



EASI CASE STUDY:

**MEDICAL OFFICE BUILDING REDUCES ELECTRICAL
ENERGY COSTS BY 13% ANNUALLY**

Energy Automation Systems, Inc.

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CUSTOMER PROFILE

HCP is a Real Estate Investment Trust that owns and manages healthcare properties. These properties include medical office buildings and acute care hospital buildings that are located throughout the United States. As energy costs continued to escalate, they decided to take action to lower their energy use while at the same time improving their electrical efficiency. They wanted to increase electrical efficiency without making major load changes and without interfering with the daily operations of the facility. They chose EASI's solutions.

I. EXECUTIVE SUMMARY

Electrical energy costs are rising at an alarming rate and are responsible for increasing operating costs at medical facilities around the United States. Realizing that energy efficiency measures needed to be taken, HCP, Incorporated (NYSE: HCPI), owners of Centennial Women's Medical Office building located in Nashville, TN, embarked upon an energy conservation program. They worked through their building management firm, Holladay Properties, to accomplish their desired objectives. Holladay interviewed several companies to work with and chose Energy Automation Systems, Incorporated (EASI), a thirty-four year old, Nashville-based energy conservation firm, to do the work. EASI consulted with Holladay and HCP and began to engineer and design an energy conservation system to accomplish HCP's goals of ten percent (10%) annual electric bill savings and payback investment requirements of thirty-six (36) months or less. An engineering design was created, drawing from many different technologies EASI manufactures and uses to achieve the savings, which is guaranteed and underwritten by Lloyd's of London. EASI then installed the equipment specified in the design (and assembled most of it). To date (after 36 months) the actual savings is 13%, which is 30% more than projected and the actual payback period was achieved in 27 months, which is 9 months less than projected. In addition, the installation of the EASI energy saving system has reduced the overall carbon footprint of the facility without any adverse impacts to the operation of the facility.

II. THE CHALLENGE

The major reason for performing the project was to attain electric energy savings by reducing the amount of Kilowatt Hours (kWh) on the monthly electric bill. Another consideration for the project involved a lighting upgrade.

The challenge was to engineer and design a system for electrical energy conservation that would meet the desired savings within the payback period required by the client.

The client chose EASI for this project for several reasons. A large factor was that EASI had more than thirty (30) years of success in designing, manufacturing, and installing electric energy conservation systems in a variety of commercial and industrial businesses. Other factors included the fact that EASI's technologies are generally passive and non-intrusive, as is EASI's methodology for design and installation. EASI also provides an excellent product warranty and a guarantee of savings underwritten by Lloyd's of London.

III. THE SOLUTION

1. EASI conducted an **initial assessment** of the electrical loads in the medical office building, which is a four story structure. This structure includes an atrium in the center of the building, surrounded by offices. EASI collected twelve (12) months of electric bills to identify energy savings opportunities.

2. After reviewing the initial assessment of the loads in the building, EASI estimated and presented HCP with an **initial savings projection and payback period** that satisfied HCP's stated investment requirements.
3. **EASI then conducted a detailed site survey** that accounted for energy consumption of the electrical loads in the building, as shown in Chart 1 below — **lighting, HVAC, refrigeration, equipment (motor loads), and resistive loads (computers, monitors, X-Ray Machines, MRI Machines, etc.)** — which resulted in an engineering design of an energy saving system.
4. **A formal proposal was generated** and was presented to HCP. It met the savings objective of an annual average savings of ten percent (10%), as shown in Chart 2 below, and a payback requirement of thirty-six (36) months or less. EASI and the client mutually agreed upon the proposal and a date was set to begin the installation of technologies required to meet the goals.
5. **The installation took fifteen (15) working days** to complete and ran flawlessly.
6. Once the installation was completed, **the Measurement & Verification (M&V) process** to determine actual versus projected savings began. The M&V analysis was performed on a regular basis in order to verify that the savings promised, and backed by the guarantee, was being met and exceeded.

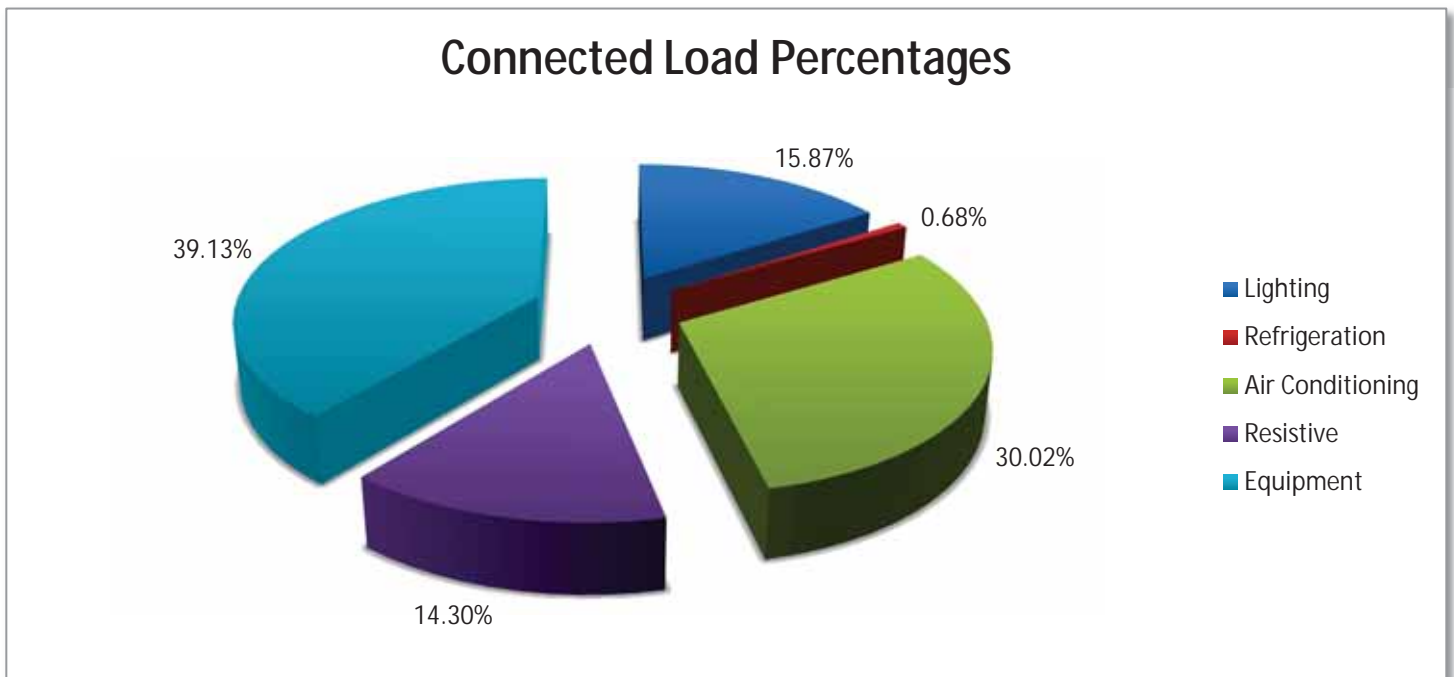


Chart 1: Connected Load Percentages

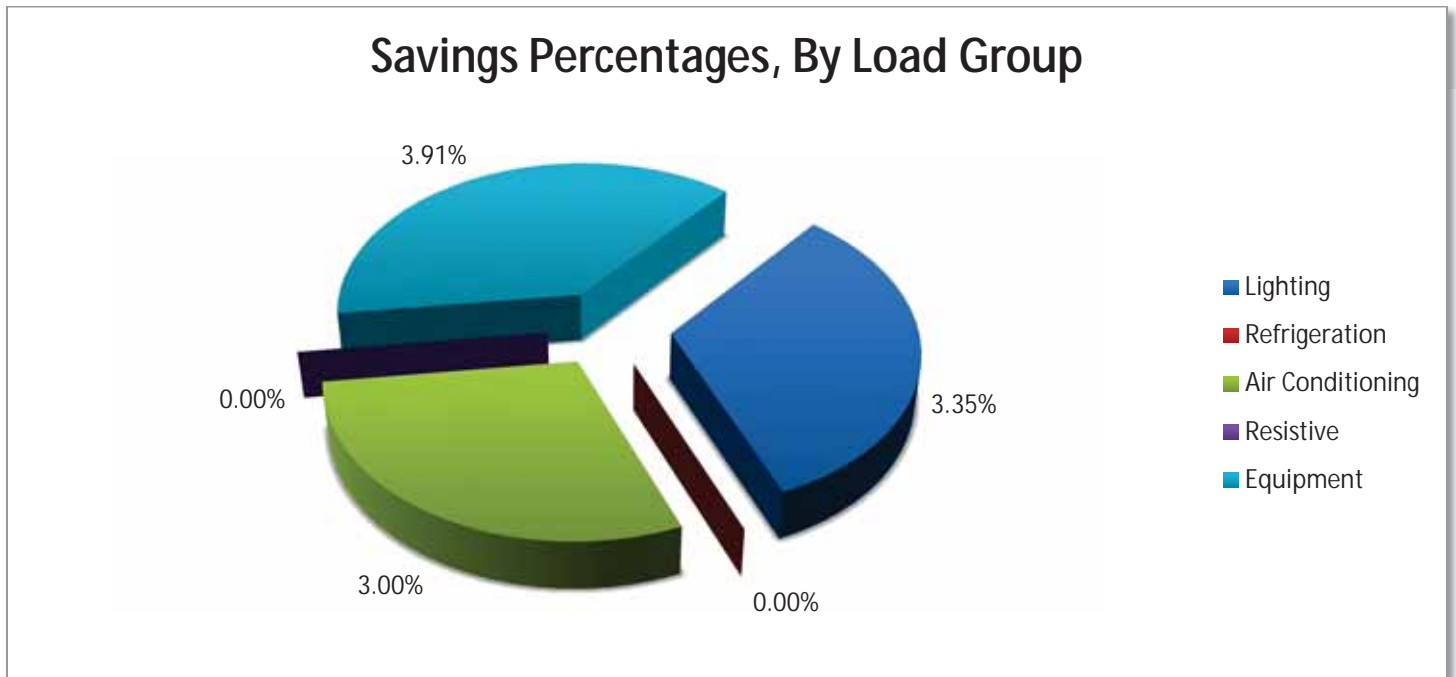


Chart 2: Savings Percentages, By Load Group

IV. THE RESULTS

1. *Initial*/EASI Projected Savings and Financial Benefits:

- Savings..... 10%
- Monthly Savings..... \$2,025
- Monthly KWH Savings 24,212 kWh
- Projected ROI 36 Months

2. *Actual* Savings

- Savings 12.96%
- Monthly Savings \$2,842
- Monthly KWH Savings 29,435 kWh
- ROI 27 Months
- Return on Invested Capital 44%

3. *Environmental* Benefits, Actual

- Pounds of Carbon Dioxide, CO₂ 561,600
- Barrels of Oil 209
- Tons of Coal 159
- Pounds of Sulfur Dioxide, SO₂ 4,240

4. *Additional* Benefits

- Motors run cooler
- Reduced maintenance costs on equipment
- Electrical capacity increased by 21%
- Standardized lighting in the entire building
- No special training required to maintain the EASI system
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Customer Quote (Hu Richardson, P.E., Holladay Properties):

“The energy savings achieved as a result of doing this project was a top priority. Just as important, from an engineering point of view, is the fact that the motor temperatures were reduced, which reduces maintenance costs and extends the life of the motors as well. Mitigating power quality issues also helped in the same areas. This project was very successful”

Refer to Energy Automation Systems, Inc. Contract: [PP-FA-194](#)