

## 2010 Case Study

# Hospitals for a Healthy Environment circuit rider

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### *Company background*

In 2010, Hospitals for a Healthy Environment (H2E) intern EmaLee Hitt visited seven hospitals across Kansas and Missouri. These facilities included Pratt Regional Medical Center in Pratt; St. Catherine Hospital in Garden City; Western Plains Medical Complex in Dodge City; Freeman Health Center in Joplin Missouri; Neosho Memorial Regional Medical Center in Chanute; South Central Kansas Regional Medical Center in Arkansas City; and Geary Community Hospital in Junction City. Services Hitt provided to each hospital were designed to help facilities identify possible cost and environmental waste-reduction opportunities. These included the following audits or assessments: mercury inventory; energy conservation opportunities including lighting, appliance upgrade, vending machine misers, and cafeteria energy management; water conservation; and solid-waste audits.

### *Project background*

H2E aims to create sustainable healthcare facilities by reducing the quantity of waste, eliminating mercury, and reducing electricity and water consumption. The circuit rider internship, hosted by the K-State Pollution Prevention Institute, funded through a grant from EPA Region 7.

### *Incentives to change*

The hospitals requested these services in effort to help them identify opportunities of cost savings as well as mercury elimination, reduction of energy and water usage, and minimizing the amount of solid waste produced by the facilities. By executing the intern's recommendations, hospitals will be able to focus their resources more towards patient needs, taking steps toward a healthier environment for the communities, and reducing their carbon footprint. Hospitals are among the largest emitters of waste in communities, and many have taken the initiative to minimize their operational environmental impact.

### *Projects reviewed for source reduction potential*

1. **Mercury inventory**  
Using the Mercury Assessment Worksheet distributed by the California Department of Health, an inventory of the hospitals' mercury content was taken. This calculator is used to total the grams of mercury contained in each medical device used. One of the seven facilities requested to have a full mercury inventory audit done at its facility. Using the Mercury Assessment Worksheet, 28,114 grams of mercury were found.
2. **Solid Waste**  
Several solid-waste-reduction opportunities were established at each hospital. A summary of current recycling and waste programs were established, and additional programs were recommended. Information used for calculations was gathered from trash bills and by contacting each waste company. Solid-waste savings were determined for specific areas of large waste, including paper and cardboard. Cardboard reductions were calculated if a recycling program was not in place.

All seven facilities requested a solid-waste assessment. Five of the seven already separated cardboard from their main waste stream. The other two do separate and break down cardboard boxes, so a recycling program would be easy to implement. Most of the facilities that requested the solid-waste audit were recommended to right-size their dumpsters to help reduce the amount of money spent on excessive trash pickups. A potential of 328 tons of waste was identified for reduction or recycling annually.

### 3. Energy

Limited energy conservation assessments were performed at most facilities. Depending on the facility need, the intern documented the following energy conservation opportunities:

- Television upgrades—Three facilities requested that older televisions be considered during the appliance upgrade assessment. It was found that all of the facilities have the same 20” Zenith HOMO series from the late 1990s. The average payback period for a television upgrade project at each facility was about 30 years. The energy savings calculated with the replacement of televisions was 83,692 kWh per year.
- Vending machine misers—Misers have the potential to reduce energy usage by 40%. Two facilities requested this service, and the energy savings from these Vending Machine Misers was 56,824 kWh.
- Ice machines upgrade—Two facilities requested this service, with energy savings possible from replacing the ice machines estimated at 22,632 kWh per year.
- Exit signs— By replacing outdated exit signs with new LED exit signs, the intern

calculated savings of 4,533kWh annually at one hospital.

- Lighting—Energy conservation opportunities for lighting were assessed at two facilities, and included light sensors and replacing a magnetic ballast with an electronic ballast. Total energy savings for installation of the light sensors and electric ballast was 198,547 kWh per year.
- Intelli-hood—A system of sensors retrofitted to a kitchen hood detects low and high periods of use and adjusts the power used by 70%. Total annual monetary savings for the hospitals was \$7,345.
- Kitchen appliances—Three facilities asked for an assessment on the energy efficiency of their existing kitchen appliances. Total energy savings possible by upgrading to Energy Star-approved appliances equated to 599,417 kWh annually.

### 4. Water conservation

One facility asked for a water conservation assessment that included savings related to installation of low-flow aerators on sinks and low-flow toilets, as well as upgrading to a dishwasher. Total water savings per year associated with these recommendations was 489,874 gallons of water.

*Table 1: Summary of H2E Circuit Rider Intern recommendations*

Project	Annual cost savings	Reduction	Status
Mercury inventory	NA	28,114 grams	Recommended
Solid waste	\$94,591	328 tons	Recommended
Televisions	\$6,622	83,692 kWh	Recommended
Vending machines	\$4,261	56,824 kWh	Recommended
Ice machines	\$2,001	22,632 kWh	Recommended
Exit signs	\$400	4,533 kWh	Recommended
Lighting	\$10,756	198,547 kWh	Recommended
Kitchen hoods	\$7,345	NA	Recommended
Kitchen appliances	\$52,092	599,417 kWh	Recommended
Water conservation	\$709	489,874 gallons	Recommended
<b>GHG reductions</b>	<b>741.529 metric tons CO2e</b>		