

Sub-Section: Buildings

Three Hours to Change Options

		# Bulbs	Wattage Differential	Hours used / summer	1000	1.37 lbs / kWh	\$.16 / kWh	Carbon Savings	Dollar Savings
1) Replace all incandescent light bulbs with Compact Fluorescents (CFL) (23 Watt CFL replaces a 100 Watt and cost \$4/each on average)	Average	(20	x 77	x 280) / 1000	x	1.37	or \$0.16	=	
	Own	(_____	x _____	x _____) / 1000	x	1.37	or \$0.16	=	
		# Bulbs Replaced	Cost / Bulb	Dollar Savings	Payback (summers)				
	Average	20	x \$4.00	/ _____	=				
	Own	_____	x \$4.00	/ _____	=				
2) Use Motion Sensors on lights in offices, shower houses, dining hall, kitchen, storage rooms, etc to turn lights off when not needed. Cost = Approx \$15 each		# Sensors	Wattage	Hrs/yr saved	1000	1.37 lbs / kWh	\$.16 / kWh	Carbon Savings	Dollar Savings
	Average	(10	x 200	x 280) / 1000	x	1.37	or \$0.16	=	
	Own	(_____	x _____	x _____) / 1000	x	1.37	or \$0.16	=	
		# Sensors	Cost / Sensor	Dollar Savings	Payback (yrs)				
	Average	10	x \$15.00	/ _____	=				
	Own	_____	x \$15.00	/ _____	=				
3) Choose "Green Energy" (Renewable Energy Sources) from your power company, if or when it becomes available		kWh / summer	Green Energy increase / kWh	1.37 lbs / kWh	Cost Increase	Carbon Savings			
	Average	20,000	x \$0.01396	or 1.37	=				
	Own	_____	x \$0.01396	or 1.37	=				
4) Put timers on all exterior lights (not photo-sensors). Cost = Approx \$20 each.		# Timers	Wattage	Hrs/yr saved	1000	1.37 lbs / kWh	\$.16 / kWh	Carbon Savings	Dollar Savings
	Average	(4	x 150	x 385) / 1000	x	1.37	or \$0.16	=	
	Own	(_____	x _____	x _____) / 1000	x	1.37	or \$0.16	=	
		# Timers	Cost / Timer	Dollar Savings	Payback (summers)				
	Average	4	x \$20.00	/ _____	=				
	Own	_____	x \$20.00	/ _____	=				
5) Purchase Carbon Offsets for all of your camp's electricity usage. 1500 lbs CO2 offset per \$20 Tag		Kilowatts used / summer	x	1.37 lbs / kWh	= lbs CO2	/ 1500	x \$20/Tag	= Cost	
	Average	20,000	x	1.37	= _____	/ 1500	x \$20.00	=	
	Own	_____	x	1.37	= _____	/ 1500	x \$20.00	=	

Notes, References, and Citations

Note 1: The idea of the average camp is based on the 2007-2008 list published by NH Department of Environmental Services of licensed Youth Recreation Camps. No distinction was made between day and resident camps for the purposes of this sheet and a simple average of each camp's capacity based on 100% enrollment.

Assumptions Of Average Camp Are Solely Made For Rough Calculation Purposes

Section 1	a)	# Bulbs Replaced	20	(Based on anecdotal evidence from a handful of camps)
	b)	Wattage Differential	77	(The Wattage difference between a 100 W incandescent and 23 W CFL)
	c)	Hours used / summer	280	(Based on 4 hours per day x 10 weeks x 7 days/week)
	d)	Divide by 1,000		(Changing Watt Hours into Kilowatt Hours kWh)
	e)	1.37 lbs / kWh		(1.37lbs of CO2 emissions per kWh) http://www.eia.doe.gov/ Source: Energy Information Administration (EIA). Electric Power Annual 2005, Table 5.1 (October 2006)
	f)	\$.16 / kWh		(Cost, per kWh, of Electricity for commercial use in New Hampshire, May 2008) http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html
	g)	Carbon Savings		(measured in pounds (lbs) of Carbon)
	Equations:	(#bulbs x Wattage x hours) / 1000 = Kilowatt Hours (kWh) kWh x 1.37 = CO2 Emission kWh x \$.16 = Electricity Cost		
Section 2	a)	# Sensors	10	(Based on anecdotal evidence from a handful of camps. 10 Light switches replaced with Motion Sensors)
	b)	Wattage	200	(Assuming each sensor controlled two fluorescent "strip" lights, with 2, 50 Watt, bulbs in each)
	c)	Hours / Summer Differential	280	(Assuming each light would be used an average of 4 hours per day less once in was on a motion sensor. 4 hours x 70 days)
Section 3	a)	Kilowatts used / summer	20,000	(Based on anecdotal evidence from a handful of camps)
	b)	Green Energy increase / kWh	\$0.01396	(At this time, no data for NH could be found, \$0.01396 per kWh is the increase that NSTAR charges its Massachusetts customers for 100% renewable energy)
Section 4	a)	# Timers	4	(Based on anecdotal evidence from a handful of camps of outside security lights)
	b)	Wattage	150	(Halogen lights, 1, 150 Watt, bulb in each)
	c)	Hours / Summer Differential	385	(Based on lights originally being on a photo-sensor, turning them on around 8:30 and off around 5am (Dusk til Dawn). With timers set to turn lights on at 9pm and off at midnight, you would save 5.5 hours per day times 70 days)
Section 5	a)	Carbon Offsets		(Bonneville Environmental Foundation sell Wind Carcon Offset Tags for \$20 each, 1,500 lbs of CO2 are offset per Tag)
	Equation=	CO2 Emission / 1,500 = # of Offset Tags need x \$20.00 = Cost of purchasing offset Tags		