



Center for Energy & Environment



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Organization Background

Center for Energy and Environment is a non-profit organization headquartered in Minneapolis whose mission is “to promote energy efficiency, to strengthen the economy, and improve the environment.” To accomplish this, CEE employs staff dedicated to promoting and implementing long lasting, effective solutions to energy efficiency problems ranging from residential to industrial application. Research and development, programs, technical engineering assistance, community engagement, and policy change proposals at a state level are some of the many tools CEE uses in order to promote energy intelligence today, and strive to make a cleaner tomorrow.



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“The Energy Intelligence program offers a unique experience for an internship. Because the internship occurs across four companies over the course of the summer, it exposed me to a variety of energy uses. I now better understand how to find and quantify the biggest uses of energy in varied facilities.” ~ NM

Project Background

The goal of the Energy Intelligence Program (EI) at CEE is to motivate small- to medium-sized businesses to make small or no cost energy efficiency changes to their process or facility. To accomplish this, the program installs pulse meters at the facility, which allow for real-time viewing of trends in demand throughout the day. With this load profile, EI can parse out the energy use of the facility, including baseloads, production energy, and peaks. This information helps the business understand their energy usage distribution in the facility.

The main project was composed of four two-week long site visits where energy measurements of all significant operating and process equipment would be taken and

quantified. With this information, EI is able to find potential areas of improvement to the process and quantify the energy savings from changes within the process. From this, a report is generated at CEE that details the energy use and recommendations for each facility. The report is then presented to the company. After the first presentation of the information, there is a follow-up meeting with each company to verify the recommendations are being implemented and to address any potential hurdles with implementation.

Incentives To Change

CEE’s Energy Intelligence program, funded by Xcel Energy’s Conservation Improvement Program (CIP), looks to inform small- and medium-sized businesses of savings opportunities through energy saving practices coupled with helping the company break down their bill and understand where their energy consumption goes within the business. Through quantification of both current energy usage and the savings from changing usage habits, the business is shown in easy-to-understand terms what energy efficiency will do for them. Along with actionable recommendations, this helps the business pursue energy efficient options, and motivates them through energy and cost savings. Each business enrolled in the EI program does so for different reasons, but each has the common theme of believing a more energy efficient today leads to a better tomorrow.

“Building on the strengths of CEE’s Energy Intelligence program, Nick added capacity and insights to help deliver even deeper energy assessments to the businesses he visited. Small- to medium-sized businesses can be hindered by lack of time or expertise to focus on energy efficiency, and our intern helped eliminate those barriers though his thoughtful investigation of energy savings opportunities.”

*~ Nicole Kessler, Program Manager
Energy Intelligence, Center for Energy & Environment*

Solutions

The four businesses in this study benefited from specifically tailored solutions including:

- Compressed air leak audits
- LED lighting audits
- Standard ventilation assessments
- Steam trap audits
- Process efficiency audits

Lofton Label Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Implement new waste disposal system	102,000 kWh 1,800 therms	\$12,000	Implementing
Repairing compressed air leaks	69,400 kWh	\$4,500	Implementing
Lighting changes	13,500 kWh	\$1,500	Implementing
Heat tunnel management	11,000 kWh	\$700	Recommended
Line controls	5,300 kWh	\$300	Recommended

Mississippi Mushrooms Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Lighting changes	167,200 kWh	\$11,400	Recommended
Steam trap replacement	4,600 therms	\$2,900	Planned
Energy recovery ventilation	32,400 kWh	\$2,400	Planned
Insulating ventilation	25,300 kWh	\$1,600	Recommended
Repairing compressed air leaks	13,100 kWh	\$1,100	Planned
Reducing growing medium mixer motor	100 kWh 6 kW demand	\$950	Recommended

Site C Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Lighting	133,900 kWh	\$10,200	Planned
HVAC system	95,000 kWh 7,700 therms	\$9,400	Planned
Repairing compressed air leaks	46,000 kWh	\$2,900	Planned
Computer power management	31,500 kWh	\$2,000	Recommended
Compressor idle	22,800 kWh	\$1,400	Planned

Site D Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Repairing compressed air leaks	38,000 kWh	\$2,400	Implementing
Changes to clean room ventilation	26,500 kWh	\$2,200	Planned

MnTAP Advisor: Jon Vanyo, Engineer