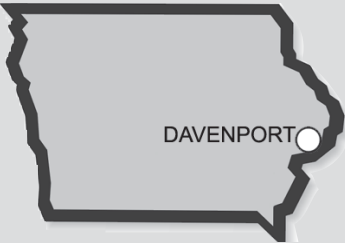


Carleton Life Support Systems

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Carleton Life Support Systems (CLSS) is a Cobham PLC company located in Davenport, Iowa. They design, develop, manufacture and service mechanical, pneumatic and electronic equipment for military, medical and commercial applications. CLSS is a leading manufacturer of air separation technology used for aviation purposes and is also an industry leader in the design and manufacture of miniature sterling cycle cryogenic coolers. CLSS was founded by the Bendix Aviation Company in 1951. Carleton Life Support is now part of the Carleton Technologies family of companies owned by Cobham. They are ISO 9001 certified which guarantees the integrity of their products.

Project Background

Carleton Life Support is interested in reducing energy consumption throughout the facility. An energy audit was conducted to learn how energy is consumed throughout the plant, and to find ways to reduce the consumption of electricity and natural gas. Several areas were studied in depth, including the lighting, HVAC, and compressed air systems.

Incentives to Change

Carleton Life Support was identified by their corporation as the largest corporate energy user. However, they are committed to being a green company and promoting a positive environmental policy throughout the plant. By reducing the amount of energy consumed, Carleton will save money and reduce their demand on energy-producing natural resources. This savings will serve to make Carleton more profitable as well as more environmentally friendly.

Results

Lighting

The lighting system involves a wide variety of fixtures and bulbs. Some of these have already been upgraded, while many others are still in need of upgrade. Replacing Metal Halide lights in production areas with T5 and T8 fixtures, and retrofitting the 4-lamp T12 fixtures to 3-lamp T8 fixtures will save a significant amount of energy. The proposed lighting upgrade has the potential to save approximately 375,000 kilowatt hours (kWh) per year, with a cost savings of more than \$20,000 every year. MidAmerican Energy will help pay for these fixtures through rebates. In the areas where these types of changes have already been made, employees report increased levels of visibility and eye comfort.

Compressed Air

The compressed air system operates at a high pressure. It may be possible to coordinate times with the maintenance department to reduce this pressure when the full capacity of the system is not required. Doing this can save \$500 a year for every psi that the operating pressure can be reduced. The discharge pressure of the system could be reduced 10-15 psi, saving \$5,000-\$7,500 annually. Establishing a leak detection program will conserve a great deal of energy. An estimate of current leakage in the system is 125-160 CFM, at a cost of more than \$4,500 annually. A leak detector and leak detection training will be quite economical.

HVAC

The use of programmable thermostats during the heating season has the potential to save \$8,000. Setting back the temperature 7 degrees for 6 hours every night will accomplish this. Rebates from MidAmerican Energy are available for purchasing and installing these devices. With an overall cost of implementation in the \$4,000 to \$5,000 range, the simple payback for this project is approximately six months.



Air Pollutants Diverted in Tons

	Total for all sectors
SO2	1.28
CO	0.13
NOX	0.61
VOC	0.02
LEAD	0.00
PM	0.028

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	238.9
CH4	7.88
N2O	2.61
CFCS	2.88

Project	Annual Cost Savings	Environmental Results	Status
LIGHTING	\$16,500 in reduced energy costs	300,000 kWh	Implementing
COMPRESSED AIR PRESSURE REDUCTION	\$500 per psi	9,000 kWh per psi	Recommended
COMPRESSED AIR LEAK DETECTION	\$4,500	81,500 kWh	Recommended
HVAC	\$8,000	9,000 therms	Recommended

