Factors

#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
				Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
Transformers														
715			<i>Transformers</i>											
716	2	Transformers	Energy Efficient Transformers	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
717														
718														
719														
720														
721														
722														
723														
724														
725														
726														
727														
728														
729														
730														
Space Heating														
740			<i>Space Heating</i>											
741	2	Space Heating	High Efficiency Heat Pump	23%	23%	23%	23%	23%	23%	23%	23%	23%	0%	9
742	2	Space Heating	Water Source Heat Pump	23%	23%	23%	23%	23%	23%	23%	23%	23%	0%	9
743	2	Space Heating	Ground Source Heat Pump	23%	23%	23%	23%	23%	23%	23%	23%	23%	0%	9
744	1	Space Heating	Ductless (mini split)	23%	23%	23%	23%	23%	23%	23%	23%	23%	0%	9
745														
746														
747														
748														
749														
Non-HVAC Motors														
780			<i>Non-HVAC Motors</i>											
781	2	Non-HVAC Motors	Efficient Motors	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
782	2	Non-HVAC Motors	Variable Frequency Drives (VFD)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
783														
784														
785														
786														
787														
788														
Base Case Factor:														
e fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.														
avings Factor:														
e percentage reduction in electricity or gas consumption resulting from application of the efficient technology.														
aining Factor:														
e fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.														
vertible Factor:														
e fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment).														

Commercial Electric Model - Remaining Factors

Expansion	#	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
100 Appliances, Computers, Office Equipment															
No	101	2	Appliances, Computers, Office Equipment	Energy Star Compliant Single Door Refrigerator	61%	61%	61%	61%	61%	61%	61%	61%	61%	0%	SURV
No	102	2	Appliances, Computers, Office Equipment	Energy Star office equipment including computers, monitors, copiers, multi-function machines.	55%	100%	0%	21%	100%	54%	100%	59%	93%	0%	SURV
No	103	2	Appliances, Computers, Office Equipment	TVs - Energy Star over standard	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	104	1	Appliances, Computers, Office Equipment	Energy Efficient "Smart" Power Strip for PC/Monitor/Printer	70%	70%	70%	70%	70%	70%	70%	70%	70%	0%	9
No	105	1	Appliances, Computers, Office Equipment	EZ Save Monitor Power Management Software	55%	55%	55%	55%	55%	55%	55%	55%	55%	0%	109
Yes	106														
Yes	107														
Yes	108														
Yes	109														
Yes	110														
Yes	111														
Yes	112														
Yes	113														
Yes	114														
150 Water Heating/End Use															
No	151	2	Water Heating	Commercial Dishwasher (Under Counter Hi-Temp, Electric DHW)	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	SURV
No	152	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp. - Electric DHW)	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	SURV
No	153	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor Hi-Temp, Non-Electric DHW)	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	SURV
No	154	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Electric DHW)	57%	57%	57%	57%	57%	57%	57%	57%	57%	0%	SURV
No	155	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Non-Electric DHW)	40%	40%	40%	40%	40%	40%	40%	40%	40%	80%	SURV
No	156	1	Water Heating	Ozone Commercial Laundry System (Electric HW)	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	SURV
No	157	2	Water Heating	Heat Pump Water Heater	95%	95%	95%	94%	95%	95%	95%	95%	97%	0%	SURV
No	158	2	Water Heating	Booster Water Heater	97%	97%	97%	98%	97%	97%	97%	97%	100%	0%	SURV
No	159	1	Water Heating	Point of Use Water Heater	89%	89%	89%	83%	89%	89%	89%	89%	88%	0%	SURV
No	160	1	Water Heating	Solar Water Heating System	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	161	2	Water Heating	High Efficiency Electric Water Heater	21%	21%	21%	21%	21%	21%	21%	21%	21%	0%	9%
No	162	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle (Included in 2006 Federal Standards) (Electric HW)	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	9
Yes	163														
Yes	164														
Yes	165														
200 Pools															
No	201	2	Pools	Energy Efficient Pool Pump with controls	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	SURV
No	202	2	Pools	High efficiency spas/hot tubs	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	SURV
No	203	1	Pools	Solar Pool Heater	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	SURV
No	204	1	Pools	Heat Pump Pool Heater	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	SURV
No	205	2	Pools	Temperature Control	7%	7%	7%	7%	7%	7%	7%	7%	7%	0%	SURV
No	206	1	Pools	Pool Cover	89%	89%	89%	89%	89%	89%	89%	89%	89%	0%	SURV
No	207	1	Pools	Liquid Pool Cover	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	SURV
Yes	208														
Yes	209														
Yes	210														
Yes	211														
Yes	212														
300 Building Envelope															
No	301	2	Building Envelope	Integrated Building Design (Envelope Only)	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	302	2	Building Envelope	Energy Efficient Windows (Replace on Burnout)	100%	100%	75%	67%	69%	67%	75%	64%	59%	0%	SURV
No	303	1	Building Envelope	Interior Storm Windows (Low-e or double clear film)	82%	82%	82%	82%	82%	82%	82%	82%	82%	0%	SURV
No	304	1	Building Envelope	Cool Roofing (White Coatings)	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
Yes	305														
Yes	306														
Yes	307														
Yes	308														
Yes	309														
Yes	310														
Yes	311														
Yes	312														
Yes	313														
Yes	314														
320 Ventilation															
No	321	2	Ventilation	Dual Enthalpy Economizer - from Fixed Damper	65%	65%	65%	65%	65%	65%	65%	65%	65%	0%	SURV
No	322	2	Ventilation	Dual Enthalpy Economizer - from Dry Bulb	72%	72%	72%	72%	72%	72%	72%	72%	72%	0%	38
No	323	2	Ventilation	Demand-Controlled Ventilation (CO2 vent control)	71%	71%	71%	71%	71%	71%	71%	71%	71%	0%	24
No	324	2	Ventilation	Heat Recovery	87%	87%	87%	87%	87%	87%	87%	87%	87%	0%	SURV
No	325	1	Ventilation	Fan Motor, 40hp, 1800rpm, 94.1%	75%	75%	100%	75%	75%	75%	75%	75%	75%	0%	5
No	326	1	Ventilation	Fan Motor, 15hp, 1800rpm, 92.8%	75%	75%	100%	75%	75%	75%	75%	75%	75%	0%	5
No	327	1	Ventilation	Fan Motor, 5hp, 1800rpm, 90.4%	75%	75%	100%	75%	75%	75%	75%	75%	75%	0%	5
No	328	2	Ventilation	Variable Speed Drive Control, 15 HP	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	24
No	329	2	Ventilation	Variable Speed Drive Control, 5 HP	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	24
No	330	2	Ventilation	Variable Speed Drive Control, 40 HP	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	24
No	331	1	Ventilation	Static Pressure Reset on Fans	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	332	2	Ventilation	Underfloor Air distribution	99%	99%	99%	99%	99%	99%	99%	99%	99%	0%	9
No	333	2	Ventilation	Cold air distribution (reduce fan HP)	99%	99%	99%	99%	99%	99%	99%	99%	99%	0%	9
No	334	2	Ventilation	Variable Pitch Fans	70%	70%	70%	70%	70%	70%	70%	70%	70%	0%	9
No	335	2	Ventilation	Electronically-Commuted Permanent Magnet Motors (ECPMs)	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
No	336	2	Ventilation	Improved Duct Sealing	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	9
Yes	337														
Yes	338														
340 Space Cooling - Chillers															

Commercial Electric Model - Remaining Factors

Expansion	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	341	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 300 tons	67%	67%	67%	67%	67%	67%	67%	67%	67%	0%	24
No	342	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 500 tons	67%	67%	67%	67%	67%	67%	67%	67%	67%	0%	24
No	343	2	Space Cooling - Chillers	Centrifugal Chiller, Optimal Design, 0.4 kW/ton, 500 tons	67%	67%	67%	67%	67%	67%	67%	67%	67%	0%	24
No	344	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 300 ton	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	5
No	345	2	Space Cooling - Chillers	Variable Refrigerant Volume/Flow	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	5
Yes	348				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	349				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	350				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	351				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	352				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	353				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	354				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	355				100%	100%	100%	100%	100%	100%	100%	100%	100%		
360 HVAC Controls															
No	361	1	HVAC Controls	Retrocommissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	10
No	362	1	HVAC Controls	Programmable Thermostat	44%	44%	44%	37%	44%	44%	44%	44%	51%	0%	SURV
No	363	1	HVAC Controls	EMS install	62%	62%	62%	62%	62%	62%	62%	62%	62%	0%	SURV
No	364	1	HVAC Controls	EMS Optimization	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	38
No	365	2	HVAC Controls	System/Component Diagnostics	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	38
No	366	2	HVAC Controls	LEED Enhanced Commissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	0%	0%	0%	0%	95%	0%	0%	0%	0%	0%	9
Yes	368				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	369				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	370				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	371				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	372				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	373				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	374				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	375				100%	100%	100%	100%	100%	100%	100%	100%	100%		
380 Space Cooling - Unitary and Split AC															
No	381	2	Space Cooling - Unitary and Split AC	HVAC Advanced Tune-Up	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	5
No	382	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary and Split Systems (Tier 2)	70%	70%	70%	70%	70%	70%	70%	70%	70%	0%	9
No	383	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
No	384	1	Space Cooling - Unitary and Split AC	Ductless (mini split)	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
No	385	2	Space Cooling - Unitary and Split AC	Comprehensive Track Proper HVAC Sizing	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
No	386	1	Space Cooling - Unitary and Split AC	Improved Duct Sealing	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	9
No	387	2	Space Cooling - Unitary and Split AC	Radiant Ceiling Cooling	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	388	2	Space Cooling - Unitary and Split AC	Dedicated Outdoor Air System	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	389	2	Space Cooling - Unitary and Split AC	Ground Source Heat Pump - Cooling	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	9
Yes	390				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	391				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	392				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	393				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	394				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	395				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	396				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	397				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	398				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	399				100%	100%	100%	100%	100%	100%	100%	100%	100%		
400 Cooking															
No	401	2	Cooking	HE Steamer	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	402	2	Cooking	HE Combination Oven	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	403	2	Cooking	HE Holding Cabinet	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	404	2	Cooking	HE Fryer - Electric	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
No	405	2	Cooking	Demand Ventilation Control	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	SURV
No	406	2	Cooking	Induction Cooktops	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
Yes	407				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	408				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	409				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	410				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	411				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	412				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	413				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	414				100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	415				100%	100%	100%	100%	100%	100%	100%	100%	100%		
500 Lighting															
No	501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	21%	36%	1%	20%	49%	50%	59%	3%	12%	0%	SURV
No	502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	27%	27%	27%	27%	27%	27%	27%	27%	27%	0%	41
No	503	2	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	21%	36%	1%	20%	49%	50%	59%	3%	12%	0%	SURV
No	504	2	Lighting	High Efficiency Fluorescent Fixtures (Low Glare Troffer HPT8/T5 Replacing T12)	67%	67%	67%	67%	67%	67%	67%	67%	67%	0%	41
No	505	2	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - HI & Low Bay	69%	69%	69%	69%	69%	69%	69%	50%	69%	0%	37
No	506	2	Lighting	Fluorescent Fixtures with Reflectors	37%	36%	59%	44%	61%	68%	16%	41%	57%	0%	SURV
No	507	1	Lighting	CFL Fixture	35%	89%	96%	37%	32%	33%	57%	46%	41%	0%	SURV
No	508	2	Lighting	Replace Exterior Quartz Halogen w/PSMH or HPS	69%	69%	69%	69%	69%	69%	69%	69%	69%	0%	SURV
No	509	2	Lighting	Replace Exterior Metal Halide w/PSMH	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	510	1	Lighting	LED Exit Sign	39%	42%	85%	52%	41%	29%	50%	42%	54%	0%	SURV
No	511	1	Lighting	LEC Exit Sign	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	SURV
No	512	2	Lighting	LED Traffic / Pedestrian Signals	65%	65%	65%	65%	65%	65%	65%	65%	65%	0%	27
No	513	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	94%	100%	94%	80%	100%	100%	94%	95%	94%	0%	SURV

Commercial Electric Model - Remaining Factors

Expansion	#	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	514	2	Lighting	Specialty Fixtures - Halogen Infra-Red Bulb	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	9
No	515	2	Lighting	Specialty Fixtures - Integrated Ballast 25W MH	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	9
No	516	2	Lighting	Specialty Fixtures - Induction Fluorescent 23W	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	9
No	517	1	Lighting	Specialty Fixtures - Metal Halide Track	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	9
No	518	2	Lighting	Cold Cathode Screw In	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	519	2	Lighting	LED Screw In	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	520	2	Lighting	CFL Screw-in	43%	73%	77%	46%	42%	42%	56%	49%	47%	0%	SURV
No	521	2	Lighting	LED Christmas type - decorative lighting	44%	44%	44%	44%	44%	44%	44%	44%	44%	0%	9
No	522	1	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	523	1	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	524	1	Lighting	Fluorescent Fixtures with Reflectors	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	525	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	526	1	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - Hi & Low Bay	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	527	1	Lighting	Specialty Fixtures - Induction Fluorescent 23W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	528														
Yes	529														
Yes	530														
Yes	531														
Lighting Controls															
No	550														
No	551	1	Lighting Controls	Controls for HID - Hi/Lo	93%	93%	93%	93%	93%	93%	93%	93%	93%	0%	9
No	552	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	89%	89%	89%	89%	89%	89%	89%	89%	89%	0%	37
No	553	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	85%	74%	89%	80%	87%	89%	74%	78%	69%	0%	SURV
No	554	2	Lighting Controls	Switch Mounted Occupancy Sensor	89%	89%	89%	89%	89%	89%	89%	89%	89%	0%	37
No	555	1	Lighting Controls	Daylight Controlled Dimming Ballast	91%	97%	97%	97%	97%	97%	97%	97%	97%	0%	SURV
No	556	1	Lighting Controls	Daylight Dimming - New Construction	65%	65%	65%	65%	65%	65%	65%	65%	65%	0%	24
No	557	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	63%	63%	63%	63%	63%	63%	63%	63%	63%	0%	109
No	558	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	63%	63%	63%	63%	63%	63%	63%	63%	63%	0%	109
No	559	2	Lighting Design	15% More Efficient Design - New Construction	63%	63%	63%	63%	63%	63%	63%	63%	63%	0%	109
No	560	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	93%	93%	93%	93%	93%	93%	93%	93%	93%	0%	24
No	561	2	Lighting Design	30% More Efficient Design - New Construction	63%	100%	100%	100%	100%	100%	100%	100%	100%	0%	109
Yes	562														
Yes	563														
Yes	564														
Yes	565														
Yes	566														
Yes	567														
Refrigeration															
No	600														
No	601	1	Refrigeration	Vending Miser for Soft Drink Vending Machines	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	5
No	602	1	Refrigeration	Vending Miser for Non-Refrigerated Machines	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	2
No	603	2	Refrigeration	Refrigerated Case Covers	88%	88%	88%	88%	88%	88%	88%	88%	88%	0%	24
No	604	1	Refrigeration	Refrigeration Economizer	69%	69%	69%	69%	69%	69%	69%	69%	69%	0%	5
No	605	1	Refrigeration	Commercial Reach-In Cooler	62%	62%	62%	62%	62%	62%	62%	62%	62%	0%	24
No	606	1	Refrigeration	Commercial Reach-In Freezer	62%	62%	62%	62%	62%	62%	62%	62%	62%	0%	24
No	607	1	Refrigeration	Commercial Ice-makers	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	5
No	608	2	Refrigeration	Evaporator Fan Motor Controls	69%	69%	69%	69%	69%	69%	69%	69%	69%	0%	5
No	609	2	Refrigeration	H.E. Evaporative Fan Motors	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	SURV
No	610	2	Refrigeration	Zero Energy Doors - Coolers	92%	92%	92%	92%	92%	92%	92%	92%	92%	0%	24
No	611	2	Refrigeration	Zero Energy Doors - Freezers	92%	92%	92%	92%	92%	92%	92%	92%	92%	0%	24
No	612	1	Refrigeration	Door Heater Controls	92%	92%	92%	92%	92%	92%	92%	92%	92%	0%	SURV
No	613	2	Refrigeration	Discuss Compressor	81%	81%	81%	81%	81%	81%	81%	81%	81%	0%	SURV
No	614	2	Refrigeration	Scroll Compressor	81%	81%	81%	81%	81%	81%	81%	81%	81%	0%	SURV
No	615	1	Refrigeration	Floating Head Pressure Control	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	24
No	616	2	Refrigeration	ECM Motors	88%	88%	88%	88%	88%	88%	88%	88%	88%	0%	2
No	617	1	Refrigeration	Air Curtains (replacing electric door heaters)	63%	63%	63%	63%	63%	63%	63%	63%	63%	0%	2
No	618	1	Refrigeration	High efficiency designs for large refrigeration freezer system	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	SURV
No	619	1	Refrigeration	LED lighting retrofits in refrigeration end-uses/display cases	98%	98%	98%	98%	98%	98%	98%	98%	98%	0%	SURV
Yes	620														
Yes	621														
Yes	622														
Compressed Air															
No	700														
No	701	2	Compressed Air	Compressed Air - Non-Controls	0%	75%	0%	0%	0%	75%	0%	0%	60%	0%	24
No	702	1	Compressed Air	Compressed Air - Controls	0%	75%	0%	0%	0%	75%	0%	0%	60%	0%	24
Yes	703														
Yes	704														
Yes	705														
Transformers															
No	715														
No	716	2	Transformers	Energy Efficient Transformers	99%	99%	99%	99%	99%	99%	99%	99%	99%	0%	27
Yes	717														
Yes	718														
Yes	719														
Yes	720														
Space Heating															
No	740														
No	741	2	Space Heating	High Efficiency Heat Pump	67%	67%	67%	67%	67%	67%	67%	67%	67%	0%	24
No	742	2	Space Heating	Water Source Heat Pump	72%	72%	72%	72%	72%	72%	72%	72%	72%	0%	24
No	743	2	Space Heating	Ground Source Heat Pump	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	744	1	Space Heating	Ductless (mini split)	100%	100%	90%	90%	90%	90%	90%	90%	90%	0%	9
No	745		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	746														
Non-HVAC Motors															
No	780														
No	781	2	Non-HVAC Motors	Efficient Motors	71%	67%	67%	62%	72%	71%	67%	66%	60%	0%	SURV

Commercial Electric Model - Remaining Factors

Expansion	#	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse 72%	Retail 72%	Grocery 72%	Office 72%	Lodging 72%	Health 72%	Restaurant 72%	Education 72%	Other 72%	Unused 0%	
No	782	2	Non-HVAC Motors	Variable Frequency Drives (VFD)											24
Yes															
Yes															
Yes															
Yes															
Base Case Factor:															
Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.															
Savings Factor:															
Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.															
Remaining Factor:															
Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.															
Convertible Factor:															
Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment).															

Commercial Electric Model - Savings Factor

Expansion	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
100 Appliances Computers & Office Equipment															
No	101	2	Appliances, Computers, Office Equipment	Energy Star Compliant Single Door Refrigerator	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	43
No	102	2	Appliances, Computers, Office Equipment	Energy Star office equipment including computers, monitors, copiers, multi-function machine	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	9
No	103	2	Appliances, Computers, Office Equipment	TVs - Energy Star over standard	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	71
No	104	1	Appliances, Computers, Office Equipment	Energy Efficient "Smart" Power Strip for PC/Monitor/Printer	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	48
No	105	1	Appliances, Computers, Office Equipment	EZ Save Monitor Power Management Software	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	149
Yes	106				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	107				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	108				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	109				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	110				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	111				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	112				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	113				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	114				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	115				25%	25%	25%	25%	25%	25%	25%	25%	25%		
150 Water Heating End Use															
No	151	2	Water Heating	Commercial Dishwasher (Under Counter HI-Temp. Electric DHW)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	46
No	152	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor HI-Temp. - Electric DHW)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	46
No	153	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor HI-Temp. Non-Electric DHW)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	46
No	154	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Electric DHW)	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	44
No	155	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Non-Electric DHW)	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	44
No	156	1	Water Heating	Ozone Commercial Laundry System (Electric HW)	65%	65%	65%	65%	65%	65%	65%	65%	65%	65%	9
No	157	2	Water Heating	Heat Pump Water Heater	43%	43%	43%	43%	43%	43%	43%	43%	43%	43%	9
No	158	2	Water Heating	Booster Water Heater	13%	13%	13%	13%	13%	13%	13%	13%	13%	13%	21
No	159	1	Water Heating	Point of Use Water Heater	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	21
No	160	1	Water Heating	Solar Water Heating System	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	14
No	161	2	Water Heating	High Efficiency Electric Water Heater	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	14
No	162	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle (Included in 2006 Federal Standards) (Electric HW)	55%	55%	55%	55%	55%	55%	55%	55%	55%	55%	9
Yes	163				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	164				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	165				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	166				25%	25%	25%	25%	25%	25%	25%	25%	25%		
200 Pools															
No	201	2	Pools	Energy Efficient Pool Pump with controls	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	110
No	202	2	Pools	High efficiency spashot tubs	4%	4%	4%	4%	20%	8%	4%	8%	4%	4%	111
No	203	1	Pools	Solar Pool Heater	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	14
No	204	1	Pools	Heat Pump Pool Heater	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	112
No	205	2	Pools	Temperature Control	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	9
No	206	1	Pools	Pool Cover	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	113
No	207	1	Pools	Liquid Pool Cover	27%	27%	27%	27%	27%	27%	27%	27%	27%	27%	114
Yes	208				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	209				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	210				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	211				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	212				25%	25%	25%	25%	25%	25%	25%	25%	25%		
300 Building Envelope															
No	301	2	Building Envelope	Integrated Building Design (Envelope Only)	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	21
No	302	2	Building Envelope	Energy Efficient Windows (Replace on Burnout)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	21
No	303	1	Building Envelope	Interior Storm Windows (Low-e or double clear film)	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	115
No	304	1	Building Envelope	Cool Roofing (White Coatings)	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	9
Yes	305				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	306				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	307				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	308				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	309				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	310				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	311				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	312				25%	25%	25%	25%	25%	25%	25%	25%	25%		
Yes	313				25%	25%	25%	25%	25%	25%	25%	25%	25%		
320 Ventilation															
No	321	2	Ventilation	Dual Enthalpy Economizer - from Fixed Damper	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	21
No	322	2	Ventilation	Dual Enthalpy Economizer - from Dry Bulb	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%	21
No	323	2	Ventilation	Demand-Controlled Ventilation (CO2 vent control)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	117,9
No	324	2	Ventilation	Heat Recovery	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	9
No	325	1	Ventilation	Fan Motor, 40hp, 1800rpm, 94.1%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	12
No	326	1	Ventilation	Fan Motor, 15hp, 1800rpm, 92.8%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	5
No	327	1	Ventilation	Fan Motor, 5hp, 1800rpm, 90.4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	12
No	328	2	Ventilation	Variable Speed Drive Control, 15 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	5
No	329	2	Ventilation	Variable Speed Drive Control, 5 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	5
No	330	2	Ventilation	Variable Speed Drive Control, 40 HP	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	5
No	331	1	Ventilation	Static Pressure Reset on Fans	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	80
No	332	2	Ventilation	Underfloor Air distribution	48%	48%	48%	48%	48%	48%	48%	48%	48%	48%	131
No	333	2	Ventilation	Cold air distribution (reduce fan HP)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	146

Commercial Electric Model - Savings Factor

Expansion ID	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	334	2	Ventilation	Variable Pitch Fans	58%	58%	58%	58%	58%	58%	58%	58%	58%	58%	147
No	335	2	Ventilation	Electronically-Commutated Permanent Magnet Motors (ECMPs)	14%	14%	14%	14%	14%	14%	14%	14%	14%	14%	148
No	336	2	Ventilation	Improved Duct Sealing	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	142
Yes	337				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	338				58%	58%	58%	58%	58%	58%	58%	58%	58%		
340 Space Cooling - Chillers															
No	341	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 300 tons	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	5
No	342	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 500 tons	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	5
No	343	2	Space Cooling - Chillers	Centrifugal Chiller, Optimal Design, 0.4 kW/ton, 500 tons	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	5
No	344	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 300 ton	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	5
No	345	2	Space Cooling - Chillers	Variable Refrigerant Volume/Flow	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	145
No	346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	9
No	347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	5
Yes	348				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	349				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	350				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	351				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	352				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	353				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	354				58%	58%	58%	58%	58%	58%	58%	58%	58%		
360 HVAC Controls															
No	361	1	HVAC Controls	Retrocommissioning	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	21
No	362	1	HVAC Controls	Programmable Thermostat	4%	4%	3%	10%	4%	4%	4%	4%	4%	4%	5
No	363	1	HVAC Controls	EMS Install	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	21
No	364	1	HVAC Controls	EMS Optimization	1%	6%	8%	7%	1%	2%	1%	5%	1%	1%	10
No	365	2	HVAC Controls	System/Component Diagnostics	1%	6%	8%	7%	1%	2%	1%	5%	1%	1%	10
No	366	2	HVAC Controls	LEED Enhanced Commissioning	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	21
No	367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	9
Yes	368				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	369				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	370				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	371				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	372				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	373				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	374				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	375				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	376				58%	58%	58%	58%	58%	58%	58%	58%	58%		
380 Space Cooling - Unitary and Split AC															
No	381	2	Space Cooling - Unitary and Split AC	HVAC Advanced Tune-Up	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	5
No	382	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary and Split Systems (Tier 2)	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	139
No	383	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	139
No	384	1	Space Cooling - Unitary and Split AC	Ductless (mini split)	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	140
No	385	2	Space Cooling - Unitary and Split AC	Comprehensive Track Proper HVAC Sizing	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	141
No	386	1	Space Cooling - Unitary and Split AC	Improved Duct Sealing	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	142
No	387	2	Space Cooling - Unitary and Split AC	Radiant Ceiling Cooling	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	143
No	388	2	Space Cooling - Unitary and Split AC	Dedicated Outdoor Air System	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	144
No	389	2	Space Cooling - Unitary and Split AC	Ground Source Heat Pump - Cooling	36%	36%	36%	36%	36%	36%	36%	36%	36%	36%	9
Yes	390				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	391				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	392				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	393				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	394				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	395				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	396				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	397				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	398				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	399				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	400				58%	58%	58%	58%	58%	58%	58%	58%	58%		
400 Cooking															
No	401	2	Cooking	HE Steamer	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	135
No	402	2	Cooking	HE Combination Oven	66%	66%	66%	66%	66%	66%	66%	66%	66%	66%	136
No	403	2	Cooking	HE Holding Cabinet	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	134
No	404	2	Cooking	HE Fryer - Electric	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	133
No	405	2	Cooking	Demand Ventilation Control	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	137
No	406	2	Cooking	Induction Cooktops	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	138
Yes	407				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	408				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	409				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	410				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	411				58%	58%	58%	58%	58%	58%	58%	58%	58%		
Yes	412				58%	58%	58%	58%	58%	58%	58%	58%	58%		
500 Lighting															
No	501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	29
No	502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	29

Commercial Electric Model - Savings Factor

Expansion ID	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
715 Transformers															
No	716	2	Transformers	Energy Efficient Transformers	44%	44%	44%	44%	44%	44%	44%	44%	44%	44%	41
Yes	717														
Yes	718														
Yes	719														
Yes	720														
Yes	721														
740 Space Heating															
No	741	2	Space Heating	High Efficiency Heat Pump	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	21
No	742	2	Space Heating	Water Source Heat Pump	34%	34%	34%	34%	34%	34%	34%	34%	34%	34%	5
No	743	2	Space Heating	Ground Source Heat Pump	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	21
No	744	1	Space Heating	Ductless (mini split)	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Yes	745														
Yes	746														
780 Non-HVAC Motors															
No	781	2	Non-HVAC Motors	Efficient Motors	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	41
No	782	2	Non-HVAC Motors	Variable Frequency Drives (VFD)	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	41
Yes	783														
Yes	784														
Yes	785														
Yes	786														

Base Case Factor:
Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.

Savings Factor:
Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.

Remaining Factor:
Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.

Convertible Factor:
Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment).

Commercial Electric Model - Convertible Factor

Expansion #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
				Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
100 Appliances Computers & Office Equipment														
No	101	2	Appliances, Computers, Office Equipment	Energy Star Compliant Single Door Refrigerator	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	102	2	Appliances, Computers, Office Equipment	Energy Star office equipment including computers, monitors, copiers, multi-function machines	99%	99%	99%	99%	99%	99%	99%	99%	99%	9
No	103	2	Appliances, Computers, Office Equipment	TVs - Energy Star over standard	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	104	1	Appliances, Computers, Office Equipment	Energy Efficient "Smart" Power Strip for PC/Monitor/Printer	60%	60%	60%	60%	60%	60%	60%	60%	60%	9
No	105	1	Appliances, Computers, Office Equipment	EZ Save Monitor Power Management Software	80%	80%	80%	80%	80%	80%	80%	80%	80%	9
Yes	106													
Yes	107													
Yes	108													
Yes	109													
Yes	110													
Yes	111													
Yes	112													
Yes	113													
Yes	114													
Yes	115													
150 Water Heating End Use														
No	151	2	Water Heating	Commercial Dishwasher (Under Counter HI-Temp. Electric DHW)	0%	15%	95%	95%	95%	95%	95%	95%	95%	9
No	152	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor HI-Temp. - Electric DHW)	0%	15%	95%	95%	95%	95%	95%	95%	95%	9
No	153	2	Water Heating	Commercial Dishwasher (Single Tank Conveyor HI-Temp. Non-Electric DHW)	0%	15%	95%	95%	95%	95%	95%	95%	95%	9
No	154	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Electric DHW)	100%	100%	99%	99%	99%	99%	99%	99%	99%	9
No	155	2	Water Heating	Commercial Clothes washers (Hotels, Laundromats, Restaurants, etc.) (w/ Non-Electric DHW)	100%	100%	99%	99%	99%	99%	99%	99%	99%	9
No	156	1	Water Heating	Ozone Commercial Laundry System (Electric HW)	0%	25%	90%	90%	90%	90%	90%	90%	90%	9
No	157	2	Water Heating	Heat Pump Water Heater	0%	0%	85%	85%	85%	85%	85%	85%	85%	21
No	158	2	Water Heating	Booster Water Heater	0%	0%	90%	90%	90%	90%	90%	90%	90%	21
No	159	1	Water Heating	Point of Use Water Heater	25%	25%	80%	80%	80%	80%	80%	80%	80%	21
No	160	1	Water Heating	Solar Water Heating System	25%	25%	60%	60%	60%	60%	60%	60%	60%	9
No	161	2	Water Heating	High Efficiency Electric Water Heater	75%	75%	95%	95%	95%	95%	95%	95%	95%	9
No	162	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle (Included in 2006 Federal Standards) (Electric HW)	0%	50%	90%	90%	90%	90%	90%	90%	90%	9
Yes	163													
Yes	164													
Yes	165													
200 Pools														
No	201	2	Pools	Energy Efficient Pool Pump with controls	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	202	2	Pools	High efficiency spas/hot tubs	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	203	1	Pools	Solar Pool Heater	0%	0%	0%	0%	25%	0%	0%	25%	0%	9
No	204	1	Pools	Heat Pump Pool Heater	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	205	2	Pools	Temperature Control	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	206	1	Pools	Pool Cover	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	207	1	Pools	Liquid Pool Cover	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	208													
Yes	209													
Yes	210													
Yes	211													
Yes	212													
300 Building Envelope														
No	301	2	Building Envelope	Integrated Building Design (Envelope Only)	39%	39%	95%	95%	95%	95%	95%	95%	95%	21
No	302	2	Building Envelope	Energy Efficient Windows (Replace on Burnout)	75%	75%	75%	75%	75%	75%	75%	75%	75%	21
No	303	1	Building Envelope	Interior Storm Windows (Low-e or double clear film)	75%	75%	75%	75%	75%	75%	75%	75%	75%	21
No	304	1	Building Envelope	Cool Roofing (White Coatings)	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	305													
Yes	306													
Yes	307													
Yes	308													
Yes	309													
Yes	310													
Yes	311													
Yes	312													
Yes	313													
Yes	314													
Yes	315													
320 Ventilation														
No	321	2	Ventilation	Dual Enthalpy Economizer - from Fixed Damper	14%	14%	85%	85%	85%	85%	85%	85%	85%	5
No	322	2	Ventilation	Dual Enthalpy Economizer - from Dry Bulb	14%	14%	85%	85%	85%	85%	85%	85%	85%	5
No	323	2	Ventilation	Demand Controlled Ventilation (CO2 vent control)	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
No	324	2	Ventilation	Heat Recovery	100%	100%	100%	100%	100%	100%	100%	100%	100%	109
No	325	1	Ventilation	Fan Motor, 40hp, 1800rpm, 94.1%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	326	1	Ventilation	Fan Motor, 15hp, 1800rpm, 92.8%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	327	1	Ventilation	Fan Motor, 5hp, 1800rpm, 90.4%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	328	2	Ventilation	Variable Speed Drive Control, 15 HP	55%	19%	68%	71%	7%	86%	0%	67%	35%	2
No	329	2	Ventilation	Variable Speed Drive Control, 5 HP	6%	19%	68%	24%	4%	18%	0%	23%	10%	2
No	330	2	Ventilation	Variable Speed Drive Control, 40 HP	0%	68%	68%	87%	30%	88%	0%	45%	55%	2
No	331	1	Ventilation	Static Pressure Reset on Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	332	2	Ventilation	Underfloor Air distribution	25%	25%	75%	75%	75%	75%	75%	75%	75%	9
No	333	2	Ventilation	Cold air distribution (reduce fan HP)	60%	60%	60%	60%	60%	60%	60%	60%	60%	9

Commercial Electric Model - Convertible Factor

Expansion		Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
#	Warehouse				Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused		
No	334	2	Ventilation	Variable Pitch Fans	40%	40%	90%	90%	90%	90%	90%	90%	90%	90%	9
No	335	2	Ventilation	Electronically-Commutated Permanent Magnet Motors (ECPMs)	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
No	336	2	Ventilation	Improved Duct Sealing	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	337		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%		
Yes	338		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
340 Space Cooling - Chillers															
No	341	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 300 tons	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	5
No	342	2	Space Cooling - Chillers	Centrifugal Chiller, 0.51 kW/ton, 500 tons	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	5
No	343	2	Space Cooling - Chillers	Centrifugal Chiller, Optimal Design, 0.4 kW/ton, 500 tons	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	344	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 300 ton	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	5
No	345	2	Space Cooling - Chillers	Variable Refrigerant Volume/Flow	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	9
No	346	2	Space Cooling - Chillers	Dedicated Outdoor Air System	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	9
No	347	1	Space Cooling - Chillers	Chiller Tune Up/Diagnostics - 500 ton	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	5
Yes	348		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	349		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	350		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	351		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	352		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	353		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	354		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
360 HVAC Controls															
No	361	1	HVAC Controls	Retrocommissioning	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	21
No	362	1	HVAC Controls	Programmable Thermostat	56%	56%	56%	56%	56%	56%	56%	56%	56%	56%	5
No	363	1	HVAC Controls	EMS install	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	5
No	364	1	HVAC Controls	EMS Optimization	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	5
No	365	2	HVAC Controls	System/Component Diagnostics	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	366	2	HVAC Controls	LEED Enhanced Commissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	367	1	HVAC Controls	Hotel Guest Room Occupancy Control System	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	9
Yes	368		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	369		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	370		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	371		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	372		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	373		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	374		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
380 Space Cooling - Unitary and Split AC															
No	381	2	Space Cooling - Unitary and Split AC	HVAC Advanced Tune-Up	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	5
No	382	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary and Split Systems (Tier 2)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	383	2	Space Cooling - Unitary and Split AC	High Efficiency AC - Unitary & Split AC Systems (Tier 3)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	384	1	Space Cooling - Unitary and Split AC	Ductless (mini split)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	9
No	385	2	Space Cooling - Unitary and Split AC	Comprehensive Track Proper HVAC Sizing	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	386	1	Space Cooling - Unitary and Split AC	Improved Duct Sealing	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
No	387	2	Space Cooling - Unitary and Split AC	Radiant Ceiling Cooling	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	9
No	388	2	Space Cooling - Unitary and Split AC	Dedicated Outdoor Air System	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	9
No	389	2	Space Cooling - Unitary and Split AC	Ground Source Heat Pump - Cooling	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	9
Yes	390		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	391		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	392		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	393		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	394		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	395		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	396		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	397		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	398		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	399		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	400		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
400 Cooking															
No	401	2	Cooking	HE Steamer	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	402	2	Cooking	HE Combination Oven	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	403	2	Cooking	HE Holding Cabinet	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	404	2	Cooking	HE Fryer - Electric	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	405	2	Cooking	Demand Ventilation Control	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	9
No	406	2	Cooking	Induction Cooktops	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	407		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	408		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	409		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	410		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	411		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	412		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	413		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	414		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
Yes	415		EXPANSION SLOTT	EXPANSION SLOTT	300%	300%	300%	300%	300%	300%	300%	300%	300%	300%	
500 Lighting															
No	501	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing T12)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	27.9
No	502	2	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	27.9

Commercial Electric Model - Convertible Factor

Expansion	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	503	2	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	504	2	Lighting	High Efficiency Fluorescent Fixtures (Low Glare Troffer HP T8/15 Replacing T12)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	505	2	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - Hi & Low Bay	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	21
No	506	2	Lighting	Fluorescent Fixtures with Reflectors	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	5
No	507	1	Lighting	CFL Fixture	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	21
No	508	2	Lighting	Replace Exterior Quartz Halogen w/PMSH or HPS	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	21
No	509	2	Lighting	Replace Exterior Metal Halide w/PMSH	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	21
No	510	1	Lighting	LED Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	5
No	511	1	Lighting	LEC Exit Sign	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	512	2	Lighting	LED Traffic / Pedestrian Signals	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	27
No	513	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	21
No	514	2	Lighting	Specialty Fixtures - Halogen Infra-Red Bulb	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	21
No	515	2	Lighting	Specialty Fixtures - Integrated Ballast 25W MH	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	21
No	516	2	Lighting	Specialty Fixtures - Induction Fluorescent 23W	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	21
No	517	1	Lighting	Specialty Fixtures - Metal Halide Track	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	9
No	518	2	Lighting	Cold Cathode Screw In	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	9
No	519	2	Lighting	LED Screw In	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	9
No	520	2	Lighting	CFL Screw In	85%	75%	85%	85%	85%	75%	85%	85%	83%	83%	21
No	521	2	Lighting	LED Christmas type - decorative lighting	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	522	1	Lighting	Lamp & Ballast Retrofit (HP T8 Replacing Standard T8)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	523	1	Lighting	High Efficiency Fluorescent Fixtures (HP T8 Troffer Replacing T12)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	524	1	Lighting	Fluorescent Fixtures with Reflectors	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	525	2	Lighting	HID Fixture - Pulse Start Metal Halide (Interior)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	526	1	Lighting	High Intensity Fluorescent Fixtures (replacing HID) - Hi & Low Bay	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	527	1	Lighting	Specialty Fixtures - Induction Fluorescent 23W	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	528	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	529	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	530	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	531	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
650 Lighting Controls															
No	551	1	Lighting Controls	Controls for HID - Hi/Lo	59%	25%	59%	73%	25%	73%	59%	71%	71%	71%	27
No	552	1	Lighting Controls	Controls for HIF - Remote Mount Occupancy Sensor	20%	10%	10%	40%	20%	50%	10%	50%	20%	20%	5
No	553	2	Lighting Controls	Remote Mounted Occupancy Sensor - Non HIF	20%	10%	10%	40%	20%	50%	10%	50%	20%	20%	5
No	554	2	Lighting Controls	Switch Mounted Occupancy Sensor	20%	10%	10%	40%	20%	50%	10%	50%	20%	20%	5
No	555	1	Lighting Controls	Daylight Controlled Dimming Ballast	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%	CT
No	556	1	Lighting Controls	Daylight Dimming - New Construction	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	9
No	557	2	Lighting Design	5% More Efficient Lighting Design - Existing Construction	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	5
No	558	2	Lighting Design	10% More Efficient Lighting Design - Existing Construction	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%	5
No	559	2	Lighting Design	15% More Efficient Design - New Construction	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	560	1	Lighting Controls	Dimming controls (night glare & roads/areas not used often)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	561	2	Lighting Design	30% More Efficient Design - New Construction	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	562	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	563	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	564	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	565	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	566	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	567	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
600 Refrigeration															
No	601	1	Refrigeration	Vending Miser for Soft Drink Vending Machines	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	5
No	602	1	Refrigeration	Vending Miser for Non-Refrigerated Machines	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	5
No	603	2	Refrigeration	Refrigerated Case Covers	75%	75%	75%	0%	75%	75%	75%	75%	75%	75%	5
No	604	1	Refrigeration	Refrigeration Economizer	100%	100%	100%	0%	25%	50%	100%	50%	50%	50%	5
No	605	1	Refrigeration	Commercial Reach-In Cooler	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	5
No	606	1	Refrigeration	Commercial Reach-In Freezer	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	5
No	607	1	Refrigeration	Commercial Ice-makers	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	5
No	608	2	Refrigeration	Evaporator Fan Motor Controls	90%	100%	100%	0%	25%	50%	100%	50%	50%	50%	5
No	609	2	Refrigeration	H.E. Evaporative Fan Motors	90%	100%	100%	0%	25%	50%	100%	50%	50%	50%	5
No	610	2	Refrigeration	Zero-Energy Doors - Coolers	90%	50%	50%	0%	25%	50%	90%	50%	50%	50%	9
No	611	2	Refrigeration	Zero-Energy Doors - Freezers	90%	50%	50%	0%	25%	50%	90%	50%	50%	50%	9
No	612	1	Refrigeration	Door Heater Controls	90%	50%	50%	0%	25%	50%	90%	50%	50%	50%	5
No	613	2	Refrigeration	Discuss Compressor	90%	100%	100%	0%	25%	50%	100%	50%	50%	50%	5
No	614	2	Refrigeration	Scroll Compressor	90%	100%	100%	0%	25%	50%	100%	50%	50%	50%	5
No	615	1	Refrigeration	Floating Head Pressure Control	90%	90%	90%	0%	75%	75%	90%	75%	75%	75%	5
No	616	2	Refrigeration	ECM Motors	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	9
No	617	1	Refrigeration	Air Curtains (replacing electric door heaters)	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	9
No	618	1	Refrigeration	High efficiency designs for large refrigeration freezer system	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	9
No	619	1	Refrigeration	LED lighting retrofits in refrigeration end-uses/display cases	90%	90%	90%	0%	90%	90%	90%	90%	90%	90%	9
Yes	620	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	621	2	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	622	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
700 Compressed Air															
No	701	2	Compressed Air	Compressed Air - Non-Controls	0%	95%	0%	0%	0%	95%	0%	0%	95%	95%	9
No	702	1	Compressed Air	Compressed Air - Controls	0%	95%	0%	0%	0%	95%	0%	0%	95%	95%	9
Yes	703	1	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Yes	704	2	EXPANSION SLICE	EXPANSION SLICE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Commercial Electric Model - Convertible Factor

Expansion ID	#	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
715															
<i>Transformers</i>															
No	716	2	Transformers	Energy Efficient Transformers	93%	93%	93%	93%	93%	93%	93%	93%	93%		21
Yes	717		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	718		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	719		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	720		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	721		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
740															
<i>Space Heating</i>															
No	741	2	Space Heating	High Efficiency Heat Pump	77%	77%	77%	67%	77%	60%	77%	60%	77%		21
No	742	2	Space Heating	Water Source Heat Pump	75%	75%	75%	75%	75%	75%	75%	75%	75%		5
No	743	2	Space Heating	Ground Source Heat Pump	85%	85%	85%	85%	85%	85%	85%	85%	85%		21
No	744	1	Space Heating	Ductless (mini split)	60%	60%	60%	60%	60%	60%	60%	60%	60%		9
Yes	745		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	746		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
780															
<i>Non-HVAC Motors</i>															
No	781	2	Non-HVAC Motors	Efficient Motors	95%	95%	95%	95%	95%	95%	95%	95%	95%		21
No	782	2	Non-HVAC Motors	Variable Frequency Drives (VFD)	80%	80%	80%	80%	80%	80%	80%	80%	80%		21
Yes	783		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	784		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	785		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Yes	786		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Base Case Factor:															
Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent															
Savings Factor:															
Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.															
Remaining Factor:															
Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure															
Convertible Factor:															
Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment)															

Commercial Non-Electric Model - Measure Data

Expansion #	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Annual MMBTU Savings	MMBTU Savings Source	MMBTU Savings Source Notes	Incremental Cost	Full Cost	Cost Source	Source Notes	Cost/Unit Descriptor	Cost/Unit
100													
Water Heating End Use													
No	101	2	Water Heating	High Efficiency Clothes Washer	22.51	41		\$400		9		n/a	\$400
No	102	2	Water Heating	High Efficiency Water Heater>=62%	27.10	41	TRM uses this	\$900		118		n/a	\$900
No	103	1	Water Heating	On Demand Water Heater	7.80	119			\$1,000	119		n/a	\$1,000
No	104	1	Water Heating	Pipe Insulation	84.00	120			\$3,720.0	120		n/a	\$3,720
No	105	1	Water Heating	Tank Insulation	52.70	120			\$325	120		n/a	\$325
No	106	1	Water Heating	Low Flow Shower Heads	1.26	41			\$28.70	3	\$/unit	n/a	\$29
No	107	1	Water Heating	Low Flow Pre-Rinse Spray Nozzle	43.20	53			\$55	120	All new equipment	n/a	\$55
No	108	1	Water Heating	Faucet Aerator	0.22	41			\$1.00	3		n/a	\$1
No	109	1	Water Heating	Modulate Water Temp	1	NA			5	41		n/a	5
No	110	2	Water Heating	Circulation Pump Time clocks	32.90	121	Reduce	\$900		121	Measure cost	n/a	\$900
No	111	2	Water Heating	Indirect Fired Water Heating Systems	89.70	120		\$3,268		120		n/a	\$3,268
No	112	2	Water Heating	Indirect Fired Water Heating Systems MF	100.40	120		\$3,433		120		n/a	\$3,433
No	113	1	Water Heating	Ozone Commercial Laundry System	930.00	122, 123	930 MMBtu is		\$40,000	122, 123	Systems start at	n/a	\$40,000
No	114	1	Water Heating	Solar Water Heating System	97.48	9, 124,	172.96935		\$45,875	14, 125	\$58,000 based	n/a	\$45,875
Yes	115		EXPANSION SLOT	EXPANSION SLOT									
Yes	116		EXPANSION SLOT	EXPANSION SLOT									
Yes	117		EXPANSION SLOT	EXPANSION SLOT									
Yes	118		EXPANSION SLOT	EXPANSION SLOT									
Yes	119		EXPANSION SLOT	EXPANSION SLOT									
Yes	120		EXPANSION SLOT	EXPANSION SLOT									
Yes	121		EXPANSION SLOT	EXPANSION SLOT									
Yes	122		EXPANSION SLOT	EXPANSION SLOT									
Yes	123		EXPANSION SLOT	EXPANSION SLOT									
Yes	124		EXPANSION SLOT	EXPANSION SLOT									
Yes	125		EXPANSION SLOT	EXPANSION SLOT									
Yes	126		EXPANSION SLOT	EXPANSION SLOT									
Yes	127		EXPANSION SLOT	EXPANSION SLOT									
Yes	128		EXPANSION SLOT	EXPANSION SLOT									
Yes	129		EXPANSION SLOT	EXPANSION SLOT									
Yes	130		EXPANSION SLOT	EXPANSION SLOT									
Yes	131		EXPANSION SLOT	EXPANSION SLOT									
Yes	132		EXPANSION SLOT	EXPANSION SLOT									
Yes	133		EXPANSION SLOT	EXPANSION SLOT									
Yes	134		EXPANSION SLOT	EXPANSION SLOT									
Yes	135		EXPANSION SLOT	EXPANSION SLOT									
Yes	136		EXPANSION SLOT	EXPANSION SLOT									
Yes	137		EXPANSION SLOT	EXPANSION SLOT									
Yes	138		EXPANSION SLOT	EXPANSION SLOT									
Yes	139		EXPANSION SLOT	EXPANSION SLOT									
Yes	140		EXPANSION SLOT	EXPANSION SLOT									
Yes	141		EXPANSION SLOT	EXPANSION SLOT									
Yes	142		EXPANSION SLOT	EXPANSION SLOT									
Yes	143		EXPANSION SLOT	EXPANSION SLOT									
Yes	144		EXPANSION SLOT	EXPANSION SLOT									
Yes	145		EXPANSION SLOT	EXPANSION SLOT									
Yes	146		EXPANSION SLOT	EXPANSION SLOT									
Yes	147		EXPANSION SLOT	EXPANSION SLOT									
Yes	148		EXPANSION SLOT	EXPANSION SLOT									
Yes	149		EXPANSION SLOT	EXPANSION SLOT									
Yes	150		EXPANSION SLOT	EXPANSION SLOT									
Yes	151		EXPANSION SLOT	EXPANSION SLOT									
Yes	152		EXPANSION SLOT	EXPANSION SLOT									
Yes	153		EXPANSION SLOT	EXPANSION SLOT									
Yes	154		EXPANSION SLOT	EXPANSION SLOT									
Yes	155		EXPANSION SLOT	EXPANSION SLOT									
Yes	156		EXPANSION SLOT	EXPANSION SLOT									
Yes	157		EXPANSION SLOT	EXPANSION SLOT									
Yes	158		EXPANSION SLOT	EXPANSION SLOT									
Yes	159		EXPANSION SLOT	EXPANSION SLOT									
Yes	160		EXPANSION SLOT	EXPANSION SLOT									
Yes	161		EXPANSION SLOT	EXPANSION SLOT									
Yes	162		EXPANSION SLOT	EXPANSION SLOT									
Yes	163		EXPANSION SLOT	EXPANSION SLOT									
Yes	164		EXPANSION SLOT	EXPANSION SLOT									
Yes	165		EXPANSION SLOT	EXPANSION SLOT									
Yes	166		EXPANSION SLOT	EXPANSION SLOT									
Yes	167		EXPANSION SLOT	EXPANSION SLOT									
Yes	168		EXPANSION SLOT	EXPANSION SLOT									
Yes	169		EXPANSION SLOT	EXPANSION SLOT									
Yes	170		EXPANSION SLOT	EXPANSION SLOT									
Yes	171		EXPANSION SLOT	EXPANSION SLOT									
Yes	172		EXPANSION SLOT	EXPANSION SLOT									
Yes	173		EXPANSION SLOT	EXPANSION SLOT									
Yes	174		EXPANSION SLOT	EXPANSION SLOT									
Yes	175		EXPANSION SLOT	EXPANSION SLOT									
Yes	176		EXPANSION SLOT	EXPANSION SLOT									
Yes	177		EXPANSION SLOT	EXPANSION SLOT									
Yes	178		EXPANSION SLOT	EXPANSION SLOT									
Yes	179		EXPANSION SLOT	EXPANSION SLOT									
Yes	180		EXPANSION SLOT	EXPANSION SLOT									
Yes	181		EXPANSION SLOT	EXPANSION SLOT									
Yes	182		EXPANSION SLOT	EXPANSION SLOT									
Yes	183		EXPANSION SLOT	EXPANSION SLOT									
Yes	184		EXPANSION SLOT	EXPANSION SLOT									
Yes	185		EXPANSION SLOT	EXPANSION SLOT									
Yes	186		EXPANSION SLOT	EXPANSION SLOT									
Yes	187		EXPANSION SLOT	EXPANSION SLOT									
Yes	188		EXPANSION SLOT	EXPANSION SLOT									
Yes	189		EXPANSION SLOT	EXPANSION SLOT									
Yes	190		EXPANSION SLOT	EXPANSION SLOT									
Yes	191		EXPANSION SLOT	EXPANSION SLOT									
Yes	192		EXPANSION SLOT	EXPANSION SLOT									
Yes	193		EXPANSION SLOT	EXPANSION SLOT									
Yes	194		EXPANSION SLOT	EXPANSION SLOT									
Yes	195		EXPANSION SLOT	EXPANSION SLOT									
Yes	196		EXPANSION SLOT	EXPANSION SLOT									
Yes	197		EXPANSION SLOT	EXPANSION SLOT									
Yes	198		EXPANSION SLOT	EXPANSION SLOT									
Yes	199		EXPANSION SLOT	EXPANSION SLOT									
Yes	200		EXPANSION SLOT	EXPANSION SLOT									
Yes	201		EXPANSION SLOT	EXPANSION SLOT									
Yes	202		EXPANSION SLOT	EXPANSION SLOT									
Yes	203		EXPANSION SLOT	EXPANSION SLOT									
Yes	204		EXPANSION SLOT	EXPANSION SLOT									
Yes	205		EXPANSION SLOT	EXPANSION SLOT									
Yes	206		EXPANSION SLOT	EXPANSION SLOT									
Yes	207		EXPANSION SLOT	EXPANSION SLOT									
Yes	208		EXPANSION SLOT	EXPANSION SLOT									
Yes	209		EXPANSION SLOT	EXPANSION SLOT									
Yes	210		EXPANSION SLOT	EXPANSION SLOT									
Yes	211		EXPANSION SLOT	EXPANSION SLOT									
Yes	212		EXPANSION SLOT	EXPANSION SLOT									
Yes	213		EXPANSION SLOT	EXPANSION SLOT									
Yes	214		EXPANSION SLOT	EXPANSION SLOT									
Yes	215		EXPANSION SLOT	EXPANSION SLOT									
Yes	216		EXPANSION SLOT	EXPANSION SLOT									
Yes	217		EXPANSION SLOT	EXPANSION SLOT									
Yes	218		EXPANSION SLOT	EXPANSION SLOT									
Yes	219		EXPANSION SLOT	EXPANSION SLOT									
Yes	220		EXPANSION SLOT	EXPANSION SLOT									
Yes	221		EXPANSION SLOT	EXPANSION SLOT									
Yes	222		EXPANSION SLOT	EXPANSION SLOT									
Yes	223		EXPANSION SLOT	EXPANSION SLOT									
Yes	224		EXPANSION SLOT	EXPANSION SLOT									
Yes	225		EXPANSION SLOT	EXPANSION SLOT									
Yes	226		EXPANSION SLOT	EXPANSION SLOT									
Yes	227		EXPANSION SLOT	EXPANSION SLOT									
Yes	228		EXPANSION SLOT	EXPANSION SLOT									
Yes	229		EXPANSION SLOT	EXPANSION SLOT									
Yes	230		EXPANSION SLOT	EXPANSION SLOT									
Yes	231		EXPANSION SLOT	EXPANSION SLOT									
Yes	232		EXPANSION SLOT	EXPANSION SLOT									
Yes	233		EXPANSION SLOT	EXPANSION SLOT									
Yes	234		EXPANSION SLOT	EXPANSION SLOT									
Yes	235		EXPANSION SLOT	EXPANSION SLOT									
Yes	236		EXPANSION SLOT	EXPANSION SLOT									
Yes	237		EXPANSION SLOT	EXPANSION SLOT									
Yes	238		EXPANSION SLOT	EXPANSION SLOT									
Yes	239		EXPANSION SLOT	EXPANSION SLOT									
Yes	240		EXPANSION SLOT	EXPANSION SLOT									
Yes	241		EXPANSION SLOT	EXPANSION SLOT									
Yes	242		EXPANSION SLOT	EXPANSION SLOT									
Yes	243		EXPANSION SLOT	EXPANSION SLOT									
Yes	244		EXPANSION SLOT	EXPANSION SLOT									
Yes	245		EXPANSION SLOT	EXPANSION SLOT									
Yes	246		EXPANSION SLOT	EXPANSION SLOT									
Yes	247		EXPANSION SLOT	EXPANSION SLOT									
Yes	248		EXPANSION SLOT	EXPANSION SLOT									
Yes	249		EXPANSION SLOT	EXPANSION SLOT									

Commercial Non-Electric Model - Measure Data

Expansion #	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Annual MMBTU Savings	MMBtu Savings Source	MMBTU Savings Source Notes	Incremental Cost	Full Cost	Cost Source	Source Notes	Cost/Unit Descriptor	Cost/Unit
100													
Water Heating End Use													
Yes	327			EXPANSION SLCT									\$0
Yes	328			EXPANSION SLCT									\$0
Yes	329			EXPANSION SLCT									\$0
Yes	330			EXPANSION SLCT									\$0
Yes	331			EXPANSION SLCT									\$0
400													
Ventilation													
No	401	2	Ventilation	Adaptive & Fuzzy Logic Control								n/a	0
No	402	2	Ventilation	Heat Recovery				700		22		n/a	700
No	403	2	Ventilation	Enthalpy/Energy Recovery Heat Exchangers for	1.6	121		\$700		121		n/a	\$700
No	404	2	Ventilation	Improved Duct Sealing (also for heating & cooling)	43.8	121		\$11,590.5		121	in NYSERDA	n/a	\$11,590.49
No	405	2	Ventilation	Dedicated Outdoor Air Systems (DOAS) (reduces both AC	5.5	119, 145,	10% heating	\$1		9	Initial cost is comp	n/a	\$1
No	406	2	Ventilation	Displacement Ventilation (new construction only)								n/a	0
Yes	407			EXPANSION SLCT									\$0
Yes	408			EXPANSION SLCT									\$0
Yes	409			EXPANSION SLCT									\$0
Yes	410			EXPANSION SLCT									\$0
Yes	411			EXPANSION SLCT									\$0
Yes	412			EXPANSION SLCT									\$0
Yes	413			EXPANSION SLCT									\$0
Yes	414			EXPANSION SLCT									\$0
Yes	415			EXPANSION SLCT									\$0
Yes	416			EXPANSION SLCT									\$0
Yes	417			EXPANSION SLCT									\$0
Yes	418			EXPANSION SLCT									\$0
Yes	419			EXPANSION SLCT									\$0
500													
Open Measure End Use Category													
Yes	501			EXPANSION SLCT									\$0
Yes	502			EXPANSION SLCT									\$0
Yes	503			EXPANSION SLCT									\$0
Yes	504			EXPANSION SLCT									\$0
Yes	505			EXPANSION SLCT									\$0
Yes	506			EXPANSION SLCT									\$0
Yes	507			EXPANSION SLCT									\$0
Yes	508			EXPANSION SLCT									\$0
Yes	509			EXPANSION SLCT									\$0
Yes	510			EXPANSION SLCT									\$0
Yes	511			EXPANSION SLCT									\$0
Yes	512			EXPANSION SLCT									\$0
Yes	513			EXPANSION SLCT									\$0
600													
HVAC Controls													
No	601	1	HVAC Controls	Retrocommissioning	173.1	10			\$1,303.93	10	\$/Typical Bldg.	n/a	\$ 1,303.93
No	602	1	HVAC Controls	Commissioning	190	10			\$17,385.73	99	\$/Typical Bldg.	n/a	\$ 17,385.73
No	603	1	HVAC Controls	Programmable Thermostat	7.7	119, 145	Assumed that		\$49.00	119		n/a	\$ 49.00
No	604	1	HVAC Controls	EMS install	121.5	10	22% heating		\$4,201.55	9	\$/Typical Bldg.	n/a	\$ 4,201.55
No	605	1	HVAC Controls	EMS Optimization	20	10	4% heating		\$869.287	21	\$/Typical Bldg.	n/a	\$ 869.29
No	606		HVAC Controls	Adaptive & Fuzzy Logic Control								n/a	\$
No	607	1	HVAC Controls	System/Component Diagnostics	43.275	9	Assumes 25%		\$615	146		n/a	\$ 615.00
Yes	608			EXPANSION SLCT									\$0
Yes	609			EXPANSION SLCT									\$0
Yes	610			EXPANSION SLCT									\$0
Yes	611			EXPANSION SLCT									\$0
Yes	612			EXPANSION SLCT									\$0
Yes	613			EXPANSION SLCT									\$0
Yes	614			EXPANSION SLCT									\$0
Yes	615			EXPANSION SLCT									\$0
Yes	616			EXPANSION SLCT									\$0
Yes	617			EXPANSION SLCT									\$0
700													
Open Measure End Use Category													
Yes	701			EXPANSION SLCT									\$0
Yes	702			EXPANSION SLCT									\$0
Yes	703			EXPANSION SLCT									\$0
Yes	704			EXPANSION SLCT									\$0
Yes	705			EXPANSION SLCT									\$0
Yes	706			EXPANSION SLCT									\$0
Yes	707			EXPANSION SLCT									\$0
Yes	708			EXPANSION SLCT									\$0
Yes	709			EXPANSION SLCT									\$0
Yes	710			EXPANSION SLCT									\$0
Yes	711			EXPANSION SLCT									\$0
Yes	712			EXPANSION SLCT									\$0
Yes	713			EXPANSION SLCT									\$0
Yes	714			EXPANSION SLCT									\$0
Yes	715			EXPANSION SLCT									\$0
Yes	716			EXPANSION SLCT									\$0
Yes	717			EXPANSION SLCT									\$0

Commercial Non-Electric Model - Measure Data

Expansion #	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Annual MMBTU Savings	MMBtu Savings Source	MMBTU Savings Notes	Incremental Cost	Full Cost	Cost Source	Source Notes	Cost/Unit Descriptor	Cost/Unit
100													
Water Heating End Use													
Yes				EXPANSION SLOT									
Yes				EXPANSION SLOT									
Yes				EXPANSION SLOT									
Yes				EXPANSION SLOT									
800													
Cooking													
No	801	2	Cooking	High Efficiency Gas Griddle	6.1	147	EnergyStar	\$1,165		147	EnergyStar	n/a	\$1,165
No	802	2	Cooking	High Efficiency Gas Combination Oven	40.3	148		\$2,125		121		n/a	\$2,125
No	803	2	Cooking	High Efficiency Gas Convection Oven	33	148		\$1,113		121		n/a	\$1,113
No	804	2	Cooking	High Efficiency Gas Conveyer Oven	84.5	148		\$2,100		151		n/a	\$2,100
No	805	1	Cooking	High Efficiency Gas Rack Oven	211.3	148			\$22,706	119	80	n/a	\$22,706
No	806	2	Cooking	High Efficiency Gas Broiler	66.1	148		\$1,750		121	.15 efficiency	n/a	\$1,750
No	807	2	Cooking	Power Burner Oven	13.9	121	Includes	\$1,400		121	Includes powered	n/a	\$1,400
No	808	2	Cooking	Energy Star Fryer	50.5	150		\$1,500		119		n/a	\$1,500
No	809	2	Cooking	Demand Ventilation Control	65.8	121	per each	\$3,450		75		n/a	\$3,450
No	810	2	Cooking	High Efficiency Gas Steamer	150	149		\$1,900		52		n/a	\$1,900
Yes	811			EXPANSION SLOT									
Yes	812			EXPANSION SLOT									
Yes	813			EXPANSION SLOT									
Yes	814			EXPANSION SLOT									
Yes	815			EXPANSION SLOT									
Yes	816			EXPANSION SLOT									
Yes	817			EXPANSION SLOT									
Yes	818			EXPANSION SLOT									
Yes	819			EXPANSION SLOT									
Yes	820			EXPANSION SLOT									
Yes	821			EXPANSION SLOT									
Yes	822			EXPANSION SLOT									
Yes	823			EXPANSION SLOT									
Yes	824			EXPANSION SLOT									
900													
Space Heating													
No	901	2	Space Heating	Efficient Furnace Fan (Non-Electric Furnace)	1	9		\$200		41			\$200
No	902	1	Space Heating	Gas-Fired Absorption Heat Pump (for hot water & chilled water)	1				1				1
No	903	1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	18.4	145			1700	152	Large residential		1700
No	904	1	Space Heating	ECM or Modulating air handler & HW pump. (e.g. www.ecologix.ca)	0								0
No	905	2	Space Heating	Infrared Heater	237.85	121, 152		\$3,634		119, 121	\$948 for small		\$3,634
No	906	2	Space Heating	High Efficiency Furnace (AFUE>=92%)	21.05	119, 121		\$487		119, 121	\$320 for small		\$487
No	907	2	Space Heating	High Efficiency Hot Water Boiler (AFUE>=85%)	10.15	119, 121	8.9 based on	\$742		119, 121	\$500 for small		\$742
No	908	2	Space Heating	High Efficiency Steam Boiler	51.725	119, 121	12.94 based	\$1,985		119, 121	\$200 for small		\$1,985
No	909	1	Space Heating	Condensing Boiler	12.9	119			\$2,700	153	Hot water		\$2,700
No	910	1	Space Heating	Boiler- Heating Pipe Insulation	17.275	121	Based on		\$242.75	120	Cost based on		\$243
No	911	1	Space Heating	Boiler Tune-Up	704.264	154, 155	4% savings		\$450	3	\$/boiler		\$450
No	912	2	Space Heating	Stack Heat Exchanger	105	121	MMBtu /	\$1,500		121	\$/ million Btuh of		\$1,500
No	913	1	Space Heating	Heat Recovery from Air to Air	18.4	145	13% savings		\$1,700	152			\$1,700
No	914	1	Space Heating	Boiler Reset Controls	1760.66	157	10% savings		\$600.00	156			\$600
No	915	1	Space Heating	Boiler O2 Trim Controls	1056.42	121, 144,	6% max		\$43,333.33	9,121,158			\$43,333
No	916	1	Space Heating	Boiler blowdown heat exchanger (steam)	1231	121	per unit		\$60,000.00	121	per unit		\$60,000
No	917	1	Space Heating	Repair malfunctioning steam traps	159.331	9, 159,	8% savings		\$220.00	159	\$220 based on		\$220
No	918	1	Space Heating	Steam trap maintenance	18.62	151			\$99.8		151		\$100
No	919		Space Heating	Insulate steam lines/condensate tank									0
No	920	1	Space Heating	Filter replacement	7.21476	163	Calculation		\$27	162	Based on cost of		\$27
No	921	1	Space Heating	Destratification Fans	220	163	Calculation		\$6,000	164	8 fans (10'		\$6,000
No	922	2	Space Heating	Improved Duct Sealing	43.8	121	\$0.048MMBtu	\$11,590.5		121	\$/sq foot	n/a	\$11,590.49
No	923	2	Space Heating	CHP	3127.25	120		\$70,000		120		n/a	\$70,000
No	924	2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	19.55	119		\$500		119		n/a	\$500
No	925	2	Space Heating	HE COMBO w/SHW w/radiant heat, new or retrofit					116795	36.20, 36&61		n/a	0
No	926	1	Space Heating	District energy - HE fossil fuel fired									0
No	927	1	Space Heating	Hot water temperature reset control	1760.66	166	based on 10%		\$342	167			\$342
No	928	1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	18.4	145	13% savings		\$1,700	152	Large residential	n/a	\$1,700
No	929	1	Space Heating	Liquid Desiccant Air Conditioners	-0.353	67							0
No	930	2	Space Heating	Refrigeration waste heat recovery	2441	120	Based on 1	\$65,000		120		n/a	\$65,000
Yes	931			EXPANSION SLOT									
Yes	932			EXPANSION SLOT									
Yes	933			EXPANSION SLOT									
Yes	934			EXPANSION SLOT									
Yes	935			EXPANSION SLOT									
Yes	936			EXPANSION SLOT									
Yes	937			EXPANSION SLOT									
Yes	938			EXPANSION SLOT									
Yes	939			EXPANSION SLOT									
Yes	940			EXPANSION SLOT									

Commercial Non-Electric Model - Measure Data

Expansion #	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Annual MMBTU Savings	MMBTU Savings Source	MMBTU Savings Source Notes	Incremental Cost	Full Cost	Cost Source	Source Notes	Cost/Unit Descriptor	Cost/Unit
	100			Water Heating End Use									
Yes	944		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	945		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	946		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	947		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	948		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	949		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	950		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	951		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	952		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	953		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	954		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	955		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	956		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	957		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	958		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	959		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	960		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	961		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	962		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	963		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	964		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	965		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	966		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	967		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	968		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	969		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	970		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	971		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	972		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	973		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	974		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	975		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	976		EXPANSION SLOT	EXPANSION SLOT									\$0
Yes	977		EXPANSION SLOT	EXPANSION SLOT									\$0

Commercial Non-Electric Model - Measure Data

#	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Persistence Factor	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per MMBtu saved	Societal Test	TRC B/C Ratios	Notes
100														
<i>Water Heating End Use</i>														
101		2	Water Heating	High Efficiency Clothes Washer	1	7	7	8		\$57.14	\$ 2.54	1.00	15.05521522	n/a
102		2	Water Heating	High Efficiency Water Heater>=62%	1	10	10	119		\$90.00	\$ 3.32	1.00	0	n/a
103		1	Water Heating	On Demand Water Heater	1	15	15	119		\$66.67	\$ 8.55	1.00	0.685966562	n/a
104		1	Water Heating	Pipe Insulation	1	20	20	120		\$186.00	\$ 2.21	1.00	13.09421347	n/a
105		1	Water Heating	Tank Insulation	1	10	10	120		\$32.50	\$ 0.62	1.00	73.96391659	n/a
106		1	Water Heating	Low Flow Shower Heads	1	10	10	3		\$2.87	\$ 2.28	1.00	13.10886305	n/a
107		1	Water Heating	Low Flow Pre-Rinse Spray Nozzle	1	5	5	53		\$11.08	\$ 0.26	1.00	38.0264975	n/a
108		1	Water Heating	Faucet Aerator	1	10	10	3		\$0.10	\$ 0.45	1.00	143.0979288	n/a
109		1	Water Heating	Modulate Water Temp	1	3	3	120		1.666666667	1.666666667	1	0	n/a
110		2	Water Heating	Circulation Pump Time clocks	1	10	10	121		\$90.00	\$ 2.74	1.00	1.205397723	n/a
111		2	Water Heating	Indirect Fired Water Heating Systems	1	15	15	9	Consistent	\$217.87	\$ 2.43	1.00	1.592512721	n/a
112		2	Water Heating	Indirect Fired Water Heating Systems MF	1	15	15	9	Consistent	\$228.87	\$ 2.28	1.00	2.296570611	n/a
113		1	Water Heating	Ozone Commercial Laundry System	1	7	7	60	n/a	\$5,714.29	\$ 6.14	1.00	5.287293406	n/a
114		1	Water Heating	Solar Water Heating System	1	13	13	9	n/a	\$3,528.85	\$ 36.20	1.00	0	n/a
115			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
116			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
117			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
118			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
119			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
120			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
121			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
122			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
123			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
124			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
125			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
126			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
127			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
128			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
129			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
130			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
131			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
132			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
133			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
134			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
135			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
136			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
137			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
138			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
139			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
140			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
141			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
142			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
143			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
144			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
145			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
146			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
147			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
148			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
149			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
150			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
151			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
152			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
153			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
154			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
155			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
156			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
157			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
158			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
159			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
160			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
161			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
162			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
163			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
164			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
165			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
166			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
167			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
168			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
169			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
170			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
171			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
172			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
173			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
174			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
175			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
176			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
177			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
178			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
179			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
180			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
181			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
182			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
183			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
184			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
185			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
186			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
187			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
188			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
189			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
190			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
191			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
192			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
193			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
194			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
195			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
196			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
197			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
198			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
199			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
200				<i>Pools</i>										
201		2	Pools	High Efficiency Spa/Hot Tub Heater	1	10	10	129		\$97.90	\$ 2.18	1.00	4.713339031	n/a
202		2	Pools	High Efficiency (95%) Gas Pool Water Heater	1	10	10	3		\$130.00	\$ 1.0656	1.00	10.73622893	n/a
203		2	Pools	Temperature control	1	10	10	62		0	0	1	0	n/a
204		1	Pools	Pool Cover	1	10	10	60		\$117.00	\$ 0.33	1.00	56.51969522	n/a
205		1	Pools	Solar Pool Heater	1	10	10	132		\$400.00	\$ 1.12	1.00	7.801581225	n/a
206			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
207			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
208			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
209			EXPANSION SLOT	EXPANSION SLOT	1					\$0.00				n/a
210			EXPANSION SLOT	EXPANSION SLOT										

Commercial Non-Electric Model - Measure Data

#	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Persistence Factor	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per MMBtu saved	Societal Test	TRC B/C Ratios	Notes
100 Water Heating End Use														
101			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
102			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
103			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
104			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
105			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
106			EXPANSION SLOPE	EXPANSION SLOPE	1			n/a	n/a	\$0.00		1.00		n/a
400 Ventilation														
401	2	2	Ventilation	Adaptive & Fuzzy Logic Control	1	9.8	9.8			0	0	1	0	n/a
402	2	2	Ventilation	Heat Recovery	1	15	15	22		0	0	1	0	n/a
403	2	2	Ventilation	Enthalpy/Energy Recovery Heat Exchangers for	1	15	15	121	Assumed	\$46.67	\$ 29.17	1.00	0	n/a
404	2	2	Ventilation	Improved Duct Sealing (also for heating & cooling)	1	15	15	41		\$772.70	\$ 17.64	1.00	0.554680751	n/a
405	2	2	Ventilation	Dedicated Outdoor Air Systems (DOAS) (reduces both AC	1	15	15	144		\$0.07	\$ 0.01	1.00	1248.518738	n/a
406	2	2	Ventilation	Displacement Ventilation (new construction only)	1	12	12			0	0	1	0	n/a
407			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
408			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
409			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
410			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
411			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
412			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
413			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
414			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
415			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
416			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
417			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
418			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
500 Open Measure End Use Category														
501			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
502			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
503			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
504			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
505			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
506			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
507			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
508			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
509			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
510			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
511			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
512			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
513			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
600 HVAC Controls														
601	1	1	HVAC Controls	Retrocommissioning	1	7	7	10		\$186.28	\$ 1.08	1.00	4.285431517	n/a
602	1	1	HVAC Controls	Commissioning	1	7	7	10		\$2,483.68	\$ 13.07	1.00	0.57021896	n/a
603	1	1	HVAC Controls	Programmable Thermostat	1	8	8	168		\$6.13	\$ 0.80	1.00	26.97659356	n/a
604	1	1	HVAC Controls	EMS install	1	10	10	168		\$420.16	\$ 3.46	1.00	1.279607253	n/a
605	1	1	HVAC Controls	EMS Optimization	1	5	5	3		\$173.86	\$ 8.69	1.00	0.445943199	n/a
606			HVAC Controls	Adaptive & Fuzzy Logic Control	1					0	0	1	0	n/a
607	1	1	HVAC Controls	System/Component Diagnostics	1	15	15	3	Used EMS	\$41.00	\$ 0.95	1.00	2.386389084	n/a
608			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
609			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
610			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
611			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
612			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
613			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
614			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
615			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
616			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
617			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
618			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
619			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
620			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
621			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
622			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
623			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
624			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
625			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
626			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
627			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
628			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
629			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
630			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
631			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
632			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
633			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
634			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
635			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
636			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
637			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
638			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
639			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
640			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
641			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
642			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
643			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
644			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
645			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
646			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
647			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
648			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
649			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
650			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
651			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
652			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
653			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
654			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
655			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
656			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
657			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
658			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
659			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
660			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
661			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
662			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
663			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
664			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
665			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
666			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
667			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
668			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
669			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
670			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
671			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
672			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
673			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
674			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
675			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
676			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
677			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
678			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
679			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
680			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
681			EXPANSION SLOPE	EXPANSION SLOPE				n/a	n/a	\$0.00		1.00		n/a
682			EXPANSION SLOPE	EXPANSION S										

Commercial Non-Electric Model - Measure Data

#	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Persistence Factor	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per MMBtu saved	Societal Test	TRC B/C Ratios	Notes
100														
Water Heating End Use														
101				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
102				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
103				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
104				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
105				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
800														
Cooking														
801		2	Cooking	High Efficiency Gas Griddle	1	10	10	148		\$116.50	\$ 19.10	1.00	0.306420956	n/a
802		2	Cooking	High Efficiency Gas Combination Oven	1	10	10	148		\$212.50	\$ 5.27	1.00	3.30272224	n/a
803		2	Cooking	High Efficiency Gas Convection Oven	1	10	10	148		\$111.30	\$ 3.37	1.00	3.503352101	n/a
804		2	Cooking	High Efficiency Gas Conveyor Oven	1	10	10	148		\$210.00	\$ 2.49	1.00	6.313116912	n/a
805		1	Cooking	High Efficiency Gas Rack Oven	1	10	10	148		\$2,270.58	\$ 10.75	1.00	0.597236973	n/a
806		2	Cooking	High Efficiency Gas Broiler	1	10	10	148		\$175.00	\$ 2.65	1.00	6.448434862	n/a
807		2	Cooking	Power Burner Oven	1	10	10	121	Includes	\$140.00	\$ 10.07	1.00	0.734879588	n/a
808		2	Cooking	Energy Star Fryer	1	10	10	119		\$150.00	\$ 2.97	1.00	3.566279896	n/a
809		2	Cooking	Demand Ventilation Control	1	15	15	75		\$230.00	\$ 3.50	1.00	1.321034564	n/a
810		2	Cooking	High Efficiency Gas Steamer	1	10	10	148		\$190.00	\$ 1.27	1.00	10.99290406	n/a
811				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
812				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
813				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
814				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
815				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
816				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
817				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
818				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
819				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
820				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
821				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
822				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
823				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
824				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
825				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
826				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
827				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
828				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
829				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
830				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
900														
Space Heating														
901		2	Space Heating	Efficient Furnace Fan (Non-Electric Furnace)	1	18	18	41		\$11.11	\$ 11.11	1.00	0.608374119	
902		1	Space Heating	Gas-Fired Absorption Heat Pump (for hot water & chilled water)	1	15	15			0.066666667	0.066666667	1	0	
903		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	1	15	15	121		113.3333333	6.15942029	1	0.212335682	
904		1	Space Heating	ECM or Modulating air handler & HW pump. (e.g. www.ecologix.ca)	1					0	0	1	0	
905		2	Space Heating	Infrared Heater	1	17	17	119		\$213.76	\$ 0.90	1.00	7.574404761	
906		2	Space Heating	High Efficiency Furnace (AFUE>=92%)	1	20	20	119		\$24.35	\$ 1.16	1.00	2.646847096	
907		2	Space Heating	High Efficiency Hot Water Boiler (AFUE>=85%)	1	20	20	119		\$37.12	\$ 3.66	1.00	0.301946485	
908		2	Space Heating	High Efficiency Steam Boiler	1	20	20	119		\$99.23	\$ 1.92	1.00	1.444004207	
909		1	Space Heating	Condensing Boiler	1	15	15	119		\$180.00	\$ 13.95	1.00	0.048303408	
910		1	Space Heating	Boiler- Heating Pipe Insulation	1	15	15	168		\$16.18	\$ 0.94	1.00	5.001745419	
911		1	Space Heating	Boiler Tune-Up	1	2	2	3		\$225.00	\$ 0.32	1.00	20.02797829	
912		2	Space Heating	Stack Heat Exchanger	1	20	20	3		\$75.00	\$ 0.71	1.00	4.374765957	
913		1	Space Heating	Heat Recovery from Air to Air	1	20	20	3		\$85.00	\$ 4.62	1.00	0	
914		1	Space Heating	Boiler Reset Controls	1	20	20	9		\$30.00	\$ 0.02	1.00	294.8537028	
915		1	Space Heating	Boiler O2 Trim Controls	1	20	20	9, 121		\$2,166.67	\$ 2.05	1.00	0.295192155	
916		1	Space Heating	Boiler blowdown heat exchanger (steam)	1	20	20	121		\$3,000.00	\$ 2.44	1.00	6.933224828	
917		1	Space Heating	Repair malfunctioning steam traps	1	5	5	9		\$44.00	\$ 0.28	1.00	19.46203914	
918		1	Space Heating	Steam trap maintenance	1	5	5	151		\$19.95	\$ 1.07	1.00	4.155699907	
919				Space Heating	Insulate steam lines/condensate tank	1				0	0		28.39531663	
920		1	Space Heating	Filter replacement	1	1	1	1		\$26.99	\$ 3.74	1.00	12.73643233	
921		1	Space Heating	Destratification Fans	1	20	20	165, 9		\$300.00	\$ 1.36	1.00	4.357907343	
922		2	Space Heating	Improved Duct Sealing	1	15	15	9		\$772.70	\$ 17.64	1.00	0.3419197991	n/a
923		2	Space Heating	CHP	1	15	15	15		\$4,666.67	\$ 1.49	1.00	0	n/a
924		2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	1	18	18	119		\$27.78	\$ 1.42	1.00	3.212266749	n/a
925		2	Space Heating	HE COMBO w/SHW w/radiant heat, new or retrofit	1	18				0	0	1	0	n/a
926		1	Space Heating	District energy - HE fossil fuel fired	1					0	0		0	
927		1	Space Heating	Hot water temperature reset control	1	15	15			\$22.80	\$ 0.01		458.9370712	
928		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	1	18	18			\$94.44	\$ 5.13	1.00	0.172862991	n/a
929		1	Space Heating	Liquid Desiccant Air Conditioners	1					#DIV/0!	#DIV/0!		0	
930		2	Space Heating	Refrigeration waste heat recovery	1	15	15			\$4,333.33	\$ 1.78	1.00	4.919600586	n/a
931				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
932				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
933				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
934				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
935				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
936				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
937				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
938				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
939				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a
940				EXPANSION SLOT	1			n/a	n/a	\$0.00		1.00		n/a

Commercial Non-Electric Model - Measure Data

#	External Measure #	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Persistence Factor	Measure Life	Effective Measure Life	Measure Life Source	Measure Life Source Notes	Annualized cost	Levelized cost per MMBtu saved	Societal Test	TRC B/C Ratios	Notes
100			<i>Water Heating End Use</i>											
341			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
342			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
343			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
344			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
345			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
346			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
347			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
348			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
349			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
350			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
351			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
352			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
353			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
354			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
355			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
356			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
357			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
358			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
359			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
360			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
361			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
362			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
363			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
364			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
365			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
366			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
367			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
368			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
369			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a
370			EXPANSION SLOT	EXPANSION SLOT	1			n/a	n/a	\$0.00	1.00			n/a

NH Tech Potential Study - Non Electric - Commercial Sector - Sources Listing

- 1 American Council for an Energy Efficient Economy (ACEEE), Selecting Targets for Market Transformation Programs: A National Analysis, 1998.
- 2 California Statewide Commercial Sector Energy Efficiency Potential Study, July, 2002, C.1-3.
- 3 CALIFORNIA STATEWIDE COMMERCIAL SECTOR NATURAL GAS ENERGY EFFICIENCY POTENTIAL STUDY, Study ID #SW061, Prepared for Pacific Gas & Electric Company, Prepared by Mike Rufo and Fred Coito KEMA-XENERGY Inc., May 14, 2003
- 4 California Urban Water Conservation Council, <http://www.cuwcc.org/sprayvalves.lasso>
- 5 Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and the Southwest Connecticut Region, GDS Associates, June 2004
- 6 Database for Energy Efficient Resources (DEER) 2001 Update, California Energy Commission, <http://www.energy.ca.gov/deer/index.html>
- 7 EIA - Technology Forecast Updates - Residential and Commercial Building Technologies - Reference Case, September 2004, Navigant Consulting, Reference No. 117943
- 8 Federal Energy Management Program (FEMP) brochure: "How to Buy an Energy-Efficient Family-Sized Commercial Clothes Washer", http://www.eere.energy.gov/femp/procurement/comm_clotheswashers.html#cost
- 9 GDS Associates Estimate/Calculation
- 10 The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service Territory of PNM, GDS Associates, May 2005
- 11 Keyspan Energy, 2004. Program data provided via email.
- 12 Maine Cost Effectiveness Model, March 2003.
- 13 National Grid, 2000 Energy Initiative Program Data, 2000 DSM Performance Measurement Report, Appendix 3, December 2001 15 hp motor (725 kWh per hp)
- 14 KeySpan Energy, 2005. Cost benefit analysis conducted for solar measures.
- 15 Northeast Utilities, Action Program C&I Persistence Study, Oct. 2001, p. 39
- 16 Quantum Consulting - Pilot program experience from Oakland CA per email communication from Mike Rufo on 2/3/04. and American Council for an Energy Efficient Economy (ACEEE), Selecting Targets for Market Transformation Programs: A National Analysis, 1998.
- 17 RS Means CostWorks 2005, construction cost estimating database for Albuquerque
- 18 Efficiency Vermont Technical Reference User Manual (TRM) No. 2004-31
- 19 Efficiency Vermont Technical Reference User Manual (TRM) No. 2006-41
- 20 WI Focus on Energy Cost Data (VA Hospital)
- 21 Energy Efficiency and Renewable Energy Resource Development Potential in New York State - Final Report, Volume 5 Energy Efficiency Technical Appendices, August 2003.
- 22 National Grid, RFP LJR 05-07, Prescriptive Compressed Air Impact Study p. 10
- 23 NYSERDA final report for Agreement number 5035, Turnkey Pump and Compressed Air System Efficiency Program, Final Report, November 2003, p.12
- 24 Draft Final Report: Phase 2 Evaluation of the Efficiency Vermont Business Programs, December 2005.
- 25 Dairy Farm Energy Audit Summary Report for FlexTech Services, NYSERDA, July 2003.
- 26 GDS Benefit Cost Model with Vermont Avoided Costs
- 27 Email from Efficiency Vermont on March 12, 2006 responding to GDS questions on market penetrations of efficient measures.
- 28 Energy Trust of Oregon - personal communication, noted that they expect 20-50% savings from water and wastewater project.
- 29 Efficiency Maine Technical Reference User Manual (TRM) - No. 2007-1
- 30 NH Saves at Work - Instruction for Completing the Retrofit Lighting Rebate Worksheet - Rated Wattage Table
- 31 Increasing Market Penetration of LED Traffic Signals in New York State: Lighting Research Center, Rensselaer Polytechnic Institute American Council for an Energy Efficient Economy, Prepared for the New York State Energy Research and Development Authority
- 32 Conventional Vs LED Traffic Signals; Operational Characteristics and Economic Feasibility A Project Sponsored by Arkansas Department of Economic Development, July 1, 2003, Report Prepared by Traffic Engineering Division Department of Public Works City of Little Rock
- 33 EPA Energy Star Program
- 34 Energy-Saving Incentives for High Efficiency Scroll Compressors in Walk-in Coolers, 11/06, Emerson Climate Technologies
- 35 Canadian Office of Energy Efficiency
- 36 Small Business Energy Efficiency - Clean Nova Scotia
- 37 Equipment Suppliers Survey, 2007, GDS Associates
- 38 EIA, 2003 CBECS, New England, Non Mall saturation, square footage
- 39 Energy Star Central Air Savings Calculator
- 40 Lawrence Berkeley National Lab, Website, Energy Savings, Lighting Controls
- 41 Efficiency Vermont Technical Reference User Manual (TRM) - No. 2007-47
- 42 EarthLed Store Website
- 43 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Residential Refrigerator Savings (.xls)
- 44 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Consumer Clothes Washer Savings (.xls)
- 45 California Statewide Commercial Sector Energy Efficiency Potential Study, July, 2002, C.2-4. and GDS calculation based on 3.5 KW compressor and 30% run time for cooler (Per Colin Odell)
- 46 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Commercial Dishwasher Savings (.xls)
- 47 Food Service Technology Center, Commercial Cooking Appliance Technology Assessment, 2002
- 48 Smart Power Strip manufacturer's website: <http://bitsltd.net/ConsumerProducts/index.htm>
- 49 EIA, Computers in Commercial Buildings, Table 1, 1999
- 50 City of Lewiston, ME Press Release, November 22, 2006, citing Efficiency Maine savings estimates for 11 ME towns.
- 51 Ckitchen.com
- 52 ConsumerReports.org
- 53 CEE Commercial Kitchens Initiative, Program Guidance on Pre-Rinse Spray Valves
- 54 City of Keene NH, Cities for Climate Protection Campaign, Local Action Plan, February 19, 2004
- 55 Federal Energy Management Program (FEMP), Energy Cost Calculator for Commercial Unitary Systems
- 56 Federal Energy Management Program (FEMP), Energy Cost Calculator for Electric and Gas Water Heaters

- 57 ACEEE, Consumer Guide to Home Energy Savings, Online Version
- 58 American Solar Energy Society, FindSolar.com, Solar Pool and Spa Calculator
- 59 US DOE, EERE website, Swimming Pool Covers
- 60 AmeriMerc.com, commercial pool supplies
- 61 US DOE, EERE website, Estimating Heat Pump Swimming Pool Heater Costs and Savings
- 62 Energy Supermarket Knowledgebase, <http://kb.solardirect.com/questions/116/>, Choosing the Right Pool Heating System - Side-by-Side Comparison Guide
- 63 US DOE, EERE website, Installing and Operating a Swimming Pool Pump for Energy Efficiency
- 64 Florida Solar Energy Center, Appliance and Equipment Efficiency Standards for Florida
- 65 ACEEE, Emerging Technologies and Practices
- 66 Energy Ideas Clearinghouse, Energy Efficiency Fact Sheet, Hot Tub and Pool Conservation Tips
- 67 Efficiency Vermont website, Ask Rachael, Pool, Hot Tubs, Saving Water
- 68 Energy Star Roofing Comparison Calculator
- 69 US EPA, Cool Roof Product Information
- 70 Saturn Resource Management, Electricity Consumption by Entertainment Systems
- 71 Energy Star, Assumptions Behind TV Savings Numbers Presented at October 18, 2007, ENERGY STAR TV Stakeholder Meeting
- 72 Opportunities for Appliance and Equipment Efficiency Standards in Texas Maggie Eldridge, Andrew dalasi, and Steven Nadel September 2006 Report Number ASAP-7/ACEEE-A063 Prepared for: Texas State Energy Conservation Office
- 73 Review: An Even Better Exit Sign, by Emily Rabin, Published September 8, 2001
- 74 Exit Signs.com
- 75 ACEE, Emerging Energy Saving Technologies & Practices for the Buildings Sector, 2004
- 76 US DOE, EERE website, Ductless, Mini-Split Air Conditioners
- 77 Advanced Diagnostic Tools for Rooftop Air Conditioners, Jim Braun, Ray W. Herrick Laboratories, Purdue University at CEE meeting, December 2, 2004
- 78 Southern California Edison, Save Energy Money and the Environment, AC Tune-Up Program
- 79 Energy Consumption Characteristics of Commercial Building HVAC Systems, Volume III: Energy Savings Potential, Prepared by TIAx LLC, for DOE Building Technologies Program, July, 2002
- 80 State of California Energy Commission, Fact Sheet: VAV System Static Pressure Reset Strategy
- 81 PDHOnline.org, HVAC Optimization with Cold Air Distribution
- 82 Cold Air Distribution by Sean Badenhorst Krantz, Products and Systems Australia
- 83 Carrier PTAC energy use calculator
- 84 USA Tech Website, Vending Miser savings calculator
- 85 Food Service Technology Center, Electric Fryer Life-Cycle Cost Calculator
- 86 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Electric Fryers
- 87 Energy Star Calculation (www.energystar.gov) Energy Star Calculator - Hot Food Holding Cabinet
- 88 Food Service Technology Center, Hot Food Holding Cabinet Life-Cycle Cost Calculator
- 89 EStar CFS: Energy Star Best Practices tool for full-service restaurants. http://www.energystar.gov/index.cfm?c=commercial_food_service.commercial_food_service
- 90 Food Service Technology Center, Electric Steamer Life-Cycle Cost Calculator
- 91 Treehugger.com, New Cold Cathode Fluorescents, 85% less mercury
- 92 Demand Ventilation in Commercial Kitchens, An Emerging Technology Case Study, Food Service Technology Center, November 2004
- 93 US DOE, EERE website, Estimating Heat Pump Swimming Pool Heater Costs and Savings
- 94 Night-Saver.com, Simple Payback Analysis Calculator
- 95 Federal Energy Management Program (FEMP) Energy Cost Calculator for Water-Cooled Electric Chillers
- 96 Variable Refrigerant Flow Systems, ASHRAE Journal, April, 2007
- 97 ACEEE, Saving Energy with Efficient Residential Furnace Air Handlers: A Status Report and Program Recommendations, April, 2003, RPT#A033
- 98 San Francisco State U., ECO No. 3 - Install Air Curtains on Freezer Doors
- 99 The Costs and Benefits of LEED-NC in Colorado, Prepared for the Governor's Office of Energy Management and Conservation by Enermodal Engineering, Inc., October 25, 2006
- 100 THE COST-EFFECTIVENESS OF COMMERCIAL-BUILDINGS COMMISSIONING, A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the U.S., Lawrence Berkley National Lab, December 15, 2004
- 101 Energy Assessment Report for Plymouth State University, GDS Associates, June 2008
- 102 Savings from HeatSavr Actual Users - <https://shop.solardirect.com/pdf/pool-accessories/pool-covers/ heatsavr-effectiveness.pdf>
- 103 http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13220
- 104 http://www.windotherm.com/storm-window_specials.htm
- 105 www.santeecooper.com/%2Fportal%2Fpage%2Fportal%2FSanteeCooper%2FMyBusiness%2FManaging%2520Energy%2520Costs%2FNotYourAverageT8.pdf
- 106 Super T8s: Super Lamps, Super Ballasts," E SOURCE Report, ER-03-16 September 2003, Platts Research & Consulting
- 107 <http://www.grainger.com/Grainger/categories/lighting/indoor-hid-fixtures/hid-high-bay-fixtures>
- 108 <http://www.novalightingstore.com/American-Fluorescent-Fluorescent-Lighting.asp?id=47183&NpsRfrSrc=Froogle&NpsRfrMfg=33>
- 109 Reading Municipal Light Department Supply Curve Model, GDS Associates, December 2007
- 110 http://srmi.biz/Tips.Appliances.Pool_pump_efficiency.htm
- 111 http://web.archive.org/web/20061006153904/http://www.energy.ca.gov/appliances/2003rulemaking/documents/case_studies/CASE_Portable_Spa.pdf
- 112 http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13290
- 113 http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13140
- 114 http://www.ecosystemssolar.com/liquid_solar_pool_covers.htm
- 115 <http://www.toolbase.org/Technology-Inventory/Windows/interior-storm-windows>
- 116 2008 Keyspan Equipment List Prices

117 <http://www.spacap.com/energystar-spa-covers.php>

118 <http://www.centralrestaurant.com>

119 GDS Associates, GasNetworks Measure Assumptions Update, 2008

120 BayState Gas / Northern Utilities DSM Participant Database 2004-2008

121 NYSERDA Deemed Savings Database, Rev 09-082006.

122 Michael J. Welty, M.J.Welty & Associates, LLC

123 Commercial Laundry Conservation Technologies, Bill Hoffman, Janes Riesenberger

124 US DOE, EERE website, The Economics of a Solar Water Heater, http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=12860

125 Evacuated-Tube Heat-Pipe Solar Collectors Applied to the Recirculation Loop in a Federal Building, <http://www.nrel.gov/docs/fy04osti/36149.pdf>

126 US DOE, EERE Consumer's Guide to Energy Efficiency and Renewable Energy, "Estimating Swimming Pool Gas Heating Costs and Savings" http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13180

127 Bargain Pool Supplies <http://www.bargainpoolsupplies.com/aboveheaters.htm>

128 Energy Supermarket, Max-E-Therm Gas Heater For Pool and Spa, Model: SR, http://shop.solardirect.com/product_info.php?products_id=496

129 GDS estimate based on review of hot tub manufacturers websites

130 US DOE, EERE website, Gas Swimming Pool Heaters

131 US DOE, EERE website, Estimating Swimming Pool Gas Heating Costs and Savings

132 US DOE, EERE Consumer's Guide to Energy Efficiency and Renewable Energy, "Solar Swimming Pool Heaters" http://apps1.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=13230

133 Mars Air Curtains Brochure, <http://www.marsair.com/pdf/Mars16pgr.pdf>

134 Air Curtains Distributor Website, http://www.gilmorekramer.com/more_info/whispurr_unheated_air_curtain/whispurr_unheated_air_curtain.shtml

135 Air Curtains / Air Doors / Low Profile / WhisPurr Air by Mars, <http://www.zesco.com/products.cfm?subCatID=667&pGroupID=050831SS01>

136 Managing Energy Costs at the Dock, <http://www.impomag.com/scripts/ShowPR.asp?RID=9745&CommonCount=0>

137 Energy Saving Dock Seal, Heavy Duty - 9'H x 8'W Opening, <http://www.randmh.com/energy-saving-dock-seal-heavy-duty-9s9x8w/dock-seals/?cid=F81100>

138 REM/Rate Residential Energy Modeling Software

139 Gas Solutions for the Foodservice Industry, <http://www.gfen.info/pdf/cookinggas0107.pdf>

140 Exterior Doors and Storm Doors, <http://www.doityourself.com/stry/exteriorandstormdoor>

141 Greenheck sales representative cost and measure life information on 5,000 CFM model

142 Reflective Insulation, <http://www.steel-building-insulation.com/>

143 Insulation Costs, http://www.insulation4less.com/prodex_Fmf.asp

144 Millipore correspondence with National Grid

145 GDS Energy-10 simulation (PNM Study)

146 Kolanowski, Bernard F., Small-Scale Cogeneration Handbook, pp. 80-81

147 Energy Star website, <http://www.energystar.gov/>

148 Food Service Technology Center, Life-cycle Cost Calculators, <http://www.fishnick.com/saveenergy/tools/calculators/>

149 National Grid

150 Energy Star Savings Calculator (www.energystar.gov) - Gas Fryers

151 Questar 2006 DSM Market Characterization Report, Nexant, Appendix E

152 Sustainable Building Sourcebook, <http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Sourcebook/energyVentilators.htm>

153 RS Means - Mechanical Cost Data 2008

154 California Statewide Commercial Sector Natural Gas Energy Efficiency Potential Study, KEMA-XENERGY, May 14, 2003

155 John Batey, Energy Research Center, Inc., CT, February 2003

156 Assessment of Energy and Capacity Savings Potential in Iowa, Global Energy Partners and Quantec, LLC, July 2002

157 Tekmar Controls

158 Autoflame™ new boiler combustion technology, powerpoint presentation by intel, 5/9/08

159 Guide to Industrial Assessments for Pollution Prevention and Energy Efficiency, US EPA, 2001

160 US DOE, EERE, Office of Industrial Technologies, Steam Energy Tips, "Inspect and Repair Steam Traps"

161 Alliance to Save Energy, Technology Profile

162 Umass Industrial Assessment Center, Online Calculators, HVAC SYSTEMS, <http://www.ceere.org/iac/assessment%20tool/ARC2244.html#6FANS>

163 Furnace Filters, <http://www.furnacefilters.com/industrial-furnace-filters/disposable-furnace-filters/honeywellreplacementfurnacefilter.cfm#navbar-a>

164 Correspondence with Big A™ Fans

165 Big Ass Fans - Warranty Info, http://www.bigassfans.com/pdf/BAF_warranty7_15_08.pdf

166 Hot Water Reset Schedule for Hydronic Systems, Henry Manczyk, CPE, CEM, Director of Facilities Management, Monroe County, New York, http://www.energy.rochester.edu/efficiency/hot_water_reset.pdf

167 Honeywell Outdoor Reset Controller, <http://www.energysavingsusa.net/catalog/item/1603486/1049385.htm>

168 State Program Working Group - Measure Life Study, GDS Associates 2007

169

170

171

Commercial Non-Electric Model - Base Case Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	402		2	Ventilation	Heat Recovery	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	403		2	Ventilation	Enthalpy/Energy Recovery Heat Exchangers for Ventilation	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	9
No	404		2	Ventilation	Improved Duct Sealing (also for heating & cooling)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	405		2	Ventilation	Dedicated Outdoor Air Systems (DOAS) (reduces both AC & htg)	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	9
No	406		2	Ventilation	Displacement Ventilation (new construction only)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
Yes	407		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	408		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	409		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	410		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	411		1	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	412		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	413		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	414		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	415		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	416		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	417		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	418		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
500 Open Measure End Use Category																
Yes	501		2	EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	502		2	EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	503		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	504		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	505		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	506		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	507		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	508		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	509		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	510		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	511		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	512		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	513		2	EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
600 HVAC Controls																
No	601		1	HVAC Controls	Retrocommissioning	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	602		1	HVAC Controls	Commissioning	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	9
No	603		1	HVAC Controls	Programmable Thermostat	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	604		1	HVAC Controls	EMS Install	36%	36%	36%	36%	36%	36%	36%	36%	36%	0%	9
No	605		1	HVAC Controls	EMS Optimization	7%	7%	7%	7%	7%	7%	7%	7%	7%	0%	9
No	606		1	HVAC Controls	Adaptive & Fuzzy Logic Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	607		1	HVAC Controls	System/Component Diagnostics	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
Yes	608			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	609			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	610			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	611			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	612			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	613			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	614			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
700 Open Measure End Use Category																
No	701			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	702			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	703			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	704			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	705			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	706			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	707			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	708			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
No	709			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	9
Yes	710			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	711			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	712			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	713			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	714			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	715			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	716			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	717			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	718			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	719			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
800 Cooking																
No	801		2	Cooking	High Efficiency Gas Griddle	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	9
No	802		2	Cooking	High Efficiency Gas Combination Oven	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	803		2	Cooking	High Efficiency Gas Convection Oven	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	804		2	Cooking	High Efficiency Gas Conveyor Oven	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	805		1	Cooking	High Efficiency Gas Rack Oven	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	806		2	Cooking	High Efficiency Gas Broiler	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	807		2	Cooking	Power Burner Oven	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	808		2	Cooking	Energy Star Fryer	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%	9

Commercial Non-Electric Model - Base Case Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	809		2	Cooking	Demand Ventilation Control	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	9
No	810		2	Cooking	High Efficiency Gas Steamer	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	9
Yes	811				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	812				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	813				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	814				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	815				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	816				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	817				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	818				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	819				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	820				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	821				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	822				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	823				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Space Heating																
No	901		2	Space Heating	Efficient Furnace Fan (Non Electric Furnace)	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	902		1	Space Heating	Gas-Fired Absorption Heat Pump (for hot water & chilled water)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	903		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	904		1	Space Heating	ECM or Modulating air handler & HW pump. (e.g. www.ecoqlq.ca)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	905		2	Space Heating	Infrared Heater	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
No	906		2	Space Heating	High Efficiency Furnace (AFUE>=92%)	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	907		2	Space Heating	High Efficiency Hot Water Boiler (AFUE=85%)	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	908		2	Space Heating	High Efficiency Steam Boiler	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	909		1	Space Heating	Condensing Boiler	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	910		1	Space Heating	Boiler Heating Pipe Insulation	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	911		1	Space Heating	Boiler Tune-Up	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	912		2	Space Heating	Slack Heat Exchanger	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	913		1	Space Heating	Heat Recovery from Air to Air	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	914		1	Space Heating	Boiler Reset Controls	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	915		1	Space Heating	Boiler O2 Trim Controls	48%	48%	48%	48%	48%	48%	48%	48%	48%	0%	9
No	916		1	Space Heating	Boiler blowdown heat exchanger (steam)	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	917		1	Space Heating	Repair malfunctioning steam traps	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	918		1	Space Heating	Steam trap maintenance	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	919		1	Space Heating	Insulate steam lines/condensate tank	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	920		1	Space Heating	Filter replacement	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	921		1	Space Heating	Destratification Fans	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	922		2	Space Heating	Improved Duct Sealing	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	9
No	923		2	Space Heating	CHP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	924		2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	925		2	Space Heating	HE COMBO w/SHW w/radiant heat, new or retrofit	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	926		1	Space Heating	District energy - HE fossil fuel fired	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	927		1	Space Heating	Hot water temperature reset control	24%	24%	24%	24%	24%	24%	24%	24%	24%	0%	9
No	928		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	12%	12%	12%	12%	12%	12%	12%	12%	12%	0%	9
No	929		1	Space Heating	Liquid Desiccant Air Conditioners	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9
No	930		2	Space Heating	Refrigeration waste heat recovery	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	9
Yes	931				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	932				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	933				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	934				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	935				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	936				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	937				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	938				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	939				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	940				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	941				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	942				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	943				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	944				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	945				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	946				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	947				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	948				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	949				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	950				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	951				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	952				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	953				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	954				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	955				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	956				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	957				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	958				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	959				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	960				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	961				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	962				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	963				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	964				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	965				EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9

Commercial Non-Electric Model - Base Case Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
Yes	966			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	967			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	968			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	969			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Yes	970			EXPANSION SLOT	EXPANSION SLOT	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	9
Base Case Factor:																
Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.																
Savings Factor:																
Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.																
Remaining Factor:																
Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.																
Convertible Factor:																
Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment).																

Commercial Non-Electric Model - Remaining Factor

Expansion #	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
					Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
Open Measure End Use Category															
No	501		2 EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	502		2 EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
HVAC Controls															
No	601		1 HVAC Controls	Retrocommissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency in the Ser
No	602		1 HVAC Controls	Commissioning	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency in the Ser
No	603		1 HVAC Controls	Programmable Thermostat	44%	44%	44%	37%	44%	44%	44%	44%	51%	0%	GDS SURVEY
No	604		1 HVAC Controls	EMS Install	62%	62%	62%	62%	62%	62%	62%	62%	62%	0%	GDS SURVEY
No	605		1 HVAC Controls	EMS Optimization	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	EIA 2003 CBCECS, New England, Non Mail saturation, square footage
No	606		1 HVAC Controls	Adaptive & Fuzzy Logic Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	GDS Associates Estimate/Calculation
No	607		1 HVAC Controls	System/Component Diagnostics	86%	86%	86%	86%	86%	86%	86%	86%	86%	0%	EIA 2003 CBCECS, New England, Non Mail saturation, square footage
Open Measure End Use Category															
No	701		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	702		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	703		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	704		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	705		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	706		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	707		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	708		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	709		EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Cooking															
No	801		2 Cooking	High Efficiency Gas Griddle	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	802		2 Cooking	High Efficiency Gas Combination Oven	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	803		2 Cooking	High Efficiency Gas Convection Oven	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	Cooking/Food Service Equipment, Infrared Power Burner Oven, Convection Oven, Oven (only
No	804		2 Cooking	High Efficiency Gas Conveyer Oven	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	805		1 Cooking	High Efficiency Gas Rack Oven	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	806		2 Cooking	High Efficiency Gas Broiler	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	807		2 Cooking	Power Burner Oven	97%	97%	97%	97%	97%	97%	97%	97%	97%	0%	GDS Survey
No	808		2 Cooking	Energy Star Fryer	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
No	809		2 Cooking	Demand Ventilation Control	73%	73%	73%	73%	73%	73%	73%	73%	73%	0%	GDS Survey
No	810		2 Cooking	High Efficiency Gas Steamer	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	GDS Associates Estimate/Calculation
Space Heating															
No	901		2 Space Heating	Efficient Furnace Fan (Non-Electric Furnace)	32%	32%	32%	32%	32%	32%	32%	32%	32%	0%	GDS Survey
No	902		1 Space Heating	Gas-Fired Absorption Heat Pump (for hot water & chilled water)	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	http://www.aecoe.org/pubs/a042_h8.pdf
No	903		1 Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	87%	87%	87%	87%	87%	87%	87%	87%	87%	0%	GDS Survey
No	904		1 Space Heating	ECM or Modulating air Handler & HW pump (e.g. www.ecologic.ca)	72%	72%	72%	72%	72%	72%	72%	72%	72%	0%	GDS Associates Estimate/Calculation
No	905		2 Space Heating	Infrared Heater	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	http://www.aecoe.org/pubs/a042_h8.pdf
No	906		2 Space Heating	High Efficiency Furnace (AFUE-->92%)	65%	65%	65%	65%	65%	65%	65%	65%	65%	0%	GDS Survey
No	907		2 Space Heating	High Efficiency Hot Water Boiler(AFUE-->85%)	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	GDS Survey
No	908		1 Space Heating	High Efficiency Steam Boiler	51%	51%	51%	51%	51%	51%	51%	51%	51%	0%	GDS Survey
No	909		1 Space Heating	Condensing Boiler	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	http://www.aecoe.org/pubs/a042_h8.pdf
No	910		1 Space Heating	Boiler, Heating Pipe Insulation	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	GDS Associates Estimate/Calculation
No	911		1 Space Heating	Boiler Tune-Up	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and
No	912		2 Space Heating	Stack Heat Exchanger	98%	98%	98%	98%	98%	98%	98%	98%	98%	0%	GDS Associates Estimate/Calculation

Commercial Non-Electric Model - Remaining Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	913		1	Space Heating	Heat Recovery from Air to Air	72%	72%	72%	72%	72%	72%	72%	72%	72%	0%	Draft Final Report - Phase 2 Evaluation of the Efficiency Vermont Business Programs, Decemb
No	914		1	Space Heating	Boiler Reset Controls	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	GDS Associates Estimate/Calculation
No	915		1	Space Heating	Boiler O2 Trim Controls	85%	85%	85%	85%	85%	85%	85%	85%	85%	0%	GDS Associates Estimate/Calculation
No	916		1	Space Heating	Boiler blowdown heat exchanger (steam)	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	GDS Associates Estimate/Calculation
No	917		1	Space Heating	Repair malfunctioning steam traps	30%	30%	30%	30%	30%	30%	30%	30%	30%	0%	http://www.energysolutionscenter.org/BoilerBurner/EF_Improve/Steam_Distribution/Steam_Trap
No	918		1	Space Heating	Steam trap maintenance	70%	70%	70%	70%	70%	70%	70%	70%	70%	0%	http://www.energysolutionscenter.org/BoilerBurner/EF_Improve/Steam_Distribution/Steam_Trap
No	919		1	Space Heating	Insulate steam lines/condensate tank	70%	70%	70%	70%	70%	70%	70%	70%	70%	0%	http://www.energysolutionscenter.org/BoilerBurner/EF_Improve/Steam_Distribution/Steam_Trap
No	920		1	Space Heating	Filter replacement	85%	85%	85%	85%	85%	85%	85%	85%	85%	0%	GDS Associates Estimate/Calculation
No	921		1	Space Heating	Desstratification Fans	93%	93%	93%	93%	93%	93%	93%	93%	93%	0%	http://www.ahrp.usgs.gov/11/ughes.pdf
No	922		2	Space Heating	Improved Duct Sealing	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	GDS Associates Estimate/Calculation
No	923		2	Space Heating	CHP	98%	98%	98%	98%	98%	98%	98%	98%	98%	0%	GDS Associates Estimate/Calculation
No	924		2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	88%	88%	88%	88%	88%	88%	88%	88%	88%	0%	California Statewide Commercial Sector Energy Efficiency Potential Study, July, 2002, C.1-3
No	925		2	Space Heating	HC COMBO w/SHW radiant heat, new or retrofit	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	GDS Associates Estimate/Calculation
No	926		1	Space Heating	District energy - HE, fossil fuel fired	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%	GDS Associates Estimate/Calculation
No	927		1	Space Heating	Hot water temperature reset control	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	GDS Associates Estimate/Calculation
No	928		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	87%	87%	87%	87%	87%	87%	87%	87%	87%	0%	Facility Heating and Cooling, Ventilation System, Heat Recovery Y/N
No	929		1	Space Heating	Liquid Desiccant Air Conditioners	99%	99%	99%	99%	99%	99%	99%	99%	99%	0%	GDS Associates Estimate/Calculation
No	930		2	Space Heating	Refrigeration waste heat recovery	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	GDS Associates Estimate/Calculation

Commercial Non-Electric Model - Savings Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
100																
Water Heating End Use																
No	101		2	Water Heating	High Efficiency Clothes Washer	14%	14%	14%	14%	20%	20%	7%	17%	15%	0%	PNM Study High Efficiency Clothes Washer, Central Zone
No	102		2	Water Heating	High Efficiency Water Heater --62%	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	EN Study
No	103		1	Water Heating	On Demand Water Heater	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	PNM Study, Instantaneous Water Heater -- 200MBTUH, Central Zone
No	104		1	Water Heating	Pipe Insulation	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	PNM Study, Pipe Insulation, Central Zone
No	105		1	Water Heating	Tank Insulation	6%	6%	6%	6%	6%	6%	6%	6%	6%	0%	PNM Study, Tank Insulation, Central Zone
No	106		1	Water Heating	Low Flow Shower Heads	5%	5%	5%	5%	20%	10%	3%	10%	8%	0%	PNM Study Low Flow Shower Heads, Central Zone
No	107		1	Water Heating	Low Flow Pro-Rinse Spray Nozzle	10%	10%	10%	10%	10%	10%	15%	10%	10%	0%	PNM Study Low Flow Pro-Rinse Spray Nozzle, Central Zone
No	108		1	Water Heating	Faucet Aerator	5%	5%	5%	5%	20%	10%	3%	10%	8%	0%	PNM Study Faucet Aerator, Central Zone
No	109		1	Water Heating	Modulate Water Temp	28%	28%	28%	28%	28%	28%	28%	28%	28%	0%	http://www.aceee.org/pubs/a042_w2.pdf
No	110		2	Water Heating	Circulation Pump Time clocks	3%	3%	3%	3%	3%	3%	3%	3%	3%	0%	PNM Study, Circulation Pump Time clocks, Central Zone
No	111		2	Water Heating	Indirect Fired Water Heating Systems	26%	26%	26%	26%	26%	26%	26%	26%	26%	0%	EN Study
No	112		2	Water Heating	Indirect Fired Water Heating Systems MF	26%	26%	26%	26%	26%	26%	26%	26%	26%	0%	EN Study
No	113		1	Water Heating	Ozone Commercial Laundry System	55%	55%	55%	55%	55%	55%	55%	55%	55%	0%	http://www.aawwa.org/waterwise/references/pdfs/CIL_LAUND_Hoffman_B_Commercial_Laundry_Conserv
No	114		1	Water Heating	Solar Water Heating System	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	PNM Study, Solar DHW System - Active, Central Zone
Yes	115															
Yes	116															
Yes	117															
Yes	118															
Yes	119															
Yes	120															
Yes	121															
Yes	122															
Yes	123															
Yes	124															
Yes	125															
Yes	126															
Yes	127															
Yes	128															
Yes	129															
Yes	130															
Yes	131															
Yes	132															
Yes	133															
Yes	134															
Yes	135															
Yes	136															
Yes	137															
Yes	138															
Yes	139															
Yes	140															
Yes	141															
Yes	142															
Yes	143															
Yes	144															
Yes	145															
Yes	146															
Yes	147															
Yes	148															
Yes	149															
Yes	150															
Yes	151															
Yes	152															
Yes	153															
Yes	154															
Yes	155															
Yes	156															
Yes	157															
Yes	158															
Yes	159															
Yes	160															
Yes	161															
Yes	162															
Yes	163															
Yes	164															
Yes	165															
Yes	166															
Yes	167															
Yes	168															
Yes	169															
Yes	170															
Yes	171															
Yes	172															
Yes	173															
Yes	174															
Yes	175															
Yes	176															
Yes	177															
Yes	178															
Yes	179															
Yes	180															
Yes	181															
Yes	182															
Yes	183															
Yes	184															
Yes	185															
Yes	186															
Yes	187															
Yes	188															
Yes	189															
Yes	190															
Yes	191															
Yes	192															
Yes	193															
Yes	194															
Yes	195															
Yes	196															
Yes	197															
Yes	198															
Yes	199															
Yes	200															
200																
Pools																
No	201		2	Pools	High Efficiency Spa/Hot Tub Heater	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	http://web.archive.org/web/20061006153904/http://www.energy.ca.gov/appliances/2002/rulemaking/docume
No	202		2	Pools	High Efficiency (95%) Gas Pool Water Heater	27%	27%	27%	27%	27%	27%	27%	27%	27%	0%	http://www.fimain.com/spec/facilities/heaters.htm
No	203		2	Pools	Temperature control	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	GDS Associates Estimate/Calculation
No	204		1	Pools	Pool Cover	55%	55%	55%	55%	55%	55%	55%	55%	55%	0%	http://aggs1.eere.energy.gov/consumer/your_home/water_heating/index.cfm?mytopic=13140
No	205		1	Pools	Solar Pool Heater	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	KeySpan Energy, 2005. Cost benefit analysis conducted for solar measures.
Yes	206															
Yes	207															
Yes	208															
Yes	209															
Yes	210															
Yes	211															
Yes	212															
Yes	213															
Yes	214															
Yes	215															
Yes	216															
Yes	217															
Yes	218															
Yes	219															
Yes	220															
Yes	221															
Yes	222															
Yes	223															
Yes	224															
Yes	225															
Yes	226															
Yes	227															
Yes	228															
Yes	229															
Yes	230															
Yes	231															
Yes	232															
Yes	233															
Yes	234															
Yes	235															

Commercial Non-Electric Model - Savings Factor

Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-Inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
500																
Open Measure End Use Category																
No	501		2	EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	502		2	EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
600																
HVAC Controls																
No	601		1	HVAC Controls	Retrocommissioning	9%	9%	9%	9%	9%	9%	9%	9%	9%	0%	PNM Study, Retrocommissioning, Central Zone
No	602		1	HVAC Controls	Commissioning	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	Energy Efficiency and Renewable Energy Resource Development Potential in New York State - Final Report
No	603		1	HVAC Controls	Programmable Thermostat	15%	15%	15%	15%	5%	8%	15%	16%	13%	0%	PNM Study, Programmable Thermostats, Central Zone
No	604		1	HVAC Controls	EMS Install	22%	22%	22%	22%	8%	14%	22%	19%	19%	0%	PNM Study, EMS Install, Central Zone
No	605		1	HVAC Controls	EMS Optimization	6%	6%	6%	7%	1%	2%	9%	5%	5%	0%	PNM Study, EMS Optimization, Central Zone
No	606		1	HVAC Controls	Adaptive & Fuzzy Logic Control	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	Measure Dropped
No	607		1	HVAC Controls	System/Component Diagnostics	1%	6%	8%	7%	1%	2%	1%	5%	1%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency in the Service Territory
700																
Open Measure End Use Category																
No	701			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	702			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	703			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	704			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	705			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	706			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	707			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	708			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
No	709			EXPANSION SLOT	EXPANSION SLOT	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
800																
Cooking																
No	801		2	Cooking	High Efficiency Gas Griddle	32%	32%	32%	32%	32%	32%	32%	32%	32%	0%	http://www.kealingofchicago.com/media/spec/2007%20Specs/24mrcdn2007.pdf
No	802		2	Cooking	High Efficiency Gas Combination Oven	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	http://www.electr.com/comboOven.htm
No	803		2	Cooking	High Efficiency Gas Convection Oven	23%	23%	23%	23%	23%	23%	23%	23%	23%	0%	http://www.apc.com/main/services/business/WaysToSave/BusWaysToSave_23.html
No	804		2	Cooking	High Efficiency Gas Conveyor Oven	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%	http://www.enkarecord.com/conveyor.htm
No	805		1	Cooking	High Efficiency Gas Rack Oven	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%	GDS Associates Estimate/Calculation
No	806		2	Cooking	High Efficiency Gas Broiler	18%	18%	18%	18%	18%	18%	18%	18%	18%	0%	GDS Associates Estimate/Calculation
No	807		2	Cooking	Power Burner Oven	15%	15%	15%	15%	15%	15%	15%	15%	15%	0%	GDS Associates Estimate/Calculation
No	808		2	Cooking	Energy Star Fryer	16%	16%	16%	16%	16%	16%	16%	16%	16%	0%	Energy Star Gas Fryers Calculator
No	809		2	Cooking	Demand Ventilation Control	45%	45%	45%	45%	45%	45%	45%	45%	45%	0%	http://www.hypower.org/news/?p=682
No	810		2	Cooking	High Efficiency Gas Steamer	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%	GDS Associates Estimate/Calculation
900																
Space Heating																
No	901		2	Space Heating	Efficient Furnace Fan (Non-Electric Furnace)	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	http://www.uchelp.gov.ab.ca/141.html
No	902		1	Space Heating	Gas-Fired Absorption Heat Pump (for hot water & chilled water)	40%	40%	40%	40%	40%	40%	40%	40%	40%	0%	http://www.robar.com/products/gahp-linear-rtar-series/description.html
No	903		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	http://www.tpl.com/business/savingserv.shtml

Commercial Non-Electric Model - Savings Factor

E. Expansion	#	TRM Measure Number	Cost Type: 1-Full 2-inc.	End Use	Measure Name	1	2	3	4	5	6	7	8	9	10	Source
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused	
No	904		1	Space Heating	ECM or Modulating air handler & HW pump. (e.g. www.ecobqix.ca)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	GDS Associates Estimate/Calculation
No	905		2	Space Heating	Infrared Heater	19%	19%	19%	19%	19%	19%	19%	19%	19%	19%	PJM Study, Infrared Heating, Central Zone
No	906		2	Space Heating	High Efficiency Furnace (AFUE>=92%)	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	GN Study
No	907		2	Space Heating	High Efficiency Hot Water Boiler (AFUE>=85%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	GN Study
No	908		2	Space Heating	High Efficiency Steam Boiler	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	GN Study
No	909		1	Space Heating	Condensing Boiler	11%	11%	11%	11%	11%	11%	11%	11%	11%	11%	GN Study
No	910		1	Space Heating	Boiler Heating Pipe Insulation	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	PJM Study, Boiler - Heating Pipe Insulation, Central Zone
No	911		1	Space Heating	Boiler Tune-Up	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	PJM Study, Boiler Tune-Up, Central Zone
No	912		2	Space Heating	Stack Heat Exchanger	0%	0%	0%	0%	0%	5%	0%	5%	0%	0%	PJM Study, Stack Heat Exchanger, Central Zone
No	913		1	Space Heating	Heat Recovery from Air to Air	13%	13%	13%	11%	15%	18%	17%	12%	14%	0%	PJM Study, Heat Recovery from Air to Air, Central Zone
No	914		1	Space Heating	Boiler Reset Controls	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	PJM Study, Boiler Reset Controls, Central Zone
No	915		1	Space Heating	Boiler O2 Trim Controls	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	PJM Study, Boiler O2 Trim Controls, Central Zone
No	916		1	Space Heating	Boiler blowdown heat exchanger (steam)	4%	4%	4%	4%	4%	4%	4%	4%	4%	0%	PJM Study, Boiler blowdown heat exchanger (steam), Central Zone
No	917		1	Space Heating	Repair malfunctioning steam traps	8%	8%	8%	8%	8%	8%	8%	8%	8%	0%	PJM Study, Repair malfunctioning steam traps, Central Zone
No	918		1	Space Heating	Steam trap maintenance	17%	17%	17%	17%	17%	17%	17%	17%	17%	0%	http://www1.eere.energy.gov/industry/bestpractices/pdfs/velscol.pdf
No	919		1	Space Heating	Insulate steam lines/condensate tank	17%	17%	17%	17%	17%	17%	17%	17%	17%	0%	http://www1.eere.energy.gov/industry/bestpractices/pdfs/velscol.pdf
No	920		1	Space Heating	Filter replacement	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	GDS Associates Estimate/Calculation
No	921		1	Space Heating	Destratification Fans	16%	16%	16%	14%	17%	12%	38%	30%	20%	0%	PJM Study, Destratification Fans, Central Zone
No	922		2	Space Heating	Improved Duct Sealing	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%	GDS Associates Estimate/Calculation
No	923		2	Space Heating	CHP	35%	35%	35%	35%	35%	35%	35%	35%	35%	0%	http://www.nemw.org/E.Rheatpower.htm
No	924		2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	14%	14%	14%	14%	14%	14%	14%	14%	14%	0%	GN Study
No	925		2	Space Heating	HE COMBO w/SHW w/radiant heat, new or retrofit	75%	75%	75%	75%	75%	75%	75%	75%	75%	0%	http://www.zum.com/operations/piorh/iaqes/home.asp
No	926		1	Space Heating	Direct energy - HE fossil fuel fired	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%	GDS Associates Estimate/Calculation
No	927		1	Space Heating	Hot water temperature reset control	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	GDS Associates Estimate/Calculation
No	928		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	http://www.fpl.com/business/savingserv.shtml
No	929		1	Space Heating	Liquid Desiccant Air Conditioners	20%	20%	20%	20%	20%	20%	20%	20%	20%	0%	http://www.osti.gov/bridge/servlets/purl/878712-3hMWWw/878712.PDF
No	930		2	Space Heating	Refrigeration waste heat recovery	10%	10%	10%	10%	10%	10%	10%	10%	10%	0%	http://www.p2pays.org/ref/13/12915.pdf

Base Case Factor:
Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.

Savings Factor:
Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.

Remaining Factor:
Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.

Convertible Factor:
Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment)

Commercial Non-Electric Model - Convertible Factor

E. Organization	#	TRM Measure Number	Cost Type: 1=Full 2=Inc.	End Use	Measure Name	Source										Source	
						Warehouse	Retail	Grocery	Office	Lodging	Health	Restaurant	Education	Other	Unused		
No	904		1	Space Heating	ECM or Modulating air handler & HW pump. (e.g. www.ecobqix.ca)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	GDS Associates Estimate/Calculation
No	905		2	Space Heating	Infrared Heater	95%	90%	75%	10%	20%	20%	0%	20%	90%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	906		2	Space Heating	High Efficiency Furnace (AFUE>=92%)	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	907		2	Space Heating	High Efficiency Hot Water Boiler (AFUE>=85%)	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	908		2	Space Heating	High Efficiency Steam Boiler	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	909		1	Space Heating	Condensing Boiler	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	910		1	Space Heating	Boiler Heating Pipe Insulation	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	911		1	Space Heating	Boiler Tune-Up	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	912		2	Space Heating	Stack Heat Exchanger	0%	0%	0%	0%	0%	25%	0%	25%	0%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	913		1	Space Heating	Heat Recovery from Air to Air	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	914		1	Space Heating	Boiler Reset Controls	90%	90%	90%	90%	90%	30%	90%	80%	90%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	915		1	Space Heating	Boiler O2 Trim Controls	0%	0%	0%	0%	0%	25%	0%	10%	0%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	916		1	Space Heating	Boiler blowdown heat exchanger (steam)	0%	0%	0%	0%	0%	25%	0%	10%	0%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	917		1	Space Heating	Repair malfunctioning steam traps	10%	10%	10%	10%	10%	70%	10%	20%	10%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	918		1	Space Heating	Steam trap maintenance	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	919		1	Space Heating	Insulate steam lines/condensate tank	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	GDS Associates Estimate/Calculation
No	920		1	Space Heating	Filler replacement	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	GDS Associates Estimate/Calculation
No	921		1	Space Heating	Desulfurization Fans	35%	35%	35%	0%	35%	25%	25%	0%	20%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	922		2	Space Heating	Improved Duct Sealing	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	923		2	Space Heating	CHP	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	0%	http://www.chpcenter.org/presentations/030318-IL030318-EvaluationGuidelines.pdf
No	924		2	Space Heating	ECM - 92% (packaged with a high efficiency furnace)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	GDS Associates Estimate/Calculation
No	925		2	Space Heating	HE COMBO w/SHW w/radiant heat, new or retrofit	25%	25%	25%	20%	50%	50%	30%	50%	50%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	926		1	Space Heating	District energy - HE fossil fuel fired	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	0%	GDS Associates Estimate/Calculation
No	927		1	Space Heating	Hot water temperature reset control	90%	90%	90%	90%	90%	30%	90%	80%	90%	0%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	928		1	Space Heating	Energy and Heat Recovery Ventilators (ERV/HRV)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	0%	The Maximum Achievable Cost Effective Potential for Natural Gas Energy Efficiency In the Service T
No	929		1	Space Heating	Liquid Desiccant Air Conditioners	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	0%	GDS Associates Estimate/Calculation
No	930		2	Space Heating	Refrigeration waste heat recovery	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	0%	GDS Associates Estimate/Calculation

Base Case Factor:

Is the fraction of the end use energy that is applicable for the efficient technology in a given market segment. For example, for fluorescent lighting, this would be the fraction of all lighting kWh in a given market segment that is associated with fluorescent fixtures.

Savings Factor:

Is the percentage reduction in electricity or gas consumption resulting from application of the efficient technology.

Remaining Factor:

Is the fraction of applicable kWh or therm sales that are associated with equipment that has not yet been converted to the energy efficiency measure; that is, one minus the fraction of the market segment that already have the energy-efficiency measure installed.

Convertible Factor:

Is the fraction of the equipment or practice that is technically feasible for conversion to the efficient technology from an engineering perspective (e.g., it may not be possible to install VFDs on all motors in a given market segment)

COMMERCIAL MEASURES NOT MODELED
Adaptive & Fuzzy Logic Control
Cold air distribution (reduce fan HP)
Cool Roofing (White Coatings)
Dimming controls (night glare & roads/areas not used often)
Displacement Ventilation (new construction only)
District energy - HE fossil fuel fired
ECM or Modulating air handler & HW pump
Gas-Fired Absorption Heat Pump (for hot water & chilled water)
HE COMBO w/SHW w/radiant heat, new or retrofit
High efficiency designs for large refrigeration freezer system
Hot water temperature reset control
Insulate steam lines/condensate tank
Integration of Passive Solar heating, cooling & ventilation
LEED Enhanced Commissioning
Liquid Dessicant Air Conditioners
Modulate Water Temp
Reflective rollout radiant barriers
Static Pressure Reset on Fans
System/Component Diagnostics