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Appendix for ECM 9: Pool Pump VFDs, FunPlex

I. Energy Savings Calculations

ECM 9 Pool Pump VFDs FunPlex Savings Caclulation

Savings Estimate

Date: 1-Aug-12

Project: City of Greeley Colorado

Location: FunPlex

Measure: ECM 12 Pool Pump VFD's

Location	Volume (Gal)	Existing				Minimum Allowable			
		Circulation Flow (GPH)	Turnover (Hrs)	Motor (HP)	Pump Speed (RPM)	Turnover (Hrs)	Circulation Flow (GPH)	Pump Speed (%)	Pump Speed (RPM)
Activity Pool	130,926	50,400	2.6	25	1765	6	21,821	0.43	764
Current Pool	26,285	26,280	1.0	15	1755	6	4,381	0.17	293
Children's Pool	10,053	20,100	0.5	10	1760	1	10,053	0.50	880

Savings Estimate

Date: 1-Aug-12

Project: City of Greeley Colorado

Location: FunPlex

Measure: ECM 12 Pool Pump VFD's

Location	Existing									Proposed						Savings	
	Motor (HP)	Motor Eff.	Required BHP	Required HP	Load Factor	Estimated kW	Pump Speed (RPM)	Flow (GPM)	Head (Ft)	Pump Speed (RPM)	GPM %	Head %	kW %	Turnover (Hrs)	kW	kW	kWh/Yr
Activity Pool	25	0.905	19.3	21.3	0.85	15.9	1765	840	71	1400	79%	63%	50%	3.28	7.94	8	69,844
Current Pool	15	0.885	9.9	11.2	0.75	8.4	1755	438	70	1400	80%	64%	51%	1.25	4.25	4	36,088
Children's Pool	10	0.890	7.7	8.7	0.87	6.5	1760	335	71	1400	80%	63%	50%	0.63	3.25	3	28,083
Total																15	134,016

Note:

1. Pump speed adjusted to provide approximately 65% existing head (Ft).
2. Motor kW assumes existing motors are fully loaded.
3. Assume pump efficiency is 78%.