



Kroger Data Center Upgrade Case Study

Duke Energy awarded Kroger a **\$130,000** rebate for installing a high-efficiency cooling system

Cincinnati, OH

The Kroger Company, one of the nation's largest grocery store chains, operates stores and data centers throughout the country. In June 2013, Kroger released its seventh annual sustainability report highlighting actions taken to improve the company's social, environmental and economic impact. Kroger is committed to reducing energy consumption and performed efficiency upgrades to their data center in Cincinnati, Ohio.

Aims & Objectives

Kroger aims to implement the latest technology upgrades in order to increase energy efficiency and reduce the company's operating costs and carbon footprint. In 2010, Kroger installed a high efficiency cooling system for the Cincinnati data center's North Data Room. The original Cincinnati data center building, including the North Data Room and support areas, was expanded in 2006, created the South Data Room addition, complete with an updated cooling system. The North Data Room was still in need of an HVAC upgrade.

Utility Partnership

Participation in Duke Energy's Smart \$aver incentive program gave Kroger the opportunity to make an energy efficiency upgrade at a more affordable cost. Under the requirements of 2008's SB 221, which established Ohio's mandated energy efficiency resource standard, Duke Energy created a program that allows non-residential customers to receive an incentive for installing qualifying efficiency equipment. Kroger was awarded a \$130,000 rebate after replacing their Cincinnati data center's old cooling system.

Implementation

Kroger hired PEDCO, a design and consulting firm based in Cincinnati, to design and install a cooling system for the North Data Room of their Cincinnati data center that reduced energy consumption while maintaining system reliability. The new design is comprised of multiple chillers and free coolers and uses a mixture of cooling techniques. It saves energy by matching the capacity to the load requirements and uses outside air for partial or total cooling when conditions permit. The new system also has computerized monitoring capabilities for compressor and fan operation performance, which "makes monitoring and troubleshooting much easier plus gives advanced clues for proactive maintenance," explains Jerry Davis, Facilities Manager for HBC-II.

Results

Since project came online in August 2010, the cooling system upgrade resulted in **4,779,844 kWh in energy savings** and **over \$326,000 of total energy cost savings**. Kroger continues to implement energy efficiency upgrades to reduce operating costs and provide the best prices for their customers. Duke Energy's rebate lowered upfront equipment costs and allowed Kroger to purchase a more efficient design for their data center.

Incentive Received
\$130,000 Rebate

Operating Cost Savings
\$86,555 Annually

Energy Savings
1,550,220 kWh Annually

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