

Energy Opportunities – Retrofit Program



Retrofit projects upgrade the existing equipment and systems to capture energy savings.

Customer Profile	Eligible Technologies	Services
<p>Commercial & Industrial: Customers > 150kW</p> <p>Special Needs Customers: Municipal Facilities State Facilities Federal Facilities</p>	<p>HVAC Economizers HVAC Optimization HVAC Equipment LED Traffic Lights Refrigeration Equipment Refrigeration System Optimization Process Equipment & Controls DDC (Direct Digital Control) Envelope Measures Premium Efficiency Motors Variable Speed Drives Energy Management Systems Lighting & Lighting Controls Compressed Air Systems Chillers Windows & Treatments Custom Measures Retro-Commissioning</p>	<p>Financial Incentives Technical Assistance Financing Energy Audits Pricing Reviews Energy End-Use Analysis Single Measure Analysis Turn-Key Service Energy Efficiency Education Industrial Systems Optimization Vendor Proposal Review</p>

Quick Reference – Fluorescent



Lamp Length	T5		T8		T12		T12		T12		T12	
	T5 Lamp	EL Ballast Watts	T8 Lamp	EL Ballast Watts	STD Lamp	STD Ballast Watts	ES Lamp	STD Ballast Watts	STD Lamp	ES Ballast Watts	ES Lamp	ES Ballast Watts
2'	–	–	4F17Rh	63	4F20	112	–	–	–	–	–	–
2'	–	–	3F17Rh	52	3F20	78	–	–	–	–	–	–
2'	2F14W	34	2F17Rh	34	2F20	56	–	–	–	–	–	–
2'	1F14W	18	1F17Rh	20	1F20	32	–	–	–	–	–	–
2'	–	–	4F17Lp	58	–	–	–	–	–	–	–	–
2'	–	–	3F17Lp	47	–	–	–	–	–	–	–	–
2'	2F24HO	52	2F17Lp	25	–	–	–	–	–	–	–	–
2'	1F24HO	28	1F17Lp	–	–	–	–	–	–	–	–	–
2'	–	–	4F17Hi	66	–	–	–	–	–	–	–	–
2'	3FT40W	115	3F17Hi	53	–	–	–	–	–	–	–	–
2'	2FT40W	77	2F17Hi	37	–	–	–	–	–	–	–	–
2'	1FT40W	41	1F17Hi	20	–	–	–	–	–	–	–	–
2'	2FT55W	100	–	–	–	–	–	–	–	–	–	–
2'	1FT55W	51	–	–	–	–	–	–	–	–	–	–
3'	–	–	4F25Rh	87	4F30	162	4F25	146	–	–	–	–
3'	–	–	3F25Rh	68	3F30	127	3F25	115	–	–	–	–
3'	–	–	2F25Rh	48	2F30	80	2F25	73	–	–	–	–
3'	–	–	1F25Rh	28	1F30	46	1F25	42	–	–	–	–
3'	–	–	4F25Lp	85	–	–	–	–	–	–	–	–
3'	–	–	3F25Lp	64	–	–	–	–	–	–	–	–
3'	–	–	2F25Lp	45	–	–	–	–	–	–	–	–
3'	–	–	1F25Lp	25	–	–	–	–	–	–	–	–
3'	–	–	4F25Hi	95	–	–	–	–	–	–	–	–
3'	–	–	3F25Hi	72	–	–	–	–	–	–	–	–
3'	–	–	2F25Hi	63	–	–	–	–	–	–	–	–
3'	–	–	1F25Hi	–	–	–	–	–	–	–	–	–
4'	4F28W	120	4F32Rh	110	4F40	188	4F34	160	4F40	162	4F34	146
4'	3F28W	91	3F32Rh	89	3F40	148	3F34	130	3F40	129	3F34	105
4'	2F28W	60	2F32Rh	60	2F40	94	2F34	80	2F40	81	2F34	70
4'	1F28W	31	1F32Rh	31	1F40	52	1F34	46	1F40	48	1F34	42
4'	–	–	4F32Lp	98	–	–	–	–	–	–	–	–
4'	–	–	3F32Lp	76	–	–	–	–	–	–	–	–
4'	–	–	2F32Lp	51	–	–	–	–	–	–	–	–
4'	–	–	1F32Lp	27	–	–	–	–	–	–	–	–
4'	–	–	4F32Hi	115	–	–	–	–	–	–	–	–
4'	–	–	3F32Hi	113	–	–	–	–	–	–	–	–
4'	–	–	2F32Hi	77	–	–	–	–	–	–	–	–
4'	–	–	1F32Hi	34	–	–	–	–	–	–	–	–

Quick Reference – Fluorescent (continued)



Lamp Length	T5 Lamp EL Ballast Watts	T8 Lamp EL Ballast Watts	T12 STD Lamp STD Ballast Watts	T12 ES Lamp STD Ballast Watts	T12 STD Lamp ES Ballast Watts	T12 ES Lamp ES Ballast Watts
4' HO	4F54W 240	– –	4F40HO 290	4F40HO 270	– –	– –
4' HO	3F54W 180	– –	3F40HO 230	3F40HO 215	– –	– –
4' HO	2F54W 120	– –	2F40HO 150	2F40HO 135	– –	– –
4' HO	1F54W 60	– –	1F40HO 95	1F40HO 80	– –	– –
4'VHO	– –	– –	4F40VHO 484	– –	– –	– –
4'VHO	– –	– –	3F40VHO 378	– –	– –	– –
4'VHO	– –	– –	2F40VHO 240	– –	– –	– –
4'VHO	– –	– –	1F40VHO 138	– –	– –	– –
6'	4F35W 160	– –	4F72 268	– –	– –	– –
6'	3F35W 120	– –	3F72 263*	– –	– –	– –
6'	2F35W 80	– –	2F72 158	– –	– –	– –
6'	1F35W 40	– –	1F72 105	– –	– –	– –
6' HO	– –	– –	4F72HO 476	– –	– –	– –
6' HO	– –	– –	3F72HO 378*	– –	– –	– –
6' HO	– –	– –	2F72HO 238	– –	– –	– –
6' HO	– –	– –	1F72HO 140	– –	– –	– –
6'VHO	– –	– –	4F72VHO 920	– –	– –	– –
6'VHO	– –	– –	3F72VHO 690*	– –	– –	– –
6'VHO	– –	– –	2F72VHO 460	– –	– –	– –
6'VHO	– –	– –	1F72VHO 230	– –	– –	– –
8'	– –	4F96Rh –	4F96 346	4F60 286	4F96 316	4F60 216
8'	– –	3F96Rh –	3F96 273	3F60 223	3F96 236	3F60 168
8'	– –	2F96Rh 110	2F96 173	2F60 143	2F96 158	2F60 108
8'	– –	1F96Rh 74	1F96 100	1F60 83	1F96 78	1F60 60
8'	– –	2F96Lp 112	– –	– –	– –	– –
8'	– –	1F96Lp 59	– –	– –	– –	– –
8'HO	– –	4F96HO –	4F96HO 514	4F96HO 454	4F96HO 474	4F96HO 328
8'HO	– –	3F96HO –	3F96HO 392	3F96HO 352	3F96HO –	3F96HO 260
8'HO	– –	2F96HO 150	2F96HO 257	2F96HO 227	2F96HO 237	2F96HO 164
8'HO	– –	1F96HO 87	1F96HO 135	1F96HO 125	1F96HO –	1F96HO 95
8'VHO	– –	– –	4F96VHO 900	4F96VHO 780	– –	– –
8'VHO	– –	– –	3F96VHO 680	3F96VHO 590	– –	– –
8'VHO	– –	– –	2F96VHO 450	2F96VHO 390	– –	– –
8'VHO	– –	– –	1F96VHO 230	1F96VHO 205	– –	– –

* 1 Lamp Fixture and 2 Lamp Fixture Combination

Quick Reference – HID



High Intensity Discharge Lamps and Wattages

Mercury Vapor (MV)	Std. Bal. Watts	Metal Halide (MH)	Std. Bal. Watts	El. Bal. Watts	Pulse Start	High Pres. Sodiumt (HPS)	Std. Bal. Watts	El. Bal. Watts	Low Pres. Sodium (LPS)	Std. Bal. Watts
40	74	32	40	43	–	35	53	–	35	60
50	75	50	67	58	67	50	64	–	55	85
75	95	70	95	83	–	70	95	–	90	130
100	125	100	125	109	–	100	130	–	135	180
160	167	150	195	185	165	150	190	–	180	230
175	205	175	215	–	220	200	245	–		
250	290	200	230	210	265	215	255	–		
400	455	250	295	–	290	250	295	–		
700	775	300	345	–	–	310	365	–		
1000	1075	320	–	–	365	360	400	–		
		350	405	362	400	400	465	–		
		400	445	413	456	1000	1100	–		
		450	–	–	506					
		750	850	–	815					
		1000	1080	–	1075					
		1500	1625	–	–					