INTEROFFICE MEMORANDUM

TO: CITY OF ARCATA

FROM: MATT MCCAMMON

SUBJECT: CONSULTATION ON ENERGY EFFICIENCY

DATE: 10/17/2010

Introduction

The purpose of this Memorandum is to explain the results of the efficiency calculations comparing the effectiveness of replacing $10,000 worth of city light bulbs with compact fluorescent light bulbs versus installing $10,000 worth of PV panels.

Summary

To calculate the efficiency of the PV panels, I first measured the amount of solar power produced by the individual panels in 3 conditions, sunny cloudy, and shaded. I then found the average of these 3 conditions. I then checked to see what percentage of the day, average throughout the year, actually has sunlight. This averaged out to be 52% of the day. Then, I figured that $10,000 will buy 14m^2 of PV panels. Then I figured out the estimated amount of power produced over a 20 year lifespan of the PV power, and then the total amount of money that would be saved by this. It ended up being around $9,016 in savings.

After this I calculated the efficiency of replacing all of the current condescend light bulbs, with power saving compact florescent light bulbs. You could buy a total of 2500 CFL bulbs with $10,000. I calculated that over a 20 year span, the total amount of money saved on energy would be around $1,338,090.

Conclusion

After comparing my calculations, I found that the total savings from replacing all condescend bulbs, with all CFL bulbs, will save $1,329,074 more than installing solar panels.