

Duke TP Comparison of Changes

	System Total - Technical Potential			TP as % Sales		Residential			Commercial			Industrial		
	GWH	% Change	Cumulative % Change	Sales MWH	TP % of Sales	GWH	% Change	Cumulative % Change	GWH	% Change	Cumulative % Change	GWH	% Change	Cumulative % Change
ITRON Original (Table ES-1)	12,351			39,412,743	31.34%	8,232			3,648			471		
Plus: Standard Changes	10,523	-15%	-15%	37,718,162	27.90%	6,899	-16%	-16%	3,156	-13%	-13%	468	-1%	-1%
Plus: New Measures	12,458	16%	0.9%	37,718,162	33.03%	8,106	15%	-2%	3,833	19%	5%	519	11%	10%
Plus: System Load Growth	12,595	1%	2%	37,718,162	33.39%	8,195	1%	0%	3,875	1%	6%	525	1%	11%
Plus: 2007-12 Actual Achievements	12,073	-4%	-2%	37,718,163	32.01%	7,973	-3%	-3%	4,100					
2007-12 Actual Achievements						222			300					
System Load Growth						1.1%			1.1%			1.1%		
Number of New Measures	27					7			15			5		

Measure #	Measure	Standard	Link	Measure Life	RET = 1 ROB = 2	Original GWH			DUKE ENERGY			Original GWH			GWH			SMW			WMW			Contribution to final totals		
						8232	8148	2136	8232	8106	1909	1291	7973	1814	1111	7973	1814	1111	7973	1814	1111					
100	Base 13 SEER Split-System Air Conditioner & Strip Heater	New DOE standard	http://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/75	18	2	54	26	0	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0									
101	Base 14 SEER Split-System Air Conditioner			18	2	38	20	0	0.43	0.43	38.43	17	9	0	16.2	8.3	0.0									
102	15 SEER Split-System Air Conditioner			18	2	52	29	0	0.64	0.64	51.88	33	19	0	32.6	17.8	0.0									
103	17 SEER Split-System Air Conditioner			18	2	39	22	0	0.72	0.72	38.62	28	16	0	27.3	14.9	0.0									
104	19 SEER Split-System Air Conditioner			15	2	171	26	125	0.68	0.68	171.37	117	18	85	114.9	17.0	73.2									
105	14 SEER Split-System Heat Pump			15	2	63	15	39	0.75	0.75	62.95	47	11	29	46.3	10.4	24.9									
106	15 SEER Split-System Heat Pump			15	2	83	25	44	0.80	0.80	82.73	67	20	35	65.4	19.4	30.1									
107	17 SEER Split-System Heat Pump			15	2	17	23		0.00	0.00	0.00	0	0	0	0.0	0.0	0.0									
108	13 EER Geothermal Heat Pump			40	1	157	57	145	0.94	0.94	156.98	147	53	136	144.4	50.8	116.8									
109	HVAC Proper Sizing			4	1	180	72	0	0.94	0.94	180.00	168	67	0	165.6	63.8	0.0									
110	Attic Venting	4	1	168	67	0	0.94	0.94	168.48	158	63	0	155.0	59.7	0.0											
111	Sealed Attic w/Sprayed Foam Insulated Roof Deck	10	1	186	73	0	0.94	0.94	185.59	174	68	0	170.7	65.0	0.0											
112	AC Maintenance (Outdoor Coil Cleaning)	15	2	113	38	0	0.94	0.94	113.18	106	36	0	104.1	34.1	0.0											
113	AC Maintenance (Indoor Coil Cleaning)	18	1	220	101	124	0.94	0.94	219.83	206	95	116	202.2	89.8	100.1											
114	Proper Refrigerant Charging and Air Flow	15	2	225	91	0	0.94	0.94	225.44	211	86	0	207.4	81.3	0.0											
115	Electronically Commutated Motors (ECM) on an Air Handler Unit	10	1	162	92	44	0.94	0.94	162.08	152	86	41	149.1	81.7	35.5											
116	Duct Repair	10	1	56	19	-7	0.94	0.94	55.57	52	18	-6	51.1	16.9	-5.5											
117	Reflective Roof	40	2	17	8	0	0.94	0.94	17.38	16	8	0	16.0	7.2	0.0											
118	Radiant Barrier	10	1	161	121	-17	0.94	0.94	161.27	151	113	-16	148.4	107.4	-13.6											
119	Window Tinting	40	2	105	43	24	0.94	0.94	105.01	98	40	22	96.6	38.4	19.1											
120	Default Window With Sunscreen	20	1	22	8	21	0.94	0.94	22.36	21	8	20	20.6	7.5	17.2											
121	Single Pane Clear Windows to Double Pane Low-E Windows	20	1	5	2	0	0.94	0.94	5.44	5	2	0	5.0	1.7	0.0											
122	Ceiling R-0 to R-19 Insulation	20	1	11	4	10	0.94	0.94	11.03	10	4	9	10.1	3.5	7.9											
123	Ceiling R-19 to R-38 Insulation	5	1	22	1	1	0.94	0.94	22.00	21	1	1	20.2	0.6	1.0											
124	Wall 2x4 R-0 to Blow-In R-13 Insulation	15	2	67	25	13	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0											
125	Weather Strip/Caulk w/Blower Door	15	2	142	59	30	0.43	0.46	141.82	61	25	13	59.9	23.9	11.0											
126	Base 13 SEER Split-System Heat Pump	15	2	180	79	42	0.64	0.70	180.39	115	51	27	113.5	48.2	23.1											
127	Base 14 SEER Split-System Heat Pump	15	2	9	12		0.00	0.00	0.00	0	0	0	0.0	0.0	0.0											
128	Base 15 SEER Split-System Heat Pump	40	1	66	23	99	0.92	0.94	66.16	61	21	91	59.8	20.1	78.7											
129	Base 17 SEER Split-System Heat Pump	4	1	94	37	0	0.92	0.94	93.60	86	34	0	84.6	32.1	0.0											
130	Base 19 SEER Split-System Heat Pump	4	1	88	34	0	0.92	0.94	87.63	81	32	0	79.2	30.0	0.0											
131	13 EER Geothermal Heat Pump	10	1	95	37	0	0.92	0.94	94.64	87	34	0	85.5	32.0	0.0											
132	HVAC Proper Sizing	15	2	121	39	71	0.92	0.94	121.21	111	36	65	109.6	34.0	55.8											
133	Attic Venting	18	1	109	60	76	0.92	0.94	109.04	100	55	70	98.6	52.0	59.9											
134	Sealed Attics	15	2	113	43	0	0.92	0.94	112.64	104	40	0	101.8	37.9	0.0											
135	AC Maintenance (Outdoor Coil Cleaning)	10	1	83	46	22	0.92	0.94	82.70	76	42	20	74.8	40.3	17.5											
136	AC Maintenance (Indoor Coil Cleaning)	10	1	29	8	-3	0.92	0.94	28.88	27	7	-3	26.1	7.1	-2.2											
137	Proper Refrigerant Charging and Air Flow	40	2	8	4	0	0.92	0.94	7.92	7	3	0	7.2	3.1	0.0											
138	Electronically Commutated Motors (ECM) on an Air Handler Unit	10	1	75	55	-8	0.92	0.94	74.88	69	51	-7	67.7	48.1	-6.1											
139	Duct Repair	40	2	53	21	12	0.92	0.94	53.03	49	20	11	47.9	18.7	9.3											
140	Reflective Roof	20	1	10	4	15	0.92	0.94	10.12	9	3	14	9.1	3.1	12.2											
141	Radiant Barrier	20	1	2	1	0	0.92	0.94	2.21	2	1	0	2.0	0.7	0.0											
142	Window Tinting	20	1	4	1	0	0.92	0.94	4.36	4	1	0	3.9	1.3	0.0											
143	Window Tinting	5	1	11	0	0	0.92	0.94	10.86	10	0	0	9.8	0.3	0.1											
144	Default Window With Sunscreen												0.0	0.0	0.0											
145	Single Pane Clear Windows to Double Pane Low-E Windows												0.0	0.0	0.0											
146	Ceiling R-0 to R-19 Insulation												0.0	0.0	0.0											
147	Ceiling R-19 to R-38 Insulation												0.0	0.0	0.0											
148	Wall 2x4 R-0 to Blow-In R-13 Insulation												0.0	0.0	0.0											
149	Weather Strip/Caulk w/Blower Door												0.0	0.0	0.0											
150	Base 9 EER Room Air Conditioner & Strip Heater												0.0	0.0	0.0											
151	Base 10 EER Room Air Conditioner & Strip Heater	TABLE C403.2.3(3) MINIMUM EFFICIENCY REQUIREMENTS: ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS	http://publiccodes.cyberregs.com/icod/iecc/2012/icod_iecc_2012_ce4_sec003.htm?bu=IC-P-2012-000014&bu2=IC-P-2012-000019										0.0	0.0	0.0											
191	HE Room Air Conditioner - EER 11			15	2	19	10	0	0.50	0.60	19.36	10	5	0	9.5	4.8	0.0									
192	HE Room Air Conditioner - EER 12			15	2	7	3	0	0.67	0.71	6.55	4	2	0	4.3	2.2	0.0									
196	Reflective Roof			15	2	9	4	0	0.90	0.90	9.27	8	3	0	8.2	3.1	0.0									
197	Window Film			10	1	3	1	0	0.90	0.90	2.82	3	1	0	2.5	0.7	-0.2									
198	Window Tinting			40	2	1	0	0	0.90	0.90	0.78	1	0	0	0.7	0.3	0.0									
199	Default Window With Sunscreen			10	1	7	5	-1	0.90	0.90	6.76	6	5	-1	6.0	4.4	-0.5									
200	Single Pane Clear Windows to Double Pane Low-E Windows			40	2	4	2	1	0.90	0.90	4.32	4	2	1	3.8	1.5	0.8									
202	Ceiling R-0 to R-19 Insulation			20	1	2	1	1	0.90	0.90	2.16	2	1	1	1.9	0.6	0.6									
203	Ceiling R-19 to R-38 Insulation			20	1	1	0	0	0.90	0.90	0.61	1	0	0	0.5	0.2	0.0									
204	Wall 2x4 R-0 to Blow-In R-13 Insulation	20	1</																							

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230	Base Lighting (43-Watt incandescent), 2.5 hr/day
231	CFL (18-Watt integral ballast), 2.5 hr/day
240	Base Lighting (60-Watt incandescent), 6.0 hr/day
240	Base Lighting (43-Watt incandescent), 6.0 hr/day
241	CFL (18-Watt integral ballast), 6.0 hr/day
250	Base Fluorescent Fixture, 2L4T12, 40W, 1EEMAG
250	Base Fluorescent Fixture, 2L4T12, 34W, 1EE
251	ROB 2L4T8, 1EB
252	RET 2L4T8, 1EB
260	Base Outdoor Lighting
261	CFL - medium screw based <30 Watts
262	Photocell/timerlock
300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice)
300	Base Refrigerator (18 cf w/top-mount freezer, no through-door ice) -10%
301	HE Refrigerator - Energy Star version of above
350	Base Freezer
350	Base Freezer -25%
351	HE Freezer
400	Base 40 gal. Water Heating (EF=0.92)
400	Base 40 gal. Water Heating (EF=0.948)
401	Heat Pump Water Heater (EF=2.9)
402	HE Water Heater (EF=0.93)
403	Solar Water Heat
404	AC Heat Recovery Units
405	Low Flow Showerhead
406	Pipe Wrap
407	Faucet Aerators
408	Water Heater Blanket
409	Water Heater Temperature Check and Adjustment
410	Water Heater Timerlock
411	Heat Trap
500	Base Clotheswasher (MEF=1.6)
501	Energy Star CW CEE Tier 1 (MEF=1.8)
502	Energy Star CW CEE Tier 2 (MEF=2.0)
503	Energy Star CW CEE Tier 3 (MEF=2.2)
600	Base Clothes Dryer (EF=3.01)
600	Base Clothes Dryer (EF=3.73)
610	High Efficiency CD (EF=3.01 w/moisture sensor)
700	Base Dishwasher (EF=0.46)
701	Energy Star DW (EF=0.68)
800	Base Pool Pump and Motor (1.5 hp)
801	Two Speed Pool Pump (1.5 hp)
802	High Efficiency One Speed Pool Pump (1.5 hp)
803	Variable-Speed Pool Pump (<1 hp)
804	PV-Powered Pool Pumps
900	Base CRT TV
901	Energy Star TV
910	Base Large-screen TV
911	Energy Star TV
920	Base Set-Top Box
921	Energy Star Set-Top Box
930	Base DVD Player
931	Energy Star DVD Player
940	Base VCR
941	Energy Star VCR
950	Base Desktop PC
951	Energy Star Desktop PC
960	Base Laptop PC
961	Energy Star Laptop PC

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new EF=0.948, DUKE p474
DOE

These Measures are based on HVAC system usage, therefore savings are directly dependent on the baseline. For example, if the baseline HVAC system becomes 10% more efficient then, all other thing equal, measures will follow the 10% change in baseline.

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p477
becomes 3.73 w/sensor?

New measures there no adjustment needed
New measures there no adjustment needed
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New measures there no adjustment needed
New measures there no adjustment needed

Measure	RET = 1	ROB-adjusted savings				DUKE	DUKE	DUKE	DUKE	DUKE	DUKE			
5000	1	612	32	46	0.60	0.60	611.54	364	19	27	358.0	18.1	23.6	
5000	1	315	16	24	0.60	0.60	314.51	187	10	14	184.1	9.3	12.1	
48	2	22	1	2	0.50	0.63	21.91	11	1	1	10.8	0.5	0.7	
48	1	77	4	6	0.50	0.63	76.72	38	2	3	37.7	1.9	2.5	
14	2	231	31	29	0.90	0.90	230.70	208	28	26	204.2	26.2	22.1	
11	2	20	3	3	0.75	0.75	20.48	15	2	2	15.1	1.9	1.6	
10	2	776	61	166	0.99	0.99	775.60	765	61	164	752.1	57.5	140.7	
15	2	41	5	0	0.99	0.99	41.11	41	5	0	39.9	4.4	0.0	
10	2	209	73	0	0.99	0.97	208.69	206	72	0	202.4	68.4	0.0	
10	1	104	8	23	0.97	0.97	104.29	101	8	22	99.6	7.7	18.8	
13	1	31	2	7	0.97	0.97	31.24	30	2	6	29.8	2.3	5.6	
10	1	55	4	12	0.97	0.97	55.00	53	4	11	52.5	4.0	9.9	
7	1	133	11	28	0.97	0.97	132.70	129	10	28	126.7	9.7	23.7	
5	1	8	1	2	0.97	0.97	7.93	8	1	2	7.6	0.6	1.4	
10	1	71	6	15	0.97	0.97	71.12	69	5	15	67.9	5.2	12.7	
10	1	144	11	31	0.97	0.97	143.79	140	11	30	137.3	10.5	25.7	
11	2	209	29	29	1.00	1.00	209.34	209	29	29	205.9	27.9	25.3	
11	2	79	11	11	1.00	1.00	79.40	79	11	11	78.1	10.6	9.6	
18	2	97	16	7	0.00	0.00	0.00	0	0	0	0.0	0.0	0.0	
13	2	153	15	11	1.00	1.00	152.74	153	15	11	150.2	14.2	9.3	
5	2	210	45	9	1.00	1.00	210.32	210	45	9	206.9	42.7	7.3	
5	2	216	46	9	1.00	1.00	215.57	216	46	9	212.0	43.7	7.5	
10	2	239	51	10	1.00	1.00	238.65	239	51	10	234.7	48.4	8.3	
10	2	153	33	6	1.00	1.00	152.98	153	33	6	150.5	31.0	5.3	
7	2	6	1	1	1.00	1.00	6.39	6	1	1	6.3	0.8	0.6	
7	2	18	2	2	1.00	1.00	17.55	18	2	2	17.3	2.1	1.6	
7	2	59	7	6	1.00	1.00	58.80	59	7	6	57.8	7.0	5.5	
7	2	16	2	2	1.00	1.00	16.03	16	2	2	15.8	1.9	1.5	
7	2	7	1	1	1.00	1.00	6.67	7	1	1	6.6	0.8	0.6	
7	2	26	3	3	1.00	1.00	25.73	26	3	3	25.3	3.1	2.4	
7	2	3	0	0	1.00	1.00	2.93	3	0	0	2.9	0.4	0.3	
12	2	2	1	1	1.00	1.00	11.95	12	2	1	11.8	1.5	0.9	
406	54	38	38	38	1.00	1.00	405.92	406	54	38	399.3	51.2	32.4	
193	25	25	25	25	1.00	1.00	193.00	193	25	25	189.8	23.8	21.5	
28	2	2	2	2	1.00	1.00	28.39	28	0.69	0	27.9	0.7	0.0	
248	16	18	18	18	1.00	1.00	248.24	248	15.91	0	244.2	15.1	0.0	
128	9	10	10	10	1.00	1.00	127.73	128	8.70	0	125.6	8.3	0.0	
192	0	0	0	0	1.00	1.00	191.68	192	0.00	0	188.5	0.0	0.0	

New Measures

352	Freezer recycling
302	Refrigerator recycling
962	Smart Plug
222	LED (12-Watt integral ballast), 0.5 hr/day
232	LED (12-Watt integral ballast), 2.5 hr/day
242	LED (12-Watt integral ballast), 6.0 hr/day
261	LED 13W Outdoor

Number	Measure	(from M_BAERE_PEF.XLS)				Sum GWH	Sum SMW	Sum WMW
		Cumulative GWH Savings	Cumulative MW Savings	Measure Life	RET=1 ROB=2			
						3613	734	405
						ltron ES-1 3648	743	371
						1.0%	1.2%	-9.1%
						ROB-adjusted savings		
						GWH	SMW	WMW
111	Premium T8, Electronic Ballast	243.42	46.93	19	1	243	47	26.28
112	Premium T8, EB, Reflector	97.32	18.88	19	1	97	19	10.57
113	Occupancy Sensor	55.60	10.72	19	1	56	11	6.11
114	Continuous Dimming	96.56	18.53	19	1	97	19	10.45
115	Lighting Control Tuneup	4.97	0.98	19	1	5	1	0.55
121	ROB Premium T8, 1EB	70.69	14.10	19	2	36	7	4.09
122	ROB Premium T8, EB, Reflector	55.06	10.97	19	2	28	6	3.18
123	Occupancy Sensor	25.52	5.05	19	1	26	5	2.86
124	Lighting Control Tuneup	2.13	0.43	19	1	2	0	0.24
131	CFL Screw-in 18W	402.28	77.89	19	1	402	78	43.93
141	CFL Hardwired, Modular 18W	134.09	25.96	19	1	134	26	14.64
151	PSMH, magnetic ballast	58.25	11.63	19	1	58	12	6.59
153	High Bay T5	50.01	9.98	19	1	37	5	0.00
161	LED Exit Sign	36.60	5.22	16	1	85	7	5.32
201	High Pressure Sodium 250W Lamp	85.05	6.57	5	1	7	1	3.55
202	Outdoor Lighting Controls (Photocell/Timeclock)	6.84	0.53	5	1	10	1	0.29
211	Outdoor Lighting Controls (Photocell/Timeclock)	10.09	0.76	5	1	32	10	0.00
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons	64.83	19.21	20	2	16	3	0.05
302	High Efficiency Chiller Motors	15.60	3.25	20	1	4	1	0.00
304	EMS - Chiller	4.37	0.86	10	1	17	5	0.11
305	Chiller Tune Up/Diagnostics	17.45	5.08	10	1	31	6	0.15
306	VSD for Chiller Pumps and Towers	31.40	6.23	15	1	11	1	0.19
307	EMS Optimization	11.11	0.55	5	1	35	7	0.05

308	Aerosole Duct Sealing	35.05	6.94	15	1	4	1	0.21
309	Duct/Pipe Insulation	3.93	0.78	10	1	11	2	0.02
311	Window Film (Standard)	10.82	2.24	10	1	20	12	-0.31
313	Ceiling Insulation	19.54	11.95	20	1	7	4	1.43
314	Roof Insulation	6.78	3.50	20	1	44	19	0.14
315	Cool Roof - Chiller	43.73	18.54	15	1	-6	20	0.00
317	Thermal Energy Storage (TES)	-5.60	19.55	50	1	29	4	0.08
321	DX Packaged System, EER=10.9, 10 tons	43.53	6.49	15	2	184	27	0.00
321A	DX Packaged System, EER=11.9, 10 tons	43.53	6.49	15	2	88	13	0.00
322	Hybrid Dessicant-DX System (Trane CDQ)	275.36	41.15	15	2	88	13	0.00
323	Geothermal Heat Pump, EER=13, 10 tons	131.35	19.63	15	2	25	7	0.79
326	DX Tune Up/ Advanced Diagnostics	24.59	7.43	10	1	38	12	0.00
327	DX Coil Cleaning	38.45	11.62	5	1	26	1	0.00
328	Optimize Controls - DX	25.92	1.33	5	1	110	22	0.13
329	Aerosole Duct Sealing	109.89	22.47	15	1	11	2	0.00
330	Duct/Pipe Insulation	11.17	2.29	10	1	43	9	0.00
332	Window Film (Standard)	43.43	9.00	10	1	76	45	-5.49
334	Ceiling Insulation	76.23	45.32	20	1	27	15	21.76
335	Roof Insulation	26.58	14.59	20	1	149	53	7.59
336	Cool Roof - DX	148.59	53.39	15	1	6	2	0.00
341	Packaged HP System, EER=10.9, 10 tons	9.06	2.78	15	2	6	2	0.00
341A	Packaged HP System, EER=11.7, 10 tons	9.06	2.78	15	2	10	2	0.00
342	Geothermal Heat Pump, EER=13, 10 tons	15.38	5.93	25	2	10	2	0.00
344	Aerosole Duct Sealing	9.53	2.05	15	1	1	0	0.07
345	Duct/Pipe Insulation	1.20	0.26	10	1	3	1	0.01
347	Window Film (Standard)	2.79	0.60	10	1	7	4	-0.02
349	Ceiling Insulation	6.60	4.14	20	1	2	1	0.13
350	Roof Insulation	2.32	1.34	20	1	12	5	0.05
351	Cool Roof - DX	11.91	4.56	15	1	39	6	0.00
361	HE PTAC, EER=9.6, 1 ton	59.21	9.03	15	2	52	3	0.00
362	Occupancy Sensor (hotels)	51.81	2.71	15	1	8	1	0.35
401	High Efficiency Fan Motor, 15hp, 1800rpm, 92.4%	11.43	1.52	15	2	76	3	1.55

402	Variable Speed Drive Control	76.20	2.80	15	1	55	2	4.27
403	Air Handler Optimization	55.24	1.88	8	1	95	12	2.08
404	Electronically Commutated Motors (ECM) on an Air Handler Unit	141.91	18.52	15	2	62	33	0.00
405	Demand Control Ventilation (DCV)	61.84	32.79	15	1	29	21	85.91
406	Energy Recovery Ventilation (ERV)	29.44	21.25	20	1	37	5	39.95
407	Separate Makeup Air / Exhaust Hoods AC	36.90	4.84	15	1	45	6	1.84
501	High-efficiency fan motors	44.93	5.57	16	1	13	2	4.57
502	Strip curtains for walk-ins	13.18	1.63	4	1	12	0	1.34
503	Night covers for display cases	11.94	0.00	5	1	1	0	14.40
504	Evaporator fan controller for MT walk-ins	1.47	0.18	5	1	24	3	0.15
505	Efficient compressor motor retrofit	24.34	3.02	10	2	10	1	2.47
506	Compressor VSD retrofit	10.11	0.63	10	1	8	1	0.51
507	Floating head pressure controls	8.47	1.05	16	1	9	1	0.86
508	Refrigeration Commissioning	8.91	1.10	3	1	4	0	0.91
509	Demand Hot Gas Defrost	3.63	0.45	10	1	41	5	0.37
510	Demand Defrost Electric	41.30	5.12	10	1	17	1	4.20
511	Anti-sweat (humidistat) controls	17.03	1.06	12	1	5	1	1.73
513	High R-Value Glass Doors	5.25	0.65	10	1	25	3	0.53
514	Multiplex Compressor System	25.48	3.16	14	1	18	2	2.59
515	Oversized Air Cooled Condenser	17.70	2.19	16	1	18	2	1.80
516	Freezer-Cooler Replacement Gaskets	17.63	2.19	4	1	2	0	1.79
517	LED Display Lighting	2.42	0.30	10	1	1	0	0.25
601	High Efficiency Water Heater (electric)	2.21	0.29	15	2	50	7	0.15
603	Heat Pump Water Heater (air source)	75.63	9.99	15	2	0	0	5.13
604	Solar Water Heater	0.93	0.12	20	2	2	0	0.05
606	Demand controlled circulating systems	1.88	0.23	15	1	74	10	0.20
608	Heat Recovery Unit	73.71	9.71	10	1	10	1	6.41
609	Heat Trap	10.23	1.35	10	1	0	0	1.04
610	Hot Water Pipe Insulation	0.40	0.05	15	1	44	4	0.04
701	PC Manual Power Management Enabling	43.73	3.73	4	1	81	7	9.11
702	PC Network Power Management Enabling	81.11	6.92	4	1	10	1	16.89
711	Energy Star or Better Monitor	10.36	1.34	4	1	38	3	2.15

712	Monitor Power Management Enabling	38.15	3.26	4	1	0	0	7.94
721	Energy Star or Better Monitor	0.00	0.00	4	1	0	0	0.00
722	Monitor Power Management Enabling	0.07	0.01	4	1	2	0	0.01
731	Energy Star or Better Copier	1.94	0.26	6	1	8	1	0.41
732	Copier Power Management Enabling	7.73	0.67	6	1	39	3	1.64
741	Printer Power Management Enabling	39.13	3.40	5	1	15	2	8.28
801	Convection Oven	14.96	2.08	10	2	15	2	0
811	Efficient Fryer	16.54	2.42	10	2	17	2	0
901	Vending Misers	36.53	2.84	10	1	0	0	4

New Measure

611	0.5 Faucet Aerator (DI) - Commercial					16.17	6.18	15.50
612	1.0 gpm Faucet Aerator (DI) -Commercial					20.16	1.47	3.69
613	1.5 gpm Showerhead (DI) - Commercial					15.21	0.46	1.15
910	Server Virtualization					34.35	2.87	5.56
203	Outdoor LED 104W					64.24	0.00	0.00
132	Flood LED 14W					26.46	2.22	3.06
154	LED High Bay 83W (400W equivalent)					16.30	2.12	4.51
146	LED (12-Watt)					38.72	4.63	4.30
125	LED Linear Tube 22W					37.56	1.97	2.43
337	Run Time Optimizer					106.82	74.49	0.00
338	dehumidification hybrid desiccant heat pump					251.47	141.51	11.51
812	Griddle					16.54	1.8	0.4
813	Steamer					14.96	1.7	0.4
814	Holding Cabinet					14.96	1.7	0.4
518	Ice Machine					8.9114626	0.4502216	0.90588641



Original GWH	Sum GWH	Sum SMW	Sum WMW
3588	3833	854	413
	1.05		
	5%		

GWH	SMW	WMW
3611	771	356
Contribution to final totals		

DEF

Adj Factor	GWH	ROB Adj	2013 Adjusted Values			GWH	SMW	WMW
		GWH	New GWH	New SMW	New WMW			
0.67	243		162.28	31.29	17.52	152.9	28.2	15.1
0.67	97		64.88	12.59	7.05	61.1	11.4	6.1
0.94	56		52.33	10.09	5.75	49.3	9.1	5.0
0.94	97		90.88	17.44	9.83	85.6	15.7	8.5
0.94	5		4.68	0.92	0.52	4.4	0.8	0.4
1.00	36		36.36	7.25	4.09	34.3	6.5	3.5
1.00	28		28.32	5.64	3.18	26.7	5.1	2.7
1.00	26		25.52	5.05	2.86	24.0	4.6	2.5
1.00	2		2.13	0.43	0.24	2.0	0.4	0.2
0.61	402		247.01	47.83	26.98	232.7	43.2	23.3
0.61	134		82.34	15.94	8.99	77.6	14.4	7.8
1.00	58		58.25	11.63	6.59	54.9	10.5	5.7
1.00	50		50.00	5.22	0.00	47.1	4.7	0.0
0.09	37		3.17	0.56	0.46	3.0	0.5	0.4
1.00	85		85.00	0.53	3.55	80.1	0.5	3.1
1.00	7		7.00	0.76	0.29	6.6	0.7	0.2
1.00	10		10.09	9.61	0.00	9.5	8.7	0.0
1.00	32		32.42	3.25	0.05	30.5	2.9	0.0
1.00	16		15.60	0.86	0.00	14.7	0.8	0.0
1.00	4		4.37	5.08	0.11	4.1	4.6	0.1
1.00	17		17.45	6.23	0.15	16.4	5.6	0.1
1.00	31		31.40	0.55	0.19	29.6	0.5	0.2
1.00	11		11.11	6.94	0.05	10.5	6.3	0.0

1.00	35	35.05	0.78	0.21	33.0	0.7	0.2
1.00	4	3.93	2.24	0.02	3.7	2.0	0.0
1.00	11	10.82	11.95	-0.31	10.2	10.8	-0.3
1.00	20	19.54	3.50	1.43	18.4	3.2	1.2
1.00	7	6.78	18.54	0.14	6.4	16.7	0.1
1.00	44	43.73	19.55	0.00	41.2	17.6	0.0
1.00	-6	-5.60	4.33	0.08	-5.3	3.9	0.1
0.00	0	0.00	0.00	0.00	0.0	0.0	0.0
1.00	29	29.02	13.08	0.00	27.3	11.8	0.0
0.92	184	168.89	12.04	0.00	159.1	10.9	0.0
0.92	88	80.56	6.84	0.72	75.9	6.2	0.6
0.92	25	22.62	10.69	0.00	21.3	9.6	0.0
0.92	38	35.37	1.22	0.00	33.3	1.1	0.0
0.92	26	23.84	20.67	0.12	22.5	18.7	0.1
0.92	110	101.10	2.11	0.00	95.2	1.9	0.0
0.92	11	10.28	8.28	0.00	9.7	7.5	0.0
0.92	43	39.95	41.70	-5.05	37.6	37.6	-4.4
0.92	76	70.13	13.42	20.01	66.1	12.1	17.3
0.92	27	24.45	49.12	6.98	23.0	44.3	6.0
0.92	149	136.70	1.70	0.00	128.8	1.5	0.0
0.00	0	0.00	0.00	0.00	0.0	0.0	0.0
1.00	6	6.04	2.05	0.00	5.7	1.8	0.0
0.94	6	5.78	1.93	0.00	5.4	1.7	0.0
0.94	10	8.95	0.24	0.06	8.4	0.2	0.1
0.94	1	1.12	0.56	0.01	1.1	0.5	0.0
0.94	3	2.63	3.89	-0.02	2.5	3.5	0.0
0.94	7	6.20	1.26	0.12	5.8	1.1	0.1
0.94	2	2.18	4.28	0.05	2.1	3.9	0.0
0.94	12	11.19	5.66	0.00	10.5	5.1	0.0
1.00	39	39.47	2.71	0.00	37.2	2.4	0.0
1.00	52	51.81	1.02	0.35	48.8	0.9	0.3
1.00	8	7.62	2.80	1.55	7.2	2.5	1.3

1.00	76	76.20	1.88	4.27	71.8	1.7	3.7
1.00	55	55.24	12.34	2.08	52.0	11.1	1.8
1.00	95	94.60	32.79	0.00	89.1	29.6	0.0
1.00	62	61.84	21.25	85.91	58.3	19.2	74.1
1.00	29	29.44	4.84	39.95	27.7	4.4	34.5
1.00	37	36.90	5.57	1.84	34.8	5.0	1.6
1.00	45	44.93	1.63	4.57	42.3	1.5	3.9
1.00	13	13.18	0.00	1.34	12.4	0.0	1.2
1.00	12	11.94	0.18	14.40	11.2	0.2	12.4
1.00	1	1.47	3.02	0.15	1.4	2.7	0.1
1.00	24	24.34	0.63	2.47	22.9	0.6	2.1
1.00	10	10.11	1.05	0.51	9.5	0.9	0.4
1.00	8	8.47	1.10	0.86	8.0	1.0	0.7
1.00	9	8.91	0.45	0.91	8.4	0.4	0.8
1.00	4	3.63	5.12	0.37	3.4	4.6	0.3
1.00	41	41.30	1.06	4.20	38.9	1.0	3.6
1.00	17	17.03	0.65	1.73	16.0	0.6	1.5
1.00	5	5.25	3.16	0.53	4.9	2.9	0.5
1.00	25	25.48	2.19	2.59	24.0	2.0	2.2
1.00	18	17.70	2.19	1.80	16.7	2.0	1.6
1.00	18	17.63	0.30	1.79	16.6	0.3	1.5
1.00	2	2.42	0.19	0.25	2.3	0.2	0.2
0.00	1	0.00	0.00	0.00	0.0	0.0	0.0
0.99	50	49.71	0.06	5.05	46.8	0.1	4.4
0.99	1	0.92	0.22	0.05	0.9	0.2	0.0
0.97	2	1.82	9.42	0.19	1.7	8.5	0.2
0.99	74	72.67	1.33	6.32	68.5	1.2	5.5
0.97	10	9.93	0.05	1.01	9.4	0.0	0.9
0.97	0	0.38	3.62	0.04	0.4	3.3	0.0
1.00	44	43.73	6.92	9.11	41.2	6.2	7.9
1.00	81	81.11	1.34	16.89	76.4	1.2	14.6
1.00	10	10.36	3.26	2.15	9.8	2.9	1.9

1.00	38	38.15	0.00	7.94	35.9	0.0	6.9
1.00	0	0.00	0.01	0.00	0.0	0.0	0.0
1.00	0	0.07	0.26	0.01	0.1	0.2	0.0
1.00	2	1.94	0.67	0.41	1.8	0.6	0.4
1.00	8	7.73	3.40	1.64	7.3	3.1	1.4
1.00	39	39.13	2.08	8.28	36.9	1.9	7.1
1.00	15	14.96	1.70	0.40	14.1	1.5	0.3
1.00	17	16.54	1.80	0.40	15.6	1.6	0.3
1.00	37	36.53	0.00	4.12	34.4	0.0	3.6
					0.0	0.0	0.0
					0.0	0.0	0.0
0.88	16	14.15	5.41	13.56	13.3	4.9	11.7
0.88	20	17.64	1.29	3.23	16.6	1.2	2.8
0.88	15	13.31	0.40	1.00	12.5	0.4	0.9
1.00	34	34.35	2.87	5.56	32.4	2.6	4.8
1.00	64	64.24	0.00	0.00	60.5	0.0	0.0
1.00	26	26.46	2.22	3.06	24.9	2.0	2.6
1.00	16	16.30	2.12	4.51	15.4	1.9	3.9
1.00	39	38.72	4.63	4.30	36.5	4.2	3.7
1.00	38	37.56	1.97	2.43	35.4	1.8	2.1
1.00	107	106.82	74.49	0.00	100.6	67.2	0.0
1.00	251	251.47	141.51	11.51	236.9	127.7	9.9
1.00	17	16.54	1.80	0.40	15.6	1.6	0.3
1.00	15	14.96	1.70	0.40	14.1	1.5	0.3
1.00	15	14.96	1.70	0.40	14.1	1.5	0.3
1.00	9	8.91	0.45	0.91	8.4	0.4	0.8

Measure #	Measure
110	Base Fluorescent Fixture, T12, 34W, EB
111	Premium T8, Electronic Ballast
112	Premium T8, EB, Reflector
113	Occupancy Sensor
114	Continuous Dimming
115	Lighting Control Tuneup
120	Base T8, EB
121	ROB Premium T8, 1EB
122	ROB Premium T8, EB, Reflector
123	Occupancy Sensor
124	Lighting Control Tuneup
130	Base Incandescent Flood, 75W to Screw-in CFL
131	CFL Screw-in 18W
140	Base Incandescent Flood, 75W to Hardwired CFL
141	CFL Hardwired, Modular 18W
145	Base CFL
150	Base High Bay Mercury Vapor, 400W
151	PSMH, 250W, magnetic ballast
152	PSMH, 250 W, electronic ballast
153	High Bay T5
160	Base Exit Sign
161	LED Exit Sign
200	Base Outdoor Mercury Vapor 400W Lamp
201	High Pressure Sodium 250W Lamp
202	Outdoor Lighting Controls (Photocell/Timeclock)
210	Base Outdoor HID Lamp
211	Outdoor Lighting Controls (Photocell/Timeclock)
300	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons
301	Centrifugal Chiller, 0.51 kW/ton, 500 tons
302	High Efficiency Chiller Motors
304	EMS - Chiller
305	Chiller Tune Up/Diagnostics
306	VSD for Chiller Pumps and Towers
307	EMS Optimization
308	Aerosole Duct Sealing
309	Duct/Pipe Insulation
311	Window Film (Standard)
313	Ceiling Insulation
314	Roof Insulation
315	Cool Roof - Chiller
317	Thermal Energy Storage (TES)
320	Base DX Packaged System, EER=10.3, 10 tons

duke

- 120
- 121
- 122
- 123
- 124

LEGEND:

- old/remove
- new baseline
- affected measures
- dependent

p484 53

p484 53

duke

Measure #	Measure
321	DX Packaged System, EER=10.9, 10 tons
	Base DX Packaged System, EER=11.2, 10 tons
322	Hybrid Dessicant-DX System (Trane CDQ)
323	Geothermal Heat Pump, EER=13, 10 tons
326	DX Tune Up/ Advanced Diagnostics
327	DX Coil Cleaning
328	Optimize Controls
329	Aerosole Duct Sealing
330	Duct/Pipe Insulation
332	Window Film (Standard)
334	Ceiling Insulation
335	Roof Insulation
336	Cool Roof - DX
340	Base Packaged HP System, EER=10.3, 10 tons
341	Packaged HP System, EER=10.9, 10 tons
	Base Packaged HP System, EER=11.0, 10 tons
342	Geothermal Heat Pump, EER=13, 10 tons
344	Aerosole Duct Sealing
345	Duct/Pipe Insulation
347	Window Film (Standard)
349	Ceiling Insulation
350	Roof Insulation
351	Cool Roof - DX
360	Base PTAC, EER=8.3, 1 ton
361	HE PTAC, EER=9.6, 1 ton
	Base HE PTAC, EER=10.2, 1 ton
362	Occupancy Sensor (hotels)
400	Base Fan Motor, 15hp, 1800rpm, 91.0%

TABLE C403.2.3(1) MINIMUM EFFICIENCY REQUIREMENTS: ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS

FBC 2013 Larry / Abel

http://publiccodes.cyberregs.com/icod/iecc/2012/icod_iecc_2012_ce4_sec003.htm?bu=IC-P-2012-000014&bu2=IC-P-2012-000019

TABLE C403.2.3(2) MINIMUM EFFICIENCY REQUIREMENTS: ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS

FBC 2013 Larry / Abel

http://publiccodes.cyberregs.com/icod/iecc/2012/icod_iecc_2012_ce4_sec003.htm?bu=IC-P-2012-000014&bu2=IC-P-2012-000019

TABLE C403.2.3(3) MINIMUM EFFICIENCY REQUIREMENTS: ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS

FPL Larry / Abel

http://publiccodes.cyberregs.com/icod/iecc/2012/icod_iecc_2012_ce4_sec003.htm?bu=IC-P-2012-000014&bu2=IC-P-2012-000019

Measure #	Measure
401	High Efficiency Base Fan Motor, 15hp, 1800rpm, 92.4%
402	Variable Speed Drive Control
403	Air Handler Optimization
404	Electronically Commutated Motors (ECM) on an Air Handler Unit
405	Demand Control Ventilation (DCV)
406	Energy Recovery Ventilation (ERV)
407	Separate Makeup Air / Exhaust Hoods AC
500	Base Refrigeration System
501	High-efficiency fan motors
502	Strip curtains for walk-ins
503	Night covers for display cases
504	Evaporator fan controller for MT walk-ins
505	Efficient compressor motor
506	Compressor VSD retrofit
507	Floating head pressure controls
508	Refrigeration Commissioning
509	Demand Hot Gas Defrost
510	Demand Defrost Electric
511	Anti-sweat (humidistat) controls
513	High R-Value Glass Doors
514	Multiplex Compressor System
515	Oversized Air Cooled Condenser
516	Freezer-Cooler Replacement Gaskets
517	LED Display Lighting
600	Base Water Heating
601	High Efficiency Water Heater (electric)
603	Heat Pump Water Heater (air source)
604	Solar Water Heater
606	Demand controlled circulating systems
608	Heat Recovery Unit
609	Heat Trap
610	Hot Water Pipe Insulation
700	Base Desktop PC
701	PC Manual Power Management Enabling
702	PC Network Power Management Enabling
710	Base Monitor, CRT
711	Energy Star or Better Monitor
712	Monitor Power Management Enabling
720	Base Monitor, LCD
721	Energy Star or Better Monitor

EISA 2007 NEMA Premium ordinance - New base efficiencies

duke

Eff? / Cap?

EF=1.944

duke

Measure #	Measure
722	Monitor Power Management Enabling
730	Base Copier
731	Energy Star or Better Copier
732	Copier Power Management Enabling
740	Base Laser Printer
741	Printer Power Management Enabling
800	Base Commercial Ovens
801	Convection Oven
810	Base Commercial Fryers
811	Efficient Fryer
900	Base Vending Machines
901	Vending Misers (cooled machines only)



	Sum GWH	Sum SMW	Sum WMW
	331	39	38
Ittron ES-1	471	60	47
	29.6%	34.7%	19.0%

Cumulative GWH Savings Cumulative SMW Savings (from M_BAERE_PEF.XLS) Measure Life RET=1 ROB=2

Number	Measure
	New Base Compressed Air
101	Compressed Air-O&M
102	Compressed Air - Controls
103	Compressed Air - System Optimization
104	Compressed Air- Sizing
105	Comp Air - Replace 1-5 HP motor
106	Comp Air - ASD (1-5 hp)
107	Comp Air - Motor practices-1 (1-5 HP)
108	Comp Air - Replace 6-100 HP motor
109	Comp Air - ASD (6-100 hp)
110	Comp Air - Motor practices-1 (6-100 HP)
111	Comp Air - Replace 100+ HP motor
112	Comp Air - ASD (100+ hp)
113	Comp Air - Motor practices-1 (100+ HP)
114	Power recovery
115	Refinery Controls
	New Base Fans
201	Fans - O&M
202	Fans - Controls
203	Fans - System Optimization
204	Fans- Improve components
205	Fans - Replace 1-5 HP motor
206	Fans - ASD (1-5 hp)
207	Fans - Motor practices-1 (1-5 HP)
208	Fans - Replace 6-100 HP motor
209	Fans - ASD (6-100 hp)
210	Fans - Motor practices-1 (6-100 HP)

ROB-adjusted savings
GWH SMW WMW

26.50	3.88	1	1	26	4	3.45
4.95	0.72	1	1	5	1	0.64
19.44	2.84	1	1	19	3	2.53
7.97	1.17	1	2	8	1	1.04
0.18	0.03	1	2	0	0	0.02
0.35	0.00	1	2	0	0	0.00
0.33	0.05	1	1	0	0	0.04
1.11	0.16	1	2	1	0	0.14
4.54	0.06	1	2	5	0	0.59
1.23	0.18	1	1	1	0	0.16
1.01	0.15	1	2	1	0	0.13
5.52	0.07	1	2	6	0	0.72
1.29	0.19	1	1	1	0	0.17
0.00	0.00	1	1	0	0	0.00
0.02	0.00	1	1	0	0	0.00
2.20	0.29	2	1	2	0	0.26
18.70	2.50	2	1	19	3	2.28
7.78	0.49	2	1	8	0	0.86
2.24	0.30	2	2	2	0	0.28
0.22	0.03	2	2	0	0	0.03
0.41	0.00	2	2	0	0	0.03
0.40	0.05	2	1	0	0	0.05
1.36	0.18	2	2	1	0	0.16
4.55	0.06	2	2	5	0	0.54
1.75	0.23	2	1	2	0	0.23

211	Fans - Replace 100+ HP motor	1.24	0.17	2	2	1	0	0.17
212	Fans - ASD (100+ hp)	7.45	0.09	2	2	7	0	0.08
213	Fans - Motor practices-1 (100+ HP)	1.83	0.25	2	1	2	0	0.22
214	Optimize drying process	1.05	0.18	2	1	1	0	0.22
215	Power recovery	0.00	0.00	2	1	0	0	0.00
216	Refinery Controls	0.01	0.00	2	1	0	0	0.00
	New Base Pumps							
301	Pumps - O&M	15.07	1.93	3	1	15	2	1.80
302	Pumps - Controls	44.22	5.67	3	1	44	6	5.05
303	Pumps - System Optimization	34.84	4.47	3	1	35	4	4.01
304	Pumps - Sizing	14.04	1.80	3	2	14	2	1.61
305	Pumps - Replace 1-5 HP motor	0.29	0.04	3	2	0	0	0.03
306	Pumps - ASD (1-5 hp)	0.56	0.01	3	2	1	0	0.04
307	Pumps - Motor practices-1 (1-5 HP)	0.53	0.07	3	1	1	0	0.06
308	Pumps - Replace 6-100 HP motor	1.80	0.23	3	2	2	0	0.21
309	Pumps - ASD (6-100 hp)	7.51	0.09	3	2	8	0	0.74
310	Pumps - Motor practices-1 (6-100 HP)	2.00	0.26	3	1	2	0	0.23
311	Pumps - Replace 100+ HP motor	1.65	0.21	3	2	2	0	0.19
312	Pumps - ASD (100+ hp)	10.01	0.12	3	2	10	0	0.35
313	Pumps - Motor practices-1 (100+ HP)	2.10	0.27	3	1	2	0	0.25
314	Power recovery	0.01	0.00	3	1	0	0	0.00
315	Refinery Controls	0.08	0.01	3	1	0	0	0.01
400	Base Drives							
401	Bakery - Process (Mixing) - O&M	4.97	0.68	4	1	5	1	0.61
402	O&M/drives spinning machines	0.36	0.09	4	1	0	0	0.16
403	Air conveying systems	2.19	0.09	4	2	2	0	0.17
404	Replace V-Belts	1.01	0.17	4	2	1	0	0.17
405	Drives - EE motor	2.38	0.31	4	2	2	0	0.31
406	Gap Forming papermachine	0.46	0.05	4	2	0	0	0.05
407	High Consistency forming	0.45	0.05	4	2	0	0	0.04
408	Optimization control PM	1.36	0.16	4	1	1	0	0.15
409	Efficient practices printing press	2.19	0.30	4	1	2	0	0.24
410	Efficient Printing press (fewer cylinders)	1.86	0.25	4	2	2	0	0.22
411	Light cylinders	0.81	0.11	4	2	1	0	0.10

412	Efficient drives	0.43	0.06	4	2	0	0	0.06
413	Clean Room - Controls	1.68	0.20	4	2	2	0	0.18
414	Clean Room - New Designs	1.02	0.09	4	2	1	0	0.00
415	Drives - Process Controls (batch + site)	2.36	0.24	4	2	2	0	0.00
416	Process Drives - ASD	0.21	0.02	4	2	0	0	0.00
417	O&M - Extruders/Injection Moulding	4.95	0.69	4	1	5	1	0.54
418	Extruders/injection Moulding-multipump	7.04	0.98	4	2	7	1	0.87
419	Direct drive Extruders	3.61	0.50	4	2	4	1	0.45
420	Injection Moulding - Impulse Cooling	2.56	0.36	4	2	3	0	0.32
421	Injection Moulding - Direct drive	2.23	0.31	4	2	2	0	0.28
422	Efficient grinding	3.63	0.42	4	2	4	0	0.41
423	Process control	0.75	0.09	4	1	1	0	0.08
424	Process optimization	0.49	0.06	4	1	0	0	0.06
425	Drives - Process Control	0.07	0.01	4	1	0	0	0.01
426	Efficient drives - rolling	0.08	0.01	4	2	0	0	0.01
427	Drives - Optimization process (M&T)	2.04	0.36	4	1	2	0	0.34
428	Drives - Scheduling	0.99	0.03	4	1	1	0	0.15
429	Machinery	1.05	0.18	4	2	1	0	0.17
430	Efficient Machinery	0.11	0.01	4	2	0	0	0.01
500	Base Heating							
501	Bakery - Process	1.96	0.27	5	2	2	0	0.24
502	Drying (UV/IR)	0.15	0.02	5	2	0	0	0.04
503	Heat Pumps - Drying	0.32	0.05	5	2	0	0	0.05
504	Top-heating (glass)	0.37	0.04	5	2	0	0	0.04
505	Efficient electric melting	0.16	0.03	5	2	0	0	0.03
506	Intelligent extruder (DOE)	0.00	0.00	5	2	0	0	0.00
507	Near Net Shape Casting	0.04	0.01	5	2	0	0	0.01
508	Heating - Process Control	0.17	0.03	5	1	0	0	0.03
509	Efficient Curing ovens	4.33	0.65	5	2	4	1	0.61
510	Heating - Optimization process (M&T)	1.10	0.19	5	1	1	0	0.18
511	Heating - Scheduling	0.32	0.01	5	1	0	0	0.05
550	Base Refrigeration							
551	Efficient Refrigeration - Operations	3.24	0.55	6	1	3	1	0.30
552	Optimization Refrigeration	5.60	0.95	6	1	6	1	0.51

600	Base Other Process								
601	Other Process Controls (batch + site)	1.33	0.12	7	1	1	0	0.10	
602	Efficient desalter	0.00	0.00	7	2	0	0	0	
603	New transformers welding	0.89	0.15	7	2	1	0	0	
604	Efficient processes (welding, etc.)	1.97	0.27	7	2	2	0	0.22819042	
605	Process control	0.01	0.00	7	1	0	0	0	
606	Power recovery	0.00	0.00	7	1	0	0	0	
607	Refinery Controls	0.00	0.00	7	1	0	0	0	
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons								
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons	8.46	0.31	8	2	8	0	0.06778662	
702	High Efficiency Chiller Motors	1.67	0.30	8	1	2	0	0.01340347	
703	EMS - Chiller	0.35	0.01	8	1	0	0	0.00281754	
704	Chiller Tune Up/Diagnostics	1.74	0.32	8	1	2	0	0.01264592	
705	VSD for Chiller Pumps and Towers	2.97	0.11	8	1	3	0	0.02420806	
706	EMS Optimization - Chiller	1.10	0.20	8	1	1	0	0.00886275	
707	Aerosole Duct Sealing - Chiller	3.73	0.68	8	1	4	1	0.02988365	
708	Duct/Pipe Insulation - Chiller	2.22	0.40	8	1	2	0	0.01774604	
709	Window Film (Standard) - Chiller	1.24	0.23	8	1	1	0	0.00999466	
710	Roof Insulation - Chiller	0.74	0.14	8	1	1	0	0.00595963	
711	Cool Roof - Chiller	4.59	0.84	8	1	5	1	0.03711544	
	Base DX Packaged System, EER=11.2, 10 tons								
721A	Base DX Packaged System, EER=11.9, 10 tons								
722	Hybrid Dessicant-DX System (Trane CDQ)	24.40	4.39	8	2	24	4	0	
723	Geothermal Heat Pump, EER=13, 10 tons	3.89	0.70	8	2	4	1	0	
724	DX Tune Up/ Advanced Diagnostics	1.37	0.25	8	1	1	0	0	
725	DX Coil Cleaning	2.68	0.48	8	1	3	0	0	
726	Optimize Controls	1.03	0.19	8	1	1	0	0	
727	Aerosole Duct Sealing	5.58	1.01	8	1	6	1	0	
728	Duct/Pipe Insulation	3.21	0.58	8	1	3	1	0	
729	Window Film (Standard)	1.71	0.31	8	1	2	0	0	
730	Roof Insulation	1.13	0.20	8	1	1	0	0	
731	Cool Roof - DX	6.77	1.23	8	1	7	1	0	
800	Base T8								
801	Premium T8, Elecctronic Ballast	45.23	6.56	9	1	45	7	0	

802	CFL Hardwired, Modular 18W	6.41	0.91	9	1	6	1	5.83440021
803	CFL Screw-in 18W	8.26	1.17	9	1	8	1	0.80860378
804	High Bay T5	4.48	0.62	9	1	4	1	1.04077986
805	Occupancy Sensor	7.40	0.21	10	1	7	0	0.55094189
900	Base Other							
901	Replace V-belts	0.04	0.01	10	2	0	0	0.948525
902	Membranes for wastewater	0.01	0.00	10	2	0	0	0.00494144

New Measure

806	LED Linear Tube 22W
807	Flood LED 14W
808	LED High Bay 83W
732	Run Time Optimizer
733	Dehumidification Hybrid Desiccant Heat Pump PER 5 TON

					GWH	SMW	WMW	
					489	67	44	
					Contribution to final totals			
					10%			
					DEF			
					2013 Adjusted Values			
Adj Factor	GWH	ROB Adj GWH	New GWH	New SMW	New WMW			
		Original GWH	Sum GWH	Sum SMW	Sum WMW			
		491	519	74	52			
			1.10					
			10%					
			DEF					
		ROB Adj GWH	2013 Adjusted Values					
			New GWH	New SMW	New WMW			
1.00		26.50	26.50	3.88	3.45	25.0	3.5	3.0
1.00		4.95	4.95	0.72	0.64	4.7	0.7	0.6
1.00		19.44	19.44	2.84	2.53	18.3	2.6	2.2
1.00		7.97	7.97	1.17	1.04	7.5	1.1	0.9
1.00		0.18	0.18	0.03	0.02	0.2	0.0	0.0
1.00		0.35	0.35	0.00	0.00	0.3	0.0	0.0
1.00		0.33	0.33	0.05	0.04	0.3	0.0	0.0
1.00		1.11	1.11	0.16	0.14	1.0	0.1	0.1
1.00		4.54	4.54	0.06	0.59	4.3	0.1	0.5
1.00		1.23	1.23	0.18	0.16	1.2	0.2	0.1
1.00		1.01	1.01	0.15	0.13	1.0	0.1	0.1
1.00		5.52	5.52	0.07	0.72	5.2	0.1	0.6
1.00		1.29	1.29	0.19	0.17	1.2	0.2	0.1
1.00		0.00	0.00	0.00	0.00	0.0	0.0	0.0
1.00		0.02	0.02	0.00	0.00	0.0	0.0	0.0
						0.0	0.0	0.0
1.00		2.20	2.20	0.29	2.28	2.1	0.3	2.0
1.00		18.70	18.70	2.50	0.86	17.6	2.3	0.7
1.00		7.78	7.78	0.49	0.28	7.3	0.4	0.2
1.00		2.24	2.24	0.30	0.03	2.1	0.3	0.0
1.00		0.22	0.22	0.03	0.03	0.2	0.0	0.0
1.00		0.41	0.41	0.00	0.05	0.4	0.0	0.0
1.00		0.40	0.40	0.05	0.16	0.4	0.0	0.1
1.00		1.36	1.36	0.18	0.54	1.3	0.2	0.5
1.00		4.55	4.55	0.06	0.23	4.3	0.0	0.2
1.00		1.75	1.75	0.23	0.17	1.6	0.2	0.1

1.00	1.24	1.24	0.17	0.08	1.2	0.1	0.1
1.00	7.45	7.45	0.09	0.22	7.0	0.1	0.2
1.00	1.83	1.83	0.25	0.22	1.7	0.2	0.2
1.00	1.05	1.05	0.18	0.00	1.0	0.2	0.0
1.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
1.00	0.01	0.01	0.00	1.80	0.0	0.0	1.5
					0.0	0.0	0.0
1.00	15.07	15.07	1.93	4.01	14.2	1.7	3.5
1.00	44.22	44.22	5.67	1.61	41.7	5.1	1.4
1.00	34.84	34.84	4.47	0.03	32.8	4.0	0.0
1.00	14.04	14.04	1.80	0.04	13.2	1.6	0.0
1.00	0.29	0.29	0.04	0.06	0.3	0.0	0.1
1.00	0.56	0.56	0.01	0.21	0.5	0.0	0.2
1.00	0.53	0.53	0.07	0.74	0.5	0.1	0.6
1.00	1.80	1.80	0.23	0.23	1.7	0.2	0.2
1.00	7.51	7.51	0.09	0.19	7.1	0.1	0.2
1.00	2.00	2.00	0.26	0.35	1.9	0.2	0.3
1.00	1.65	1.65	0.21	0.25	1.6	0.2	0.2
1.00	10.01	10.01	0.12	0.00	9.4	0.1	0.0
1.00	2.10	2.10	0.27	0.01	2.0	0.2	0.0
1.00	0.01	0.01	0.00	0.61	0.0	0.0	0.5
1.00	0.08	0.08	0.01	0.16	0.1	0.0	0.1
					0.0	0.0	0.0
1.00	4.97	4.97	0.68	0.17	4.7	0.6	0.2
1.00	0.36	0.36	0.09	0.31	0.3	0.1	0.3
1.00	2.19	2.19	0.09	0.05	2.1	0.1	0.0
1.00	1.01	1.01	0.17	0.04	1.0	0.2	0.0
1.00	2.38	2.38	0.31	0.15	2.2	0.3	0.1
1.00	0.46	0.46	0.05	0.24	0.4	0.0	0.2
1.00	0.45	0.45	0.05	0.22	0.4	0.0	0.2
1.00	1.36	1.36	0.16	0.10	1.3	0.1	0.1
1.00	2.19	2.19	0.30	0.06	2.1	0.3	0.0
1.00	1.86	1.86	0.25	0.18	1.8	0.2	0.2
1.00	0.81	0.81	0.11	0.00	0.8	0.1	0.0

1.00	0.43	0.43	0.06	0.00	0.4	0.1	0.0
1.00	1.68	1.68	0.20	0.00	1.6	0.2	0.0
1.00	1.02	1.02	0.09	0.54	1.0	0.1	0.5
1.00	2.36	2.36	0.24	0.87	2.2	0.2	0.8
1.00	0.21	0.21	0.02	0.45	0.2	0.0	0.4
1.00	4.95	4.95	0.69	0.32	4.7	0.6	0.3
1.00	7.04	7.04	0.98	0.28	6.6	0.9	0.2
1.00	3.61	3.61	0.50	0.41	3.4	0.5	0.4
1.00	2.56	2.56	0.36	0.08	2.4	0.3	0.1
1.00	2.23	2.23	0.31	0.06	2.1	0.3	0.0
1.00	3.63	3.63	0.42	0.01	3.4	0.4	0.0
1.00	0.75	0.75	0.09	0.01	0.7	0.1	0.0
1.00	0.49	0.49	0.06	0.34	0.5	0.1	0.3
1.00	0.07	0.07	0.01	0.15	0.1	0.0	0.1
1.00	0.08	0.08	0.01	0.17	0.1	0.0	0.1
1.00	2.04	2.04	0.36	0.01	1.9	0.3	0.0
1.00	0.99	0.99	0.03	0.24	0.9	0.0	0.2
1.00	1.05	1.05	0.18	0.04	1.0	0.2	0.0
1.00	0.11	0.11	0.01	0.05	0.1	0.0	0.0
					0.0	0.0	0.0
1.00	1.96	1.96	0.27	0.03	1.9	0.2	0.0
1.00	0.15	0.15	0.02	0.00	0.1	0.0	0.0
1.00	0.32	0.32	0.05	0.01	0.3	0.0	0.0
1.00	0.37	0.37	0.04	0.03	0.3	0.0	0.0
1.00	0.16	0.16	0.03	0.61	0.2	0.0	0.5
1.00	0.00	0.00	0.00	0.18	0.0	0.0	0.2
1.00	0.04	0.04	0.01	0.05	0.0	0.0	0.0
1.00	0.17	0.17	0.03	0.30	0.2	0.0	0.3
1.00	4.33	4.33	0.65	0.51	4.1	0.6	0.4
1.00	1.10	1.10	0.19	0.10	1.0	0.2	0.1
1.00	0.32	0.32	0.01	0.00	0.3	0.0	0.0
					0.0	0.0	0.0
1.00	3.24	3.24	0.55	0.23	3.1	0.5	0.2
1.00	5.60	5.60	0.95	0.00	5.3	0.9	0.0

1.00	1.33	1.33	0.12	0.00	0.0	0.0	0.0
1.00	0.00	0.00	0.00	0.07	1.3	0.1	0.0
1.00	0.89	0.89	0.15	0.01	0.0	0.0	0.1
1.00	1.97	1.97	0.27	0.00	0.8	0.1	0.0
1.00	0.01	0.01	0.00	0.01	1.9	0.2	0.0
1.00	0.00	0.00	0.00	0.02	0.0	0.0	0.0
1.00	0.00	0.00	0.00	0.01	0.0	0.0	0.0
					0.0	0.0	0.0
1.00	8.46	8.46	0.31	0.02	8.0	0.3	0.0
1.00	1.67	1.67	0.30	0.01	1.6	0.3	0.0
1.00	0.35	0.35	0.01	0.01	0.3	0.0	0.0
1.00	1.74	1.74	0.32	0.04	1.6	0.3	0.0
1.00	2.97	2.97	0.11	0.00	2.8	0.1	0.0
1.00	1.10	1.10	0.20	0.00	1.0	0.2	0.0
1.00	3.73	3.73	0.68	0.00	3.5	0.6	0.0
1.00	2.22	2.22	0.40	0.00	2.1	0.4	0.0
1.00	1.24	1.24	0.23	0.00	1.2	0.2	0.0
1.00	0.74	0.74	0.14	0.00	0.7	0.1	0.0
1.00	4.59	4.59	0.84	0.00	4.3	0.8	0.0
					0.0	0.0	0.0
1.00	10.00	10.00	0.00	0.43	9.4	0.0	0.4
0.92	24.40	22.44	4.04	0.00	21.1	3.6	0.0
0.67	3.89	2.60	0.47	0.00	2.4	0.4	0.0
0.92	1.37	1.26	0.23	0.00	1.2	0.2	0.0
0.92	2.68	2.47	0.44	5.37	2.3	0.4	4.6
0.92	1.03	0.95	0.17	0.74	0.9	0.2	0.6
0.92	5.58	5.13	0.93	0.96	4.8	0.8	0.8
0.92	3.21	2.95	0.54	0.51	2.8	0.5	0.4
0.92	1.71	1.57	0.29	0.87	1.5	0.3	0.8
0.92	1.13	1.04	0.19	0.00	1.0	0.2	0.0
0.92	6.77	6.23	1.13	0.00	5.9	1.0	0.0
					0.0	0.0	0.0
0.67	45.23	30.30	4.39	0.00	28.5	4.0	0.0

0.61	3.42	2.09	0.55	0.00	2.0	0.5	0.0
0.61	4.41	2.69	0.71	0.00	2.5	0.6	0.0
1.00	4.48	4.48	0.62	0.00	4.2	0.6	0.0
0.94	7.40	6.95	0.20	0.00	6.5	0.2	0.0
					0.0	0.0	0.0
1.00	0.04	0.04	0.01	0.00	0.0	0.0	0.0
1.00	0.01	0.01	0.00	0.00	0.0	0.0	0.0
					0.0	0.0	0.0
					0.0	0.0	0.0
					0.0	0.0	0.0
					0.0	0.0	0.0
1.00		21.30	8.21	7.88	20.1	7.4	6.8
1.00		1.18	0.91	0.89	1.1	0.8	0.8
1.00		1.39	0.98	1.03	1.3	0.9	0.9
1.00		8.28	2.01	0.00	7.8	1.8	0.0
1.00		19.50	3.81	0.00	18.4	3.4	0.0

Measure #	Measure
100	Base Compressed Air
	New Base Compressed Air
101	Compressed Air-O&M
102	Compressed Air - Controls
103	Compressed Air - System Optimization
104	Compressed Air- Sizing
105	Comp Air - Replace 1-5 HP motor
106	Comp Air - ASD (1-5 hp)
107	Comp Air - Motor practices-1 (1-5 HP)
108	Comp Air - Replace 6-100 HP motor
109	Comp Air - ASD (6-100 hp)
110	Comp Air - Motor practices-1 (6-100 HP)
111	Comp Air - Replace 100+ HP motor
112	Comp Air - ASD (100+ hp)
113	Comp Air - Motor practices-1 (100+ HP)
114	Power recovery
115	Refinery Controls
200	Base Fans
	New Base Fans
201	Fans - O&M
202	Fans - Controls
203	Fans - System Optimization

Based on EISA 2007

EISA 2007 NEMA Premium ordinance - New base efficiencies

EISA 2007 NEMA Premium ordinance - New base efficiencies

EISA 2007 NEMA Premium ordinance - New base efficiencies





EISA 2007 NEMA Premium ordinance - New base efficiencies

EISA 2007 NEMA Premium ordinance - New base efficiencies

EISA 2007 NEMA Premium ordinance - New base efficiencies

Based on EISA 2007

LEGEND:

-  old/remove
-  new baseline
-  affected measures
-  dependent

204	Fans- Improve components	
205	Fans - Replace 1-5 HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies
206	Fans - ASD (1-5 hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
207	Fans - Motor practices-1 (1-5 HP)	
208	Fans - Replace 6-100 HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies
209	Fans - ASD (6-100 hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
210	Fans - Motor practices-1 (6-100 HP)	
211	Fans - Replace 100+ HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies
212	Fans - ASD (100+ hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
213	Fans - Motor practices-1 (100+ HP)	
214	Optimize drying process	
215	Power recovery	
216	Refinery Controls	
300	Base Pumps	
	New Base Pumps	Based on EISA 2007
301	Pumps - O&M	
302	Pumps - Controls	
303	Pumps - System Optimization	
304	Pumps - Sizing	
305	Pumps - Replace 1-5 HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies

306	Pumps - ASD (1-5 hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
307	Pumps - Motor practices-1 (1-5 HP)	
308	Pumps - Replace 6-100 HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies
309	Pumps - ASD (6-100 hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
310	Pumps - Motor practices-1 (6-100 HP)	
311	Pumps - Replace 100+ HP motor	EISA 2007 NEMA Premium ordinance - New base efficiencies
312	Pumps - ASD (100+ hp)	EISA 2007 NEMA Premium ordinance - New base efficiencies
313	Pumps - Motor practices-1 (100+ HP)	
314	Power recovery	
315	Refinery Controls	
400	Base Drives	
401	Bakery - Process (Mixing) - O&M	
402	O&M/drives spinning machines	
403	Air conveying systems	
404	Replace V-Belts	
405	Drives - EE motor	
406	Gap Forming papermachine	
407	High Consistency forming	
408	Optimization control PM	
409	Efficient practices printing press	
410	Efficient Printing press (fewer cylinders)	
411	Light cylinders	
412	Efficient drives	
413	Clean Room - Controls	
414	Clean Room - New Designs	

415	Drives - Process Controls (batch + site)
416	Process Drives - ASD
417	O&M - Extruders/Injection Moulding
418	Extruders/injection Moulding-multipump
419	Direct drive Extruders
420	Injection Moulding - Impulse Cooling
421	Injection Moulding - Direct drive
422	Efficient grinding
423	Process control
424	Process optimization
425	Drives - Process Control
426	Efficient drives - rolling
427	Drives - Optimization process (M&T)
428	Drives - Scheduling
429	Machinery
430	Efficient Machinery
500	Base Heating
501	Bakery - Process
502	Drying (UV/IR)
503	Heat Pumps - Drying
504	Top-heating (glass)
505	Efficient electric melting
506	Intelligent extruder (DOE)
507	Near Net Shape Casting
508	Heating - Process Control
509	Efficient Curing ovens
510	Heating - Optimization process (M&T)
511	Heating - Scheduling
550	Base Refrigeration
551	Efficient Refrigeration - Operations
552	Optimization Refrigeration
600	Base Other Process
601	Other Process Controls (batch + site)
602	Efficient desalter
603	New transformers welding

604	Efficient processes (welding, etc.)
605	Process control
606	Power recovery
607	Refinery Controls
700	Base Centrifugal Chiller, 0.58 kW/ton, 500 tons
701	Centrifugal Chiller, 0.51 kW/ton, 500 tons
702	High Efficiency Chiller Motors
703	EMS - Chiller
704	Chiller Tune Up/Diagnostics
705	VSD for Chiller Pumps and Towers
706	EMS Optimization - Chiller
707	Aerosole Duct Sealing - Chiller
708	Duct/Pipe Insulation - Chiller
709	Window Film (Standard) - Chiller
710	Roof Insulation - Chiller
711	Cool Roof - Chiller
720	Base DX Packaged System, EER=10.3, 10 tons
721	DX Packaged System, EER=10.9, 10 tons
	Base DX Packaged System, EER=11.2, 10 tons
722	Hybrid Dessicant-DX System (Trane CDQ)
723	Geothermal Heat Pump, EER=13, 10 tons
724	DX Tune Up/ Advanced Diagnostics
725	DX Coil Cleaning
726	Optimize Controls
727	Aerosole Duct Sealing
728	Duct/Pipe Insulation
729	Window Film (Standard)
730	Roof Insulation
731	Cool Roof - DX

TABLE C403.2.3(1)
MINIMUM EFFICIENCY
REQUIREMENTS:
ELECTRICALLY OPERATED
UNITARY AIR
CONDITIONERS AND
CONDENSING UNITS

FBC 2013 Larry / Abel http://publicecodes.cyberregs.com/icod/iecc/2012/icod_iecc_2012_ce4_sec003.htm?bu=IC-P-2012-000014&bu2=IC-P-2012-000019

800	Base Lighting
800	Base T8
801	Premium T8, Elecctronic Ballast
802	CFL Hardwired, Modular 18W
803	CFL Screw-in 18W
804	High Bay T5
805	Occupancy Sensor
900	Base Other
901	Replace V-belts
902	Membranes for wastewater

Suggested Supplemental Measures to 2009 TPS

I/O	Residential	DEF	Comments
I	12 Watt LED (A19)		
i	Directional LED (outdoor)		
I	Appliance Recycling Programs	1	Freezers also
I	Smart Plugs/Power Strips	1	
Business			
I	C/I LED Troffers		
I	C/I LED High Bay		
I	C/I LED Flood		
I	C/I LED Outdoor Lighting		
I	C/I LED A19		
I	C/I Hybrid Desiccant Heat Pump		
I	C/I HVAC Runtime Optimizer		
I	C Data Center Power measures	1	
I	C Low Flow water fixtures	1	

Commercial Food Service Measures

Measure	Summer		Winter	Included in 200	KWH	SKW	WKW	GWH	SMW	WMW
	Energy kW	Peak kW	Peak kW							
Convection Oven	1869	0.4	0.4	#801	14960000	1700	400	14.96	1.7	0.4
Fryer	1160	0.2	0.2	#811	16540000	1800	400	16.54	1.8	0.4
Griddle	2523	0.5	0.5	No	20194799.3579	2125.0000	500.0000	20.1948	2.125	0.5
Steamer	60081	13.79	13.79	No	480905168.5	58607.5000	13790.0000	480.905	58.6075	13.79
Holding Cabinet	6534	1.2	1.2	No	52299967.9	6375.0000	1500.0000	52.3	6.375	1.5
Ice Machine	1797	0.2	0.2	No						

Measure Name	Summer KW Impact	Winter KW Impact	Annual KWH Impact	normalized SKW	normalized WKW	normalized kwh		Full Cost	Measure Life (years)
RESIDENTIAL									
LED 12W, 0.5hr/hday	0.03	0.02	5.60					\$ 18.57	137
LED 12W, 2.5hr/hday	0.03	0.02	28.00					\$ 18.57	27
LED 12W, 6.0hr/hday	0.03	0.02	67.20					\$ 18.57	11
LED Directional 13W (Flood, Outdoor)	-	-	87.70					\$ 26.97	9
LED 12W Blend	0.002	0.003	39.21					\$ 18.57	30
COMMERCIAL									
LED 12W	0.01	0.00	19.87	1.00	0.64	3,311.00		\$ 18.57	8
Outdoor LED 104W	-	-	980.10					\$ 375.00	23
Flood LED 14W	0.04	0.03	129.10	1.00	0.64	3,311.00		\$ 33.64	11
LED High Bay 83W	0.32	0.20	1,051.20	1.00	0.64	3,311.00		\$ 325.17	15
LED Linear Tube 22W	0.04	0.03	132.40	1.00	0.64	3,311.00		\$ 188.80	15
Run Time Optimizer	1.70	-	10,915.00	1.00	-	6,420.59		\$ 3,105.00	15
Dehumidification Hybrid Desiccant Heat Pump PER 5 TON	1.78	2.50	7,172.00	1.00	1.40	4,029.21		\$ 2,500.00	15
Industrial									
LED Linear Tube 22W	0.04	0.03	132.40	1.00	0.64	3,311.00		\$ 188.80	15
Flood LED 14W	0.04	0.03	129.10	1.00	0.64	3,311.00		\$ 32.61	11
LED High Bay 83W	0.32	0.20	1,051.20	1.00	0.64	3,311.00		\$ 299.17	15
Run Time Optimizer	1.70	-	10,915.00	1.00	-	6,420.59		\$ 3,105.00	15
Dehumidification Hybrid Desiccant Heat Pump PER 5 TON	1.78	2.50	7,172.00	1.00	1.40	4,029.21		\$ 2,500.00	15

Baseline measure	Baseline measure number
Base Lighting (43-Watt incandescent), 0.5 hr/hday	220
Base Lighting (43-Watt incandescent), 2.5 hr/hday	230
Base Lighting (43-Watt incandescent), 6.0 hr/hday	240
Base Outdoor Lighting (53W EISA)	260
Base CFL (18W)	145
Base Outdoor Mercury Vapor 400W Lamp	
Base Incandescent Flood, 53W to Screw-in CFL	130
Base High Bay Mercury Vapor, 400W	150
Base T8, EB	120
Base DX Packaged System, EER=10.9, 10 tons	320
Base DX Packaged System, EER=10.9, 10 tons	320
Base Lighting	800
Base Lighting	800
Base Lighting	800
Base DX Packaged System, EER=10.9, 10 tons	720
Base DX Packaged System, EER=10.9, 10 tons	720

Duke Energy Florida Measures for Technical Potential

Measure Name	Original SKW	Original WKW	Original KWH	FL Adj Factor	FL SKW	FL WKW	FL KWH	FL Applicability	Save Factor	Cost	Measure Life	Baseline measure
Low Flow Measures												
0.5 Faucet Aerator (DI) - Commercial, public use	0.03	0.03	1424.00	0.875	0.025	0.025	1246.00		77%	\$ 9	10	
0.5 gpm Faucet Aerator (DI) - COMM, pvt use	0.03	0.02	199.00	0.875	0.025	0.020	174.13		77%	\$ 9	10	
0.5 gpm Faucet Aerator (DI) - School, public use	0.03	0.03	1069.00	0.875	0.025	0.025	935.38		77%	\$ 9	10	
1.0 Faucet Aerator (DI) - Commercial, public use	0.02	0.02	1005.00	0.875	0.018	0.018	879.38		55%	\$ 9	10	
1.0 gpm Faucet Aerator (DI) - COMM, pvt use	0.02	0.02	141.00	0.875	0.018	0.014	123.38		55%	\$ 9	10	
1.0 gpm Faucet Aerator (DI) - School, public use	0.02	0.02	755.00	0.875	0.018	0.018	660.63		55%	\$ 9	10	
1.5 gpm Low Flow Showerhead (DI) - COMM, public use	0.03	0.03	715.00	0.875	0.024	0.024	625.63		32%	\$ 25	10	
1.5 gpm Low Flow Showerhead (DI) - COMM, pvt use	0.03	0.03	357.00	0.875	0.024	0.024	312.38		32%	\$ 25	10	
Appliance Recycling Measures												
Freezer recycling	0.11	0.08	749	1.08	0.12	0.08	808.92				20	PEC Navigant M&V adjusted to FI Coincident peak
Refrigerator recycling	0.14	0.09	929	1.08	0.15	0.10	1003.32				20	
Data Center Measures												
Server Virtualization	2.37	2.37	20781.00	1	2.37	2.37	20781.00			\$ 18,750	4	100 servers per
Plugs and Misc Measures												
Smart Plug	0.03	0.03	250	1	0.03	0.03	250.00			\$ 40	10	

313

	Homes	Cumulative GWH	
Single	886,190.00	11,751.76	Fridge 22.03196347
Multi	392,248.00	14,575.94	Freeze
Manu	174,333.00		

Peak Savings - Refrigerator

0.135	0.094380825
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Peak Savings - Freezer

0.108	0.07550466
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New Measures Calculation - Residential

			Summer	Winter		Summer	Winter	
Measure Number	Measure	Base GWH	Base MW	Base MW	Savings GWH	Savings MW	Savings MW	Source
220	Base Lighting (60-Watt incandescent), 0.5 hr/day	97	7					F_Saere
221	CFL (18-Watt integral ballast), 0.5 hr/day				70	4		S_Saere, ROB Adjusted Factors
230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	849	133					
231	CFL (18-Watt integral ballast), 2.5 hr/day				612	32		
240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	437	72					F_Saere
241	CFL (18-Watt integral ballast), 6.0 hr/day				315	16		S_Saere, ROB Adjusted Factors

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
220	Base Lighting (60-Watt incandescent), 0.5 hr/day	97	7					
221	CFL (18-Watt integral ballast), 0.5 hr/day				42	2	-	60%
	Remaining after previous measure	55	5	-				
222	LED (12-Watt), 0.5 hr/day				28	1	-	14%
		27						

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
230	Base Lighting (60-Watt incandescent), 2.5 hr/hday	849	133	-				
231	CFL (18-Watt integral ballast), 2.5 hr/day				364	19	-	60%
	Remaining after previous measure	485	114	-				
232	LED (12-Watt), 2.5 hr/day				248.24	16	-	14%
		237.00						

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
240	Base Lighting (60-Watt incandescent), 6.0 hr/hday	437	72	-				
241	CFL (18-Watt integral ballast), 6.0 hr/day				187	10	-	60%
	Remaining after previous measure	250	62	-				
242	LED (12-Watt), 6.0 hr/day				128	9	-	14%
		122						

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
260	Base Outdoor Lighting (75W)	254	13	19				
261	LED 13W				192	0	0	75%

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
300	Base Fridge	1826.72	242.82					F_Saere
301	E-Star Fridge				231	31		S_Saere, ROB Adjusted Factors
350	Base Freeze	247.69	32.92					F_Saere
351	E-Star Freezer				20	3		S_Saere, ROB Adjusted Factors

CFL Adj. Factor

69.99 72% of Base
 28.39 Base - 18W
 58% 18w vs 43w
 72% 12w vs 43
 14% incremental savings for LED

CFL Adj. Factor

612.25 72% of Base
 248.24 Base - 18W

CFL Adj. Factor

314.94 72% of Base
 127.73 Base - 18W

New Base
 13w vs 53w

53

Measure Number	Measure	Base GWH	Base MW	Base MW	Savings GWH	Savings MW	Savings MW	Source
300	Base Fridge	1826.72	242.82	0				
301	E-Star Fridge				208	28	-	90%
	Remaining after previous measure	1,619	215	-				
302	Fridge Appliance Recycling				406	54	38	25%
Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
350	Base Freeze	248	33	-				
351	E-Star Freezer				15	2	-	75%
	Remaining after previous measure	233	31	-				
351	Freeze Appliance Recycling				12	2	1	5%
Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
950	Base Desktop PC	221.01	27.77					F_Saere
951	Energy Star Desktop PC				26	3		S_Saere, ROB Adjusted Factors
Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
950	Base Desktop PC	221	28	-				
951	Energy Star Desktop PC				26	3	-	100%
	Remaining after previous measure	195	25	-				
351	Smart Plug				193	25	-	99%

Adj. Factor

1080.34 ITRON F_S
 1003.32 New Measure Impact
 92.9% Incremental Fridge
 27% PEF Saturation 2010 (2 or more)

Incremental Savings

Adj. Factor

787.65 ITRON F_S
 808.92 New Measure Impact
 102.7% Incremental Freeze
 5% Gulf Saturation 2007 (2 or more)

Incremental Savings

Adj. Factor

252.00 ITRON F_S
 250.00 New Measure Impact
 99.2% Incremental Freeze

Incremental Savings

New Measures Calculation - Commercial

Measure Number	Measure	GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW
600	Base Water Heating	195	24.04	36.06			
603	Heat Pump Water Heater (air source)				50	0	5
604	Solar Water Heater				1	0	0
606	Demand controlled circulating systems				2	9	0
608	Heat Recovery Unit				73	1	6
609	Heat Trap				10	0	1
610	Hot Water Pipe Insulation				0	4	0
Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW
6xx	Remaining Base	59	9	23			
611	1.5 gpm Showerhead (DI) - Commercial				16.2	6.2	15.5
6xx	Remaining Base	43	3	8			
612	1.0 gpm Faucet Aerator (DI) -Commercial				20.2	1.5	3.7
6xx	Remaining Base	23	2	4			
613	0.5 gpm Faucet Aerator (DI) - Commercial				15.2	0.5	1.1
Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW
	Calculated Base PC Network	119.28	10	19.32			
702	PC Network Power Management Enabling				81.1	1.3	16.9
	Remaining Base	38.17	3	6.18			
703	Server Virtulization				34.35	2.87	5.56

0.68

0.5 Faucet Aerator (DI) - Commercial, public use	
2.20 Base GPM	60 NC Ground Temp
0.50 New GPM	70 FL Ground Temp
77.3% Savings Fraction	85.714% Ratio
0.66 Net Savings after NC/FL adjustment	

1.0 gpm Faucet Aerator (DI) - COMM, pvt use	
2.20 Base GPM	60 NC Ground Temp
1.00 New GPM	70 FL Ground Temp
54.5% Savings Fraction	85.714% Ratio
0.47 Net Savings after NC/FL adjustment	

1.5 gpm Showhead (DI) - COMM, pvt use	
2.20 Base GPM	60 NC Ground Temp
1.50 New GPM	70 FL Ground Temp
31.8% Savings Fraction	85.714% Ratio
0.27 Net Savings after NC/FL adjustment	

Industrial Calculations

Measure Number	Measure	Base GWH	Summer Base MW	Winter Base MW	Savings GWH	Summer Savings MW	Winter Savings MW	Source
800	Base Lighting	232.51	37.92	0.00				Fs_aeie
801	Premium T8, Elecctronic Ballast				30.30	4.39	0.00	industrial adj file
802	CFL Hardwired, Modular 18W				2.09	0.55	0.00	industrial adj file
803	CFL Screw-in 18W				2.69	0.71	0.00	industrial adj file
804	High Bay T5				4.48	0.62	0.00	industrial adj file
	Base Linear Fluorescent (calculated)	143.91	48.17	42.01				Table 2 (Col. P,Q,R)
801	Premium T8, Elecctronic Ballast				30.30	4.39	0.00	industrial adj file
	Remaining after previous measure	113.61	43.77	42.01				Table 2 (Col. S,T,U)
806	LED Linear Tube 22W				21.30	8.21	7.88	
	Base Incandescent Flood, 75W (calculated)	20	13	12				Table 2 (Col. P,Q,R)
802	CFL Hardwired, Modular 18W				2.09	0.55	0.00	industrial adj file
803	CFL Screw-in 18W				2.69	0.71	0.00	industrial adj file
	Remaining after previous measure	15.60	12.09	11.78				Table 2 (Col. S,T,U)
807	Flood LED 14W				1.18	0.91	0.89	
	Base High Bay Mercury Vapor, 400W (calculated)	9	4	4				Table 2 (Col. P,Q,R)
804	High Bay T5				4.48	0.62	0.00	industrial adj file
	Remaining after previous measure	4.74	3.35	3.51				Table 2 (Col. S,T,U)
808	LED High Bay 83W				1.39	0.98	1.03	
	Base DX Packaged System, EER=10.3, 10 tons	149.71	27	4.5				Fs_aeie
721A	Base DX Packaged System, EER=11.9, 10 tons				10	0	0	industrial adj file
722	Hybrid Dessicant-DX System (Trane CDQ)				22	4	0	industrial adj file
723	Geothermal Heat Pump, EER=13, 10 tons				3	0	0	industrial adj file

FOR NEW MEASUR
T8
Premium T8, Elecctronic Ballast
LED
FOR NEW MEASUR
50%
79%
29%

TABLE 1

measure	Base (Fs_aeie)			adj factor (calculation)	Adjusted Baseline		
	gwh	smw	wmw		gwh	smw	wmw
801	103.3	15.1	13.2	0.67	68.9	10.1	8.8
802	12.7	1.8	1.6	0.61	7.8	1.1	1.0
803	16.3	2.4	2.1	0.61	10.0	1.4	1.3
804	8.6	1.2	1.1	1.00	8.6	1.2	1.1

TABLE 2

measure	Base (Fs_aeie)			Intron Savings (m_s)	initial baseline gwh	initial baseline smw	initial baseline wmw	remaining gwh	remaining smw	remaining wmw
	gwh	smw	wmw							
801	45.2	15.1	13.2	31.4%	144	48	42	113.6	43.8	42.0
802	6.4	1.8	1.6	72.0%	9	6	5	6.8	5.3	5.2
803	8.3	2.4	2.1	72.0%	11	8	7	8.8	6.8	6.6
804	4.5	1.2	1.1	48.6%	9	4	4	4.7	3.3	3.5

RE vs T12

	watts	lamps	tot watts	savings
	32	4	128	
tronic Ballast	28	4	112	13%
	22	4	88	31%
LED Incremental				19%

RE vs Inc 75 (53)

66% 53w vs 18w
 74% 53w vs 14w
8% Incremental

RE

400W vs 200W
 400W vs 83
 incremental

ction (FPL)		
smw		wmw
	10.8%	0.0%
ybrid desiccant heat pump (FPL)		
smw		wmw
	23.0%	23.0%

Year	PEF Population	Members per Household	Residential GWh	Residential Customer	Residential Use/Customer (KWH)	Commercial GWh	Commercial Customer	Commercial Use/Customer (KWH)	Industrial GWh	Industrial Customer	Industrial Use/Customer (KWH)	Total no. of Customers	Summer Peak (MW)	Summer Peak/Customer (KW)	Winter Peak (MW)	Winter Peak/Customer (KW)	Total Sales	
2003	3,264,521	2.451	19,429	1,331,914	14,587	11,553	154,294	74,877	4,001	2,643	1,513,810	1,510,516	8,881	5.9	11,553	7.6	34,983	
2004	3,339,365	2.447	19,347	1,364,677	14,177	11,734	158,780	73,901	4,069	2,733	1,488,840	1,548,627	9,583	6.2	9,323	6.0	35,150	
2005	3,428,268	2.454	19,894	1,397,012	14,240	11,945	161,001	74,192	4,140	2,703	1,531,632	1,583,417	10,350	6.5	10,830	6.8	35,979	
2006	3,504,907	2.448	20,021	1,431,743	13,984	11,975	162,774	73,568	4,160	2,697	1,542,455	1,620,396	10,147	6.3	10,698	6.6	36,156	
2007	3,532,104	2.448	19,912	1,442,853	13,800	12,184	162,837	74,823	3,819	2,668	1,431,409	1,632,368	10,931	6.7	9,896	6.1	35,915	
2008	3,561,743	2.458	19,328	1,449,041	13,338	12,139	162,569	74,670	3,786	2,587	1,463,471	1,638,935	10,592	6.5	10,964	6.7	35,253	
2009	3,564,397	2.473	19,399	1,441,325	13,459	11,883	161,390	73,629	3,285	2,487	1,320,869	1,630,195	10,853	6.7	12,092	7.4	34,567	
2010	3,621,408	2.495	20,524	1,451,466	14,140	11,896	161,674	73,580	3,219	2,481	1,297,461	1,640,833	10,238	6.2	13,698	8.3	35,639	
2011	3,623,873	2.495	19,238	1,452,454	13,245	11,892	162,071	73,375	3,243	2,408	1,346,761	1,642,161	9,968	6.1	11,347	6.9	34,373	
2012	3,636,514	2.493	18,251	1,458,690	12,512	11,723	163,297	71,789	3,160	2,372	1,332,209	1,649,839	9,783	5.9	9,715	5.9	33,134	
											0.1%							
Annual Percent (%) Change																		
2004	2.3%	-0.2%	-0.4%	2.5%	-2.8%	1.6%	2.9%	-1.3%	1.7%	3.4%	-1.6%	2.5%	7.9%	5.2%	-19.3%	-21.3%		
2005	2.7%	0.3%	2.8%	2.4%	0.4%	1.8%	1.4%	0.4%	1.7%	-1.1%	2.9%	2.2%	8.0%	5.6%	16.2%	13.6%		
2006	2.2%	-0.2%	0.6%	2.5%	-1.8%	0.3%	1.1%	-0.8%	0.5%	-0.2%	0.7%	2.3%	-2.0%	-4.2%	-1.2%	-3.5%		
2007	0.8%	0.0%	-0.5%	0.8%	-1.3%	1.7%	0.0%	1.7%	-8.2%	-1.1%	-7.2%	0.7%	7.7%	6.9%	-7.5%	-8.2%		
2008	0.8%	0.4%	-2.9%	0.4%	-3.3%	-0.4%	-0.2%	-0.2%	-0.9%	-3.0%	2.2%	0.4%	-3.1%	-3.5%	10.8%	10.3%		
2009	0.1%	0.6%	0.4%	-0.5%	0.9%	-2.1%	-0.7%	-1.4%	-13.2%	-3.9%	-9.7%	-0.5%	2.5%	3.0%	10.3%	10.9%		
2010	1.6%	0.9%	5.8%	0.7%	5.1%	0.1%	0.2%	-0.1%	-2.0%	-0.2%	-1.8%	0.7%	-5.7%	-6.3%	13.3%	12.5%		
2011	0.1%	0.0%	-6.3%	0.1%	-6.3%	0.0%	0.2%	-0.3%	0.7%	-2.9%	3.8%	0.1%	-2.6%	-2.7%	-17.2%	-17.2%		
2012	0.3%	-0.1%	-5.1%	0.4%	-5.5%	-1.4%	0.8%	-2.2%	-2.6%	-1.5%	-1.1%	0.5%	-1.9%	-2.3%	-14.4%	-14.8%		
CAAGR (07-12)	0.6%	0.4%	-1.7%	0.2%	-1.9%	-0.8%	0.1%	-0.8%	-3.7%	-2.3%	-1.4%	0.2%	-2.2%	-2.4%	-0.4%	-0.6%	-1.6%	
Total (07-12)	3.0%	1.8%	-8.3%	1.1%	-9.3%	-3.8%	0.3%	-4.1%	-17.3%	-11.1%	-6.9%	1.1%	-10.5%	-11.4%	-1.8%	-2.9%	-7.7%	

1.1% System Growth

			165,669	14,883	4352.14
Customer	comm	99%	1%	indu	
GWH	comm	79%	21%	indu	
TPS	comm	88%	12%	indu	

Duke TP Comparison of Changes

	System Total - Technical Potential			TP as % Sales		Residential			Commercial			Industrial		
	GWH	% Change	Cumulative % Change	Sales MWH	TP % of Sales	GWH	% Change	Cumulative % Change	GWH	% Change	Cumulative % Change	GWH	% Change	Cumulative % Change
ITRON Original (Table ES-1)	12,351			39,412,743	31.34%	8,232			3,648			471		
Plus: Standard Changes	10,523	-15%	-15%	37,718,162	27.90%	6,899	-16.2%	-16.2%	3,156	-13.5%	-13.5%	468	-0.7%	-0.7%
Plus: New Measures	12,458	16%	0.9%	37,718,162	33.03%	8,106	14.7%	-1.5%	3,833	18.5%	5.1%	519	11.0%	10.3%
Plus: System Load Growth	12,595	1%	2%	37,718,162	33.39%	8,195	1.1%	-0.4%	3,875	1.2%	6.2%	525	1.2%	11.5%
Plus: 2007-12 Actual Achievements	12,073	-4%	-2%	37,718,163	32.01%	7,973	-2.7%	-3.1%	4,100					
2007-12 Actual Achievements						222			300					
System Load Growth						1.1%			1.1%			1.1%		
Number of New Measures	27					7			15			5		

	SMW	% Change	Cumulative % Change
ITRON Original (Table ES-1)	2,943		
Plus: Standard Changes	2,473	-16%	-16%
Plus: New Measures	2,837	3%	-3.6%
Plus: System Load Growth	2,868	0%	-3%
Plus: 2007-12 Actual Achievements	2,651	-2%	-10%
2007-12 Actual Achievements			
System Load Growth			
Number of New Measures	27		

	SMW	% Change	Cumulative % Change	SMW	% Change	Cumulative % Change	SMW	% Change	Cumulative % Change
	2,140			743			60		
	1,803	-15.7%	-15.7%	612	-17.7%	-17.7%	58	-3.1%	-3.1%
	1,909	1.3%	-10.8%	854	6.6%	15.0%	74	3.4%	23.5%
	1,930	0.3%	-9.8%	864	0.3%	16.2%	75	0.2%	24.8%
	1,814	-1.4%	-15.2%	837					
	116			101					
	1.1%			1.1%			1.1%		
	7			15			5		

	WMW	% Change	Cumulative % Change
ITRON Original (Table ES-1)	1,897		
Plus: Standard Changes	1,630	-14%	-14%
Plus: New Measures	1,755	1%	-7.5%
Plus: System Load Growth	1,774	0%	-6%
Plus: 2007-12 Actual Achievements	1,511	-2%	-20%
2007-12 Actual Achievements			
System Load Growth			
Number of New Measures	27		

	WMW	% Change	Cumulative % Change	WMW	% Change	Cumulative % Change	WMW	% Change	Cumulative % Change
	1,479			371			47		
	1,227	-17.1%	-17.1%	361	-2.6%	-2.6%	42	-11.2%	-11.2%
	1,291	0.8%	-12.7%	413	1.4%	11.3%	52	2.1%	9.6%
	1,305	0.2%	-11.8%	417	0.1%	12.5%	52	0.1%	10.8%
	1,111	-2.4%	-24.9%	400					
	194			69					
	1.1%			1.1%			1.1%		
	7			15			5		

Table 4-7: 2009 DR Technical Potential in PEF by Sector, DR Enabling Technology/Tariff, and Scenario											Table 4-7: 2013 Forecast Refresh of iTron DR Technical Potential Study											
Sector	DR-Enabling Technology and Tariff	Summer System Peak					Winter System Peak					Summer System Peak					Winter System Peak					
		Baseline	High		Low		Baseline	High		Low		Baseline	High		Low		Baseline	High		Low		
		(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)	
	A/C Cycling Switch w/ flat rate		97	2.1%	175	3.7%		105	2.0%	189	3.6%		99	2.1%	174	3.7%		105	2.0%	189	3.6%	
	A/C Shedding Switch w/ flat rate		157	3.3%	282	6.0%		169	3.3%	304	5.9%		156	3.3%	283	6.0%		174	3.3%	310	5.9%	
	Smart Thermostats for A/C w/ CPP		282	6.0%	56	864		304	5.9%	61	1.2%		283	6.0%	57	1.2%		310	5.9%	63	1.2%	
	On-Off Switching via low-power wireless networks for water heating w/ CPP		65	1.4%	13	0.3%		180	3.5%	36	0.7%		66	1.4%	14	0.3%		184	3.5%	37	0.7%	
	On-Off Switching via low-power wireless networks for pool systems w/ CPP		51	1.1%	10	0.2%		10	0.2%	2	0.0%		52	1.1%	9	0.2%		11	0.2%	2	0.0%	
	In-home displays and pre-set control strategies w/ CPP		82	1.7%	16	0.3%		89	1.7%	18	0.3%		80	1.7%	14	0.3%		89	1.7%	16	0.3%	
	Total Residential	4,698	734	15.6%	553	11.8%	5,175	856	16.5%	609	11.8%	4,713	735	15.6%	556	11.8%	5,262	868	16.5%	621	11.8%	
Commercial	Automated control strategies w/ CPP		109	6.2%	31	1.8%		55	4.7%	16	1.3%		108	6.2%	31	1.8%		53	4.7%	15	1.3%	
	Direct load control system		144	8.2%	144	8.2%		31	2.7%	31	2.7%		142	8.2%	142	8.2%		30	2.7%	30	2.7%	
	Total Commercial	1,757	252	14.4%	175	9.9%	1,166	86	7.4%	47	4.0%	1,734	250	14.4%	172	9.9%	1,125	83	7.4%	45	4.0%	
Industrial	Automated control Strategies w/ CPP		9	1.6%	3	0.5%		4	1.0%	1	0.3%		9	1.6%	3	0.5%		4	1.0%	1	0.3%	
	Direct load control system		11	2.0%	11	2.0%		2	0.4%	2	0.4%		11	2.0%	11	2.0%		2	0.4%	2	0.4%	
	Total Industrial	550	20	3.6%	13	2.4%	433	6	1.4%	3	0.7%	543	20	3.6%	13	2.4%	421	6	1.4%	3	0.7%	
TOTAL		7,005		1,006	14.4%	741	10.6%	6,773	948	14.0%	659	9.7%	6,990	1,004	14.4%	741	10.6%	6,809	957	14.0%	669	9.7%

System Growth from TYSP		
Class	Summer	Winter
Residential	1.07%	1.07%
Commercial	1.07%	1.07%
Industrial	1.07%	1.07%

Achievements		
Net adds 2007-2012	Summer	Winter
Residential	35.3	-31.9
Commercial	41.8	53.2
Industrial	13.1	16.7

Sector	Building Type	Annual Energy			Summer System Peak			Winter System Peak		
		Baseline	Technical Potential		Baseline	Technical Potential		Baseline	Technical Potential	
		(GWh)	(GWh)	(%)	(MW)	(MW)	(%)	(MW)	(MW)	(%)
Residential	Single-family	14,353	7,071	49%	3,263	2,566	79%	3,622	467	13%
	Multi-family	4,208	1,402	33%	926	509	55%	976	93	10%
	Mobile Homes	2,085	742	36%	510	269	53%	577	49	8%
	Total Residential	20,646	9,215	45%	4,699	3,344	71%	5,175	609	12%
Commercial	College	912	443	49%	467	168	36%	310	21	7%
	School	641	310	48%	314	117	37%	143	15	10%
	Hospital	354	67	19%	223	26	12%	96	3	3%
	Other Health	484	103	21%	152	39	26%	103	5	5%
	Lodging	1,251	527	42%	85	199	234%	86	25	29%
	Restaurant	2,119	318	15%	128	120	94%	87	15	17%
	Grocery	1,161	123	11%	487	46	9%	34	6	18%
	Retail	1,281	504	39%	97	191	197%	76	24	32%
	Warehouse	513	749	146%	66	283	429%	78	36	46%
	Office	2,699	1,166	43%	162	441	272%	117	56	48%
	Other	130	68	52%	16	26	163%	36	3	8%
	Total Commercial	11,545	4,378	38%	2,197	1,656	75%	1,166	209	18%
	TOTAL	ltron	32,191	13,593	42%	6,896	5,000	73%	6,341	818

Sector	Building Type	Annual Energy			Summer System Peak			Winter System Peak		
		Baseline	Technical Potential		Baseline	Technical Potential		Baseline	Technical Potential	
		(GWh)	(GWh)	(%)	(MW)	(MW)	(%)	(MW)	(MW)	(%)
Residential	Single-family	14,353	7,147	50%	3,263	2,594	79%	3,622	472.137	13%
	Multi-family	4,208	1,417	34%	926	514	56%	976	94	10%
	Mobile Homes	2,085	750	36%	510	272	53%	577	50	9%
	Total Residential	20,646	9,313	45%	4,699	3,380	72%	5,175	616	12%
Commercial	College	912	443	49%	467	168	36%	310	21	7%
	School	641	310	48%	314	117	37%	143	15	10%
	Hospital	354	67	19%	223	26	12%	96	3	3%
	Other Health	484	103	21%	152	39	26%	103	5	5%
	Lodging	1,251	527	42%	85	199	234%	86	25	29%
	Restaurant	2,119	318	15%	128	120	94%	87	15	17%
	Grocery	1,161	123	11%	487	46	9%	34	6	18%
	Retail	1,281	504	39%	97	191	197%	76	24	32%
	Warehouse	513	749	146%	66	283	429%	78	36	46%
	Office	2,699	1,166	43%	162	441	272%	117	56	48%
	Other	130	68	52%	16	26	163%	36	3	8%
	Total Commercial	11,545	4,423	38%	2,197	1,674	76%	1,166	211	18%
	TOTAL	2013	32,191	13,737	43%	6,896	5,054	73%	6,341	827

Class	Adj Factor
Residential	1.1%
Commercial	1.1%

Class	Achievements
Residential	14.00
Commercial	

Class	Description	2011	2012	2011	2012	2011	2012
Res RE	Solar Whr with Load Mgmt	521	270	411,439	806	418	615,905
	Solar Whr for Low Income	5	4	28,642	9	8	50,578
	Solar PV Rebate	-	188	983,583	-	243	1,268,557
Com RE	Solar PV for Schools	-	64	335,762	-	34	175,628
	Solar PV Rebate	-	214	1,117,657	-	270	1,408,213
	Total	-	-	-	-	-	-
	Res						
	Com						

Total Reported 2011&2012

-	432	2,252,140
-	98	511,390
-	484	2,525,869
-	1	5
	0	2
	1	3

From: <http://progressnet/moss/sas1/DSMAAnalyticalServices/DSMPlanPerformance/DSMAchievementReports/DSMFL%20Achievements%202005-present/For%20Distribution%20DSMFL%202005-2012%20Annual%20by%20Program%20Achievements.xlsx>

**Table ES-1: 2013 Summary of the Technical Potential Results for Energy Efficiency
by Sector**

Sector:	Annual Energy			Summer System Peak			Winter System Peak		
	Baseline	Technical		Baseline	Technical		Baseline	Technical	
	(GWh)	(GWh)	(%)	(MW)	(MW)	(%)	(MW)	(MW)	(%)
Residential	19,757	7,973	40.4%	4,488	1,814	40.4%	5,029	1,111	22.1%
Commercial	11,048	3,611	32.7%	1,672	771	46.1%	1,029	356	34.6%
Industrial	2,555	489	19.1%	342	67	19.5%	241	44	18.4%
Total	33,360	12,073	36.2%	6,502	2,651	40.8%	6,299	1,511	24.0%

**Table ES-1: 2009 Summary of the Technical Potential Results for Energy Efficiency
by Sector**

Sector:	Annual Energy			Summer System Peak			Winter System Peak		
	Baseline	Technical		Baseline	Technical		Baseline	Technical	
	(GWh)	(GWh)	(%)	(MW)	(MW)	(%)	(MW)	(MW)	(%)
Residential	20,645	8,232	39.9%	4,698	2,140	45.5%	5,175	1,479	28.6%
Commercial	11,544	3,648	31.6%	1,757	743	42.3%	1,166	371	31.8%
Industrial	2,670	471	17.6%	389	60	15.3%	282	47	16.8%
Total	34,859	12,351	35.4%	6,844	2,942	43.0%	6,622	1,897	28.7%

Table 4-7: DR Technical Potential in PEF by Sector, DR Enabling Technology/Tariff, and Scenario											Table 4-7: 2014 Forecast Refresh of iTron DR Technical Potential Study										
Sector	DR-Enabling Technology and Tariff	Summer System Peak					Winter System Peak					Summer System Peak					Winter System Peak				
		Baseline	High		Low		Baseline	High		Low		Baseline	High		Low		Baseline	High		Low	
		(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)	(MW)	(MW)	(%)	(MW)	(%)
Residential	A/C Cycling Switch w/ flat rate		97	2.1%	175	3.7%		105	2.0%	189	3.6%		94	2.1%	166	3.7%		101	2.0%	181	3.6%
	A/C Shedding Switch w/ flat rate		157	3.3%	282	6.0%		169	3.3%	304	5.9%		148	3.3%	269	6.0%		166	3.3%	297	5.9%
	Smart Thermostats for A/C w/ CPP		282	6.0%	56	1.2%		304	5.9%	61	1.2%		269	6.0%	54	1.2%		297	5.9%	60	1.2%
	On-Off Switching via low-power wireless networks for water heating w/ CPP		65	1.4%	13	0.3%		180	3.5%	36	0.7%		63	1.4%	13	0.3%		176	3.5%	35	0.7%
	On-Off Switching via low-power wireless networks for pool systems w/ CPP		51	1.1%	10	0.2%		10	0.2%	2	0.0%		49	1.1%	9	0.2%		10	0.2%	2	0.0%
	In-home displays and pre-set control strategies w/ CPP		82	1.7%	16	0.3%		89	1.7%	18	0.3%		76	1.7%	13	0.3%		85	1.7%	15	0.3%
	Total Residential	4,698	734	15.6%	553	11.8%	5,175	856	16.5%	609	11.8%	4,488	700	15.6%	530	11.8%	5,029	830	16.5%	593	11.8%
Commercial	Automated control strategies w/ CPP		109	6.2%	31	1.8%		55	4.7%	16	1.3%		104	6.2%	30	1.8%		48	4.7%	13	1.3%
	Direct load control system		144	8.2%	144	8.2%		31	2.7%	31	2.7%		137	8.2%	137	8.2%		28	2.7%	28	2.7%
	Total Commercial	1,757	252	14.4%	175	9.9%	1,166	86	7.4%	47	4.0%	1,672	241	14.4%	166	9.9%	1,029	76	7.4%	41	4.0%
Industrial	Automated control Strategies w/ CPP		9	1.6%	3	0.5%		4	1.0%	1	0.3%		8	1.6%	2	0.5%		4	1.0%	1	0.3%
	Direct load control system		11	2.0%	11	2.0%		2	0.4%	2	0.4%		10	2.0%	10	2.0%		1	0.4%	1	0.4%
	Total Industrial	550	20	3.6%	13	2.4%	433	6	1.4%	3	0.7%	484	17	3.6%	12	2.4%	370	5	1.4%	3	0.7%
TOTAL	7,005	1,006	14.4%	741	10.6%	6,773	948	14.0%	659	9.7%	6,644	958	14.4%	707	10.6%	6,428	911	14.0%	637	9.7%	

Class	Summer	Winter
Residential	-10.90%	14.13%
Commercial	-7.36%	-11.72%
Industrial	-11.96%	-14.60%

* Derived from Ed Lynch 2007 - 2014 analysis

NOT USED
Original Percentages (2007 - 2014) non-weather adjusted MW's. See Hidden Tab - Ed Tab (Ed Lynch)

Weather Adjusted 2007		
Class	Summer	Winter
Residential	-4.47%	-2.82%
Commercial	-4.84%	-11.76%
Industrial	-11.96%	-14.60%

* Derived from Ed Lynch 2007 - 2014 analysis

Percentages are calculated from 2007 weather adjusted to 2014 forecasted MWs. (Ed Lynch)

PROGRESS ENERGY FLORIDA

SCHEDULE 3.1
HISTORY AND FORECAST OF SUMMER PEAK DEMAND (MW)
BASE CASE

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(OTH)	(10)
YEAR	TOTAL	WHOLESALE	RETAIL	INTERRUPTIBLE	RESIDENTIAL LOAD MANAGEMENT	RESIDENTIAL CONSERVATION	COMM. / IND. LOAD MANAGEMENT	COMM. / IND. CONSERVATION	OTHER DEMAND REDUCTIONS	NET FIRM DEMAND
HISTORY:										
2003	8,881	887	7,994	300	355	169	44	161	75	7,776
2004	9,583	1,071	8,512	531	331	185	39	163	110	8,224
2005	10,350	1,118	9,232	448	310	203	38	166	110	9,074
2006	10,147	1,257	8,890	329	307	222	37	170	66	9,016
2007	10,931	1,544	9,387	334	291	239	45	177	110	9,735
2008	10,592	1,512	9,080	500	284	255	66	192	110	9,186
2009	10,853	1,618	9,235	262	291	271	84	211	110	9,624
2010	10,238	1,272	8,966	271	304	296	96	232	110	8,929
2011	9,968	934	9,034	227	317	327	97	255	110	8,636
2012	9,841	402	9,439	267	326	355	100	278	124	8,391
					35	116	55	101		
FORECAST:										
2013	10,471	937	9,534	266	331	383	103	296	124	8,968
2014	10,581	871	9,711	269	336	409	107	306	124	9,030
2015	10,782	873	9,910	272	341	432	110	314	124	9,189
2016	11,075	977	10,098	271	346	453	113	322	124	9,445
2017	11,198	894	10,304	281	381	471	116	329	124	9,495
2018	11,400	894	10,506	283	386	487	120	335	124	9,665
2019	11,616	894	10,722	298	391	502	123	340	124	9,838
2020	11,832	894	10,938	313	396	519	126	345	124	10,009
2021	11,937	794	11,143	321	401	534	129	349	124	10,078
2022	12,131	794	11,337	321	406	549	133	354	124	10,244

Historical Values (2003 - 2012):

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

Projected Values (2013 - 2022):

Cols. (2) - (4) = forecasted peak without load control, conservation, and customer-owned self-service cogeneration.

Cols. (5) - (9) = cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

PROGRESS ENERGY FLORIDA

SCHEDULE 3.2
HISTORY AND FORECAST OF WINTER PEAK DEMAND (MW)
BASE CASE

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(OTH)	(10)
YEAR	TOTAL	WHOLESALE	RETAIL	INTERRUPTIBLE	RESIDENTIAL LOAD MANAGEMENT	RESIDENTIAL CONSERVATION	COMM. / IND. LOAD MANAGEMENT	COMM. / IND. CONSERVATION	OTHER DEMAND REDUCTIONS	NET FIRM DEMAND
HISTORY:										
2002/03	11,553	1,538	10,015	271	795	312	27	122	191	9,833
2003/04	9,323	1,167	8,156	498	788	342	26	123	262	7,284
2004/05	10,830	1,600	9,230	575	779	371	26	123	283	8,673
2005/06	10,698	1,467	9,231	298	762	413	26	124	239	8,835
2006/07	9,896	1,576	8,320	304	671	453	26	126	262	8,055
2007/08	10,964	1,828	9,136	234	763	487	34	132	278	9,036
2008/09	12,092	2,229	9,863	268	759	522	71	147	291	10,034
2009/10	13,698	2,189	11,509	246	651	567	80	162	322	11,670
2010/11	11,347	1,625	9,722	271	661	633	94	179	214	9,295
2011/12	9,715	905	8,810	186	639	681	96	202	210	7,702
					-32	194	70	69		
FORECAST:										
2012/13	11,203	909	10,294	249	649	735	100	216	239	9,015
2013/14	11,386	942	10,445	251	659	786	103	230	240	9,117
2014/15	12,081	1,445	10,636	254	668	836	106	239	242	9,736
2015/16	12,274	1,447	10,828	253	677	877	109	246	243	9,868
2016/17	12,423	1,394	11,029	262	703	917	113	254	245	9,929
2017/18	12,624	1,394	11,230	264	713	947	116	260	247	10,077
2018/19	12,840	1,394	11,446	278	722	975	119	267	250	10,230
2019/20	13,055	1,394	11,661	292	731	1,009	122	273	252	10,377
2020/21	13,263	1,394	11,869	300	740	1,040	126	276	254	10,527
2021/22	13,459	1,394	12,065	300	749	1,069	129	279	256	10,677

Historical Values (2003 - 2012):

Col. (2) = recorded peak + implemented load control + residential and commercial/industrial conservation and customer-owned self-service cogeneration.

Cols. (5) - (9) = Represent total cumulative capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

Projected Values (2013 - 2022):

Cols. (2) - (4) forecasted peak without load control and conservation.

Cols. (5) - (9) = Represent cumulative conservation and load control capabilities at peak. Col. (8) includes commercial load management and standby generation.

Col. (OTH) = Voltage reduction and customer-owned self-service cogeneration.

Col. (10) = (2) - (5) - (6) - (7) - (8) - (9) - (OTH).

PROGRESS ENERGY FLORIDA

SCHEDULE 3.3
HISTORY AND FORECAST OF ANNUAL NET ENERGY FOR LOAD (GWh)
BASE CASE

(1)	(2)	(3)	(4)	(OTH)	(5)	(6)	(7)	(8)	(9)
YEAR	TOTAL	RESIDENTIAL CONSERVATION	COMM. / IND. CONSERVATION	OTHER ENERGY REDUCTIONS*	RETAIL	WHOLESALE	UTILITY USE & LOSSES	NET ENERGY FOR LOAD	LOAD FACTOR (%) **
HISTORY:									
2003	45,234	402	357	564	37,957	3,359	2,595	43,911	47.7
2004	46,834	426	360	780	38,193	4,301	2,774	45,268	56.5
2005	48,475	455	363	779	39,177	5,195	2,506	46,878	52.3
2006	47,399	484	365	509	39,432	4,220	2,389	46,041	52.1
2007	49,310	511	387	779	39,282	5,598	2,753	47,633	52.3
2008	49,208	543	442	565	38,556	6,619	2,483	47,658	53.1
2009	45,978	583	492	779	37,824	3,696	2,604	44,124	44.5
2010	48,135	638	558	779	38,925	3,493	3,742	46,160	45.3
2011	44,580	687	624	779	37,597	2,712	2,181	42,490	46.7
2012	43,414	733	687	780	36,381	826	4,007	41,214	51.7
		222	300						
FORECAST:									
2013	43,164	778	736	864	36,984	1,410	2,392	40,786	51.8
2014	44,013	821	763	864	37,683	1,474	2,408	41,565	52.2
2015	45,057	857	787	864	38,470	1,627	2,452	42,549	50.0
2016	45,987	890	810	866	39,069	1,822	2,530	43,421	50.2
2017	46,437	918	831	864	39,643	1,705	2,476	43,824	50.5
2018	47,110	944	850	864	40,230	1,675	2,547	44,452	50.6
2019	47,738	969	868	864	40,823	1,630	2,584	45,037	50.5
2020	48,403	996	887	866	41,404	1,637	2,613	45,654	50.3
2021	48,969	1,021	905	864	41,928	1,609	2,642	46,179	50.3
2022	49,519	1,044	922	864	42,410	1,610	2,669	46,689	50.1

* Column (OTH) includes Conservation Energy For Lighting and Public Authority Customers, Customer-Owned Self-service Cogeneration.

** Load Factors for historical years are calculated using the actual winter peak demand except the 2004, 2007 & 2012 historical load factors which are based on the actual summer peak demand which became the annual peak for the year.
Load Factors for future years are calculated using the net firm winter peak demand (Schedule 3.2)