Dr. Watts’ Brilliant Savings
OptiPower Electric Dirt

BACKGROUND
The last several decades have seen significant growth on campus in non-linear electric devices, such as computers, electronic lighting ballasts, variable speed motor drives, etc. Supporting these systems and components is the overall power distribution system.

These electric devices reduce energy consumption but do increase harmonics or “noise” in the overall power distribution system.

PROBLEM
Harmonics are distortion or noise that is injected into the system from the very energy efficiency strategies that reduce consumption.

These digital loads, by the design of their power supplies, distort the power being supplied to the campus’ main power system.

SOLUTION
Let me introduce the latest technology to reduce power consumption and saving energy dollars on campus, OptiSine!

The OptiSine system by Optipower harvests inefficiencies.

This system relies on advanced Active Harmonic Filter technology, closed loop control algorithms and advanced metering/monitoring to maintain operations at the most efficient point in the power system.

Savings that are both real and consistent are achieved with OptiSine by reducing the non-linear component of energy at the Point of Common Coupling with the utility on the lower voltage side of the power distribution system. In effect, OptiSine “pushes and pulls” the incoming power to reduce spikes and sags in the power supply.

This pilot system was installed at the Bluemle Life Sciences Building in September 2013. Initial results are showing a 15% reduction in electricity use! Working with the inventor of OptiSine, Jefferson is at the forefront of new game-changing technology to reduce electric consumption throughout the country.

Edison Stair Towers

The North and South Stair Towers at the Edison Building have always been lit by aging, fluorescent light fixtures, installed by the building’s original owner. In addition, these lights in the stairwells are ON constantly for safety features.

Our Energy Services
Department (ESD) aided in the development of an LED fixture, designed specifically for the North Stair that features an efficient external driver and aircraft-grade, deep-fin, aluminum heat sink. At installation, the new fixture was so bright, we decided to eliminate half (50) of the old existing fixtures.

As a result, this new lighting is brighter, cleaner, safer and more energy-efficient as visitors to Edison can readily attest and will save us $3,100 per year.

Finally, this project earned a $3,854 rebate from PECO. ESD went ahead and retrofitted the South Stair Tower with these resources, encouraged by the success of this project.

Follow the “Sine” to Jefferson for Cutting-Edge Energy Efficiency
Hamilton Building — Lobby

Last May, the lighting in the Hamilton Building Lobby was nearing the end of its useful life and failing at a high rate. Rather than simply replace these compact fluorescent lamps, a suggestion was made by Ron Frank, Facilities Services Supervisor, to investigate LED Lights.

Our ever watchful Energy Services Department realized that prices for light emitting diodes LED lamps were falling to levels making LEDs competitive with CFLs. After installing 4 fixtures as a test, it was determined that they were providing high quality light for half the energy.

Another factor arguing well for LEDs at Hamilton was the 15-foot atrium ceiling. This height serves as a barrier when lamps are required, taking about an hour and requiring a lift to replace a single lamp. The longer lamp life increases the cost savings. In fact, LED fixture life, at 6-years, was a major factor in this project. This lighting project is saving Jefferson 16,000 KWHR in energy and $1,700 cost annually. And on a final note, PECO is supplying a rebate incentive of $843 to allay first costs.

Bright Ideas

“May I have the envelope, please? And the winner is... Jillian Mikesell!!”

Keen on eliminating energy waste at a young age and based on her years in the ICN (Intensive Care Nursery), Jillian researched a common energy waste issue in the ICN – “the lights are ON, but no one’s home.” Approaching Jefferson’s Energy Manager, Randy Haines, they developed a project, consisting of installing occupancy sensors in various areas on the 8th floor of the Pavilion Building. A rebate from the local utility enhanced the economic value of this project.

Currently (no pun intended) pursuing a Masters Degree in Business, Jillian plans to graduate at the end of the year.

Have an Energy Saving Idea?
Contact me at Randolph.Haines@jefferson.edu

“WOW”
Over 35% of all the electricity used on our entire campus is generated by wind!