

H2E Intern Project Report Summary
Via Christi Regional Medical Center— Energy Reduction
Alicia Warren 2008

Via Christi Regional Medical Center is committed to reviewing its energy conservation opportunities. Its hopes to lower its operation costs so more money can be spent on patient needs. This internship was designed to help Via Christi identify and prioritize high-energy-use areas as well as implement recommendations from previous interns. Summer of 2008 projects included review of previous intern recommendations, energy audit, light audit, analyzing and recommending energy usage reductions for energy centers, computer power management program, air audit, and an employee awareness program.

The energy audit entailed collecting all energy bills, organizing the information, and evaluating where the hospital currently stands in energy use. The audit was also conducted to determine which meters the campuses currently use. The audit included working with Integrys, Via Christi's utility management company, on plans to update its Energy Star portfolio on a regular basis in the future.

The light audit entailed measuring and recording light levels across all campuses after de-lamping had taken place to ensure light levels were still up to code. As part of the audit, poorly designed lighting areas of the hospital were redesigned using the program Visual Basic. Lighting controls were also investigated, based on the previous intern's recommendations. Timers have been implemented due to smaller payback periods, inexpensiveness, and being best in sunlit hallways and locations of office areas.

The energy-usage-reduction analysis was done primarily at the energy centers of St. Francis and St. Joseph hospitals. A list was compiled of noted problem areas that could greatly reduce the amount of energy currently used if fixed appropriately.

Implementation of a computer power management program was attempted, but delayed when it was met with resistance by the IT staff. Additional research was done to push forward with this idea, and using Energy Star's Web site, a pledge was made to the hospital's low-carbon IT campaign, including all campuses, and a certificate of recognition was received. By completing this pledge, a free conference call with our IT team can be set up to answer any questions concerning setup and management of security updates.

The air audit consisted of documenting any energy reduction attempts made by the facilities management department, with costs and savings of the projects recorded to keep track of efforts as the energy reduction program moves forward. The air audit also consisted of researching the previous intern's recommendation to purchase a leak detector.

Finally, the employee energy awareness program was implemented by the construction of a energy awareness PowerPoint that will be given at employee orientation and at annual training for existing employees. An energy conservation employee awareness program is also recommended, because of its ability to reduce electricity at a small cost. This program will also help get input from employees on ways to save more energy in the hospital.

Final calculations from recommended and implemented projects for 2008 came to 3,012,384 KWH saved in electricity and 109.75 therms saved in natural gas consumption. This equates to a reduction of 3,810 standard tons of CO₂, 14.58 standard tons of SO₂, 8.5 standard tons of NO_x, and 39.55 grams of mercury. Total cost savings for all implemented and recommended projects, except the boiler replacement project, is \$350,612. Via Christi will continue to implement energy conservation techniques, as by doing so will be able to focus more on its mission of serving patients.

2008 PROJECT IMPACT CHART

PROJECT	LABOR	MATERIALS	ANNUAL ENERGY SAVINGS	ANNUAL COST SAVINGS	STATUS
Computer and monitor mower management	< 24 Hrs	Free	1,532,250 KWH	\$ 110,475	Recommended
SFC de-lamping	\$ 1,100	\$ 3,250	278,085 KWH	\$ 20,022	Implemented
SJC de-lamping	\$ 295	\$ 871	77,746 KWH	\$ 5,597	Implemented
OLOL de-lamping	-	-	27,177 KWH	\$ 1,956	Implemented
SJC timers	\$ 22	\$ 144	7,525 KWH	\$ 542	Recommended
SFC timers	\$ 33	\$ 216	45,725 KWH	\$ 3,292	Implemented
Employee energy awareness program	-	-	600,000 to 1,520,000 KWH	\$ 30,000 to \$ 76,000	Implemented
Air audit	In-House	\$ 5,995	3.31 THERMS	\$ 14,871	Implemented
Ultraprobe training	\$ 4,500	-	-	-	Recommended
Mezzanine level office timers	\$ 138	\$ 900	75,076 KWH	\$ 5,405	Recommended
848 building timers	\$ 1408	\$ 2,836	314,907 KWH	\$ 19,692	Recommended
SFC distribution	\$ 1,980	\$ 3,200	28,730 KWH	\$ 2,069	Implemented
SJC U-Bent remodel cafeteria	\$ 990	\$ 2,150	9,682 KWH	\$697 in energy \$1107 in lamps	Recommended
U-Bent replacement	\$ 5,577	\$ 16,900	1 for 1 SWAP	\$ 6,037	Recommended
SJC storage center	\$ 255	\$ 870	15,481 KWH	\$ 1,114	Recommended
Steam traps 1	\$ 5,607	\$ 2,138	69.72 THERMS	\$ 83,669	Implemented
Steam traps 2	\$ 2,803	\$ 1,069	36.72 THERMS	\$ 44,068	Recommended
TOTALS	\$ 24,708	\$ 40,539	109.75 THERMS & 3,012,384 KWH	\$ 350,613 TO \$ 396,613	
*Boiler replacement (Not included in totals— see appendix 6)	Installation	\$ 1.5 - 2.25 M	437.42 THERMS	\$ 511,241	Recommended

Total CO2 diverted in standard tons: 2,584

Equivalent to—

Annual greenhouse gas emissions from **429** passenger vehicles
 CO2 emissions from **265,897** gallons of gasoline consumed
 CO2 emissions from **5,448** barrels of oil consumed
 CO2 emissions from the *electricity* use of **310** homes for one year
 CO2 emission from the *energy* use of **207** homes for one year
 Carbon sequestered annually by **532** acres of pine or fir forrests
 Greenhouse gas emissions avoided by recycling **808** tons of waste instead of sending it to the landfill