

SIX-MONTH INTERNSHIP KUM & GO

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COMPANY BACKGROUND



**WEST
DES MOINES**

Founded on exceptional customer service, Kum & Go is a pioneer in the convenience store industry. The family-owned company began in 1959 in Hampton, Iowa, and has grown to more than 430 convenience stores in 11 states (Iowa, Arkansas, Colorado, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, South Dakota and Wyoming). Thanks to the efforts of its more than 3,600 associates, Kum & Go convenience stores continue to lead the industry in customer service and convenience.

Kum & Go has maintained 50 years of dedicated community commitment, each year returning at least 10 percent of its profits to the communities it serves. Kum & Go is the third largest private owner-operator of convenience stores in the United States.

PROJECT BACKGROUND

Kum & Go teamed up with Pollution Prevention Services to develop innovative solutions for reducing store energy consumption. The intern conducted energy audits at 11 Kum & Go stores across Iowa. Based on the findings of the energy audits, the intern developed and implemented five energy reduction projects.

INCENTIVES TO CHANGE

With more than 430 convenience stores in 11 states, Kum & Go assets vary in age, size, and structure. Providing a large selection of fuel, cold beverages, and warm food around the clock, these stores consume a considerable amount of energy. Kum & Go constructs nearly 25 new stores every year

that implement cost effective, energy efficient technologies. Retrofitting existing stores with new energy efficient technology is a company priority.

RESULTS

LED Cooler Door Lighting Retrofit: In most Kum & Go stores, high wattage fluorescent bulbs are used to illuminate the products in the display coolers. These bulbs are inefficient and expensive to maintain. The intern recommended that Kum & Go retrofit existing stores with the efficient LED cooler light fixtures that the company is installing in new store construction. On behalf of the company, the intern applied for and received a U.S. Department of Energy Technology Demonstration Grant

administered through the Iowa Office of Energy Independence to assist in retrofitting 151 Iowa stores with LED cooler lighting. The cooler lighting retrofits are scheduled to begin in the first quarter of 2011.

LED Exterior Lighting Retrofit: Kum & Go stores utilize exterior lighting to illuminate the fuel canopy, parking lot, and signage. In most Kum & Go stores, high wattage metal halide bulbs are used to illuminate the exterior of the store. These bulbs are inefficient and expensive to maintain. The intern recommended that Kum & Go retrofit existing stores with the efficient LED exterior light fixtures that are being installed by the company in new store construction. The intern applied for and received a second Technology Demonstration Grant to assist in retrofitting 10 Iowa stores with LED exterior lighting. Along with the LED cooler door retrofit, the exterior lighting retrofit will begin in the first quarter of 2011.

Monthly Condenser Cleaning: Kum & Go provides customers with a variety of cold beverages, refrigerated foods, and frozen food products. The beverages are generally housed in a walk-in cooler or a stand-alone refrigeration unit. Each stand-alone unit contains an internal compressor and condenser coil. Dust accumulates on these condenser coils, significantly reducing the efficiency of the refrigeration unit. The intern recommended that Kum & Go implement monthly condenser cleanings to ensure that the refrigeration units operate efficiently. The intern assisted with developing training modules to educate store associates on how to properly clean the condensers and the impact this can have on utility bills and extending the life of the unit.

Walk-in Cooler Door Monitor System: In every Kum & Go store, a wide variety of beverages can be found in the walk-in cooler. The intern discovered that product distributors and store associates prop the cooler access door open for extended periods of time throughout the week. Distributors prop the door open to speed up delivery time, while associates prop the door open in an effort to keep warm while stocking products in the cooler. The intern recommended that Kum & Go install walk-in cooler door monitor systems

in every store. This door monitor sounds an audible alarm whenever the door is propped open. The monitor also controls the refrigeration system to ensure that the cooler is not running while an associate is stocking product. Kum & Go will be testing these door monitors to determine the savings potential of the project.

Energy Management System (EMS) Installation: In 2009, Kum & Go piloted Energy Management Systems (EMS) in two stores. These units gave the company the ability to monitor energy consumption, control energy usage, and collect usage data directly from the store. As a result, the units provided a reduction of between 13 percent and 18 percent in energy usage in the stores. To continue moving forward with energy management, Kum & Go will be installing an EMS unit in four more stores in 2010. If significant rebates are available, Kum & Go may consider installing units in a large number of stores.



CONVENTIONAL AIR POLLUTANTS AND GREEN HOUSE GASES DIVERTED IN STANDARD TONS

Total for all sectors					
CO ₂	SO ₂	CH ₄	N ₂ O	CFC	PM-10
3996.08	-	155.1	25.3	25.85	-



PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
LED COOLER DOOR LIGHTING RETROFIT	\$111,200	1,143,700 KWH	IMPLEMENTED
LED EXTERIOR LIGHTING RETROFIT	\$39,100	524,000 KWH	IMPLEMENTED
MONTHLY CONDENSER CLEANING	\$94,400	1,440,300 KWH	IMPLEMENTED
WALK-IN COOLER DOOR MONITOR SYSTEM	\$163,500	2,495,300 KWH	TESTING UNITS
EMS INSTALLATION	\$419,000	8,189,500 KWH	RECOMMENDED