Power Use and Cost Analysis

In order to compare the costs of growing herbs at home and growing them in a greenhouse, we will use dollar cost of each. This choice is made in order to take into account variables that we do not have the answer for, including transportation costs. For home growing we use wattage of the lights and then convert this into kilowatts and finally kilowatt hours. The estimated cost of electricity in Michigan at this time is 15.26 cents per kilowatt hour.

	Watts	kW	kWh
Mat	20	0.02	14.6
Pi 4	3.4	0.0034	2.48
LED	600	0.6	219.02

With a two light rig, this comes to $36.03 per month. Growing 6 plants will cost $6.00 per month. This is a reasonable number if your plants are in the harvesting stage and costs more than store bought plants which are about $3.50. The home growing method compares favorably when taking into consideration plants that are not fully grown. Many mare can be grown using our rig. For seedlings, we sprouted 72 simultaneously.

For a lights comparison, we will use a similar kWh comparison and add a comparison of efficiency and add a comparison of estimated lifespan. The lifespan is measured in L70. This is the time at which the lights have lost 70% of their lumens but still work. High pressure sodium lights are omitted due to their emitted wavelength being suited to flowering more than vegetative growth.

	Watts	kW	kWh
LED	600	0.6	219.02
Metal Halide	600	0.6	219.02
CFL	216	0.216	78.85

	Lumens/Watt	Lifespan (hrs)
LED	60	100,000
Metal Halide	53	20,000
CFL	50-70	20,000

CFL would appear superior to LED lighting until the much shorter lifespan is taken into account. The long lifespan of LED lighting makes it the superior lighting choice. This lifespan is also what allows the cost of LED lights to be ignored in the cost analysis (about $0.40 per month).