



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Ben C. Hora	Project Number J0910
Project Title Watt Phantoms Are Lurking in Your Home?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to determine if electronic devices take up energy in standby mode and if so, how much energy is being wasted.</p> <p>Methods/Materials A KillAWatt meter was used to measure the amount of power used, along with the associated yearly costs, of various household electronic products. The products tested were a clock radio, DVR, Nintendo Wii, Nintendo Wii U, television, sound bar and speakers, and a computer with monitor. Each of these electronic devices was tested in standby mode five times each for a span of two hours. The five trials were used to verify that the trial length was long enough to average out any variations in power. The trial length of two hours was used to give a long enough time to allow the kWh value to average out any variation in power.</p> <p>Results Six of the seven electronic devices tested used power during standby mode operation, which was within the expectations of my objective. Only the television did not use any measurable power in standby mode. The DVR used as much power in standby mode as during normal operation and considerably more than the other electronic devices. The rest of the electronic devices ranged between 0.3 and 1.7 watts while in standby mode.</p> <p>Conclusions/Discussion The results from my testing proved my hypothesis that most electronic devices take up energy in standby mode. The energy costs from these electronic devices were from \$0 for the television, to \$75 for the DVR per year. The differences in the phantom power usage can be attributed to the amount of software and processing that the device used as well as the age of the electronic device. These results can help people determine which electronic products they can turn off to save money and reduce their power usage. Being aware of phantom power in the home will not only keep costs down, but save natural resources and help the environment too.</p>	
Summary Statement My project was measuring the watts used by electronic devices to determine if they used power in standby mode.	
Help Received My parents helped type the report.	