

## 2009 Case Study

# Associated Wholesale Grocers

Intern: Aaron King  
Major: Chemical Engineering  
School: University of Kansas

Kansas City, Kansas



### *Company background*

Associated Wholesale Grocers, Inc. (AWG) is a retailer-owned cooperative providing 1,900 member stores with a variety of grocery, fresh meat, fresh produce, specialty foods, health care, and general retail items. The Kansas City facility, which consists of a corporate office, a warehouse, and a garage, employs more than 1,000 people and is more than 900,000 square feet in size.

### *Project background*

AWG is continuously looking to reduce its environmental impact. In 2007, AWG began installing more energy-efficient light fixtures and realized an energy savings of 679,000 kWh. The company had also previously reduced its waste generation by eliminating use of Styrofoam cups in the warehouse break rooms. For this internship, King investigated lighting replacement and supplementation projects for the high-bay dry grocery and freezer areas, as well as the garage. He also researched water conservation involving the fire-suppression system, warehouse paper towel-use reduction, and Tier II chemical replacement for the trailer wash.

### *Incentives to change*

AWG recognizes the importance of undertaking projects having positive impacts on the environment. The company understands reducing its environmental impact is a great way to cut costs and improve its public image.

### *Projects reviewed for E2/P2 potential*

#### 1. Lighting

In the high-dry grocery area of its warehouse, AWG can save 580,282 kWh and \$31,900 annually by switching to energy-efficient four-lamp T5 light fixtures. In the freezer, 700,281 kWh and \$38,500 could be saved annually by switching to high-bay induction fixtures. Switching the current garage fixtures to induction fixtures could save 87,452 kWh and \$4,800 per year. It is possible that these retrofits

could qualify for a tax deduction through the Energy Policy Act of 2005. The high-dry grocery project has a short payback period regardless of whether the tax deduction is obtained or not, so it was recommended. However, since certain aspects of EAct are unknown, King also suggested that more research be done.

The garage used to have skylights. If skylights were again installed and the current lights were kept off for eight hours a day, 59,422 kWh and \$3,300 could be saved each year. However, since there is no guarantee that the lights would be turned off at all, King did not recommend this project.

#### 2. Water conservation

Weekly tests of the fire-suppression system dump 2.6 million gallons of water onto the pavement each year. King recommended that a recycle line, which would recirculate the same water through the pumps, be added to the west pump house. For the east pump house, he recommended adjusting the relief valve, which would limit the amount of water being wasted during the test. It was estimated that 2.44 million gallons of water and \$16,900 could be saved annually. King's recommendation for the east pump house was implemented while the intern was on site, and could save 1.03 million gallons of water and \$7,100 each year.

#### 3. Hand dryers

The warehouse alone uses 2.92 tons of paper towels annually. King suggested replacing the paper towel dispensers in the restrooms with energy-efficient hand dryers that could reduce paper towel usage by an estimated 95%. This would reduce the amount of paper towel waste by 2.77 tons and could save \$8,900 per year.

#### 4. Tier II chemical replacement

AWG reports 6.70 tons of Strypp-AG, a truck-wash chemical, on its Tier II chemical list. King

recommended changing the chemical to an entirely plant-based solution which would allow the company to remove the Strypp-AG from its Tier II chemical list. The new chemical could also save \$17,900 in purchasing costs alone (based on the assumption that only 6000 gallons of truck wash are ordered each year).

*Summary of 2009 E2/P2 intern recommendations for Associated Wholesales Grocers*

<b>Project description</b>	<b>Annual estimated environmental impact</b>	<b>Annual estimated cost savings</b>	<b>Status</b>
High-Dry Grocery Lighting	580,282 kWh	\$31,900	Recommended
Freezer Lighting	700,281 kWh	\$38,500	Needs further research
Garage Interior Lighting	87,452 kWh	\$4,800	Needs further research
Pump House Water Recycling	2,440,649 gal of water	\$16,900	East pump house: implemented, west pump house: recommended
Hand Dryers	2.77 standard tons of paper towel waste	\$8,900	Recommended
Truck-wash Chemical Replacement	6.70 standard tons of Tier II chemical	\$17,900	Recommended
<b>Total savings *</b>	<b>2,440,649 gallons of water, 580,282 kWh, and 9.47 tons of waste</b>	<b>\$75,600</b>	
<b>GHG reductions *</b>	<b>498.7 metric tons CO2e</b>		

\* Does not include projects that are “not recommended” or “further research is needed.”