

Hospitals for a Healthy Environment:



Facilities Management Energy Conservation

**VIA CHRISTI REGIONAL MEDICAL CENTER
KANSAS STATE UNIVERSITY POLLUTION PREVENTION INSTITUTE**

Overview



- **Via Christi Regional Medical Center**
- **Timeline**
- **2007**
- **Building Automation Project**
- **2008**
- **2009**
- **Current Progress**
- **Outlook**

Via Christi/KSU PPI Partnership



Non-Profit Catholic Healthcare Organization in Wichita, KS

- **St. Francis Campus**
 - Acute-Care Hospital
 - 1.60 Million Sq. Ft.
 - 907 Licensed Beds
- **St. Joseph Campus**
 - Acute-Care Hospital
 - 464,000 Sq. Ft
 - 545 Licensed Beds
- **Our Lady of Lourdes**
 - Rehabilitation Center
 - 61,414 Sq. Ft.
 - 60 Licensed Beds
- **Good Shepherd**
 - Behavioral Health Center
 - 57,071 Sq. Ft
 - 80 Licensed Beds

Via Christi/KSU PPI Partnership



Timeline



2007 Via Christi/KSU PPI Partnership



- First Year Of Participation In the KSU PPI Program
- KSU PPI Intern Lindy Pope
- Electrical Engineering Major

Project	Annual Cost Savings	Environmental Results (KWH/YR)	Status
Lighting (Delamping, Timers, Lamp Changes, Occupancy Sensors, Dimming Controls)	\$ 110,386	2,207,865	Recommended
Air Audit	\$ 14,871	217,441	Recommended
Energy Awareness Program	\$ 30,000	600,000	Recommended
Computer Power Management (Monitors Only)	\$ 15,000	300,000	Recommended
Energy Star Products	\$ 27,090	500,000	Recommended

Via Christi/KSU PPI Partnership



Building Automation Project

- Automation of Energy Centers
- Hiring Energy Engineer Manager
- Hiring Energy Intern Coordinator
- Energy Reduction Research
- Updating Equipment
- Implementation

Building Automation Project



Current Operations						
Campus	Square Foot	Cost Per Square Foot	Current Energy Costs	Healthcare Industry Average Energy Cost per Square Foot	Energy Costs at Industry Average	Potential Cost Savings
SFC	1,200,000	\$3.46	\$4,152,000	\$2.28	\$2,736,000	\$1,416,000
SJC	464,000	\$5.14	\$2,384,960		\$1,057,920	\$1,327,040
Totals	1,664,000	\$3.93	6,536,960		\$3,793,920	\$2,743,040
Forecasted Operations				Investment	Payback	
Fiscal Year	Cost Per Square Foot	Extrapolated Energy Costs	Proposed Cost Savings			
2008	\$3.93	\$6,536,960	\$0	\$500,000	Less than 3 years	
2009	\$3.78	\$6,286,960	\$250,000	\$500,000		
2010	\$3.61	\$6,007,040	\$529,920	\$500,000		
2011	\$3.28	\$5,457,920	\$1,079,040			
2012	\$2.78	\$4,625,920	\$1,911,040			
2013	\$2.28	\$3,793,920	\$2,743,040			
Totals			\$6,513,040	\$1,500,000		

2008 Via Christi/KSU PPI Partnership



- KSU PPI Intern Alicia Warren
- Civil Engineering Major
- Energy Reduction Research: A list of potential engineering issues was created.
- Green Team Formed
- Energy Awareness Program Initiated

Project	Annual Cost Savings	Environmental Results (KWH/YR)	Status
Lighting (Delamping, Timers, Remodels)	\$ 39,580	549,746	Implemented
Air Audit (Ultraprobe 9000 Purchased, Steam Trap Repairs Completed, Steam Trap Audit)	\$ 142,608	109.75 Therms	Recommended
Energy Awareness Program (Orientation and Training)	\$ 30,000	600,000	Implemented
Computer Power Management (Monitors and Computers)	\$ 110,475	1,532,250	Recommended/ In Progress

2009 Via Christi/KSU PPI Partnership



- Via Christi Energy Coordinator Alicia Warren
- Via Christi Energy Manager Anas Sadkhi
- KSU PPI Intern Jay Reimer
- Biological and Agricultural Engineering Major

Project	Annual Cost Savings	Environmental Results		Status
Aerator Replacement	\$ 41,147	6,399,360	Gallons of water	Implemented
Steam Trap Survey	\$ 45,083	283,939	lb _{natural gas}	In Progress
		61,332	Therms	
Boiler #1 OR #2 (30Kpph) Stack Economizer	\$ 24,615	27,350	Therms	Recommended
Boiler #3 (60Kpph) Stack Economizer	\$ 54,856	60,951	Therms	In Progress
9th Floor AHU	\$ 250,000	217,624	Therms	In Progress
		689,142	KWH	
Mud Drum Heater on Boiler #3	\$ 14,753	16,368	Therms	In Progress
VFD's on boiler forced draft burner (#1 OR #2)	\$ 12,000	160,000	KWH	Recommended
VFD's on boiler forced draft burner (#3)	\$ 24,000	320,000	KWH	Recommended
VFD on cooling tower fans	\$ 58,440	779,200	KWH	Implemented
Meters		Essential		In Progress

Via Christi/KSU PPI Partnership



Current Progress

- Energy Centers In Process of Being Automated
- Green Team Formed
- Energy Star

- Awards
 - 2008 Wichita Clean Air
 - 2009 Kansas Pollution Prevention

Via Christi/KSU PPI Partnership Outlook



- By 2013, SFC and SJC to have source energy consumption (kBtu/ sq. ft) of the industry average.
- Energy Star used for this analysis.

Forecasted Operations							
Fiscal Year	Energy Cost Per Sq. Ft.				Annual Energy Costs		
	No Investment	Forecasted No Inflation	Forecasted With Inflation	Actual with investment	No Investment	Extrapolated Energy Costs	Actual with investment
2008	\$ 3.93	\$3.93	\$3.93	\$3.92	\$6,539,520.00	\$6,539,520	\$6,524,785
2009	\$ 4.12	\$3.78	\$3.97	\$4.01	\$6,855,680.00	\$6,289,520	\$6,672,640
2010	\$ 4.33	\$3.61	\$4.01	NA	\$7,198,464.00	\$6,007,040	NA
2011	\$ 4.54	\$3.28	\$3.89	NA	\$7,558,387.20	\$5,457,920	NA
2012	\$ 4.77	\$2.78	\$3.62	NA	\$7,936,306.56	\$4,625,920	NA
2013	\$ 5.01	\$2.28	\$3.36	NA	\$8,333,121.89	\$3,793,920	NA