



# Center for Energy & Environment



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## Organization Background

Center for Energy and Environment is a Minnesota-based nonprofit that promotes energy efficiency to strengthen the economy while improving the environment. For nearly 40 years, CEE has provided a range of practical and cost-effective programs to help homeowners, businesses, and communities reduce energy waste and save money. Offerings include low-interest financing, technical research, energy planning assistance, clean energy advocacy, and innovative programs. The Energy Intelligence program works with small industrial businesses to help them better understand how they're using energy, and how they could improve their practices. The program is funded by Xcel Energy as part of Xcel's Conservation Improvement Plan portfolio.



Center for Energy and Environment

*"This internship has given me hands-on experience in a wide variety of sites, working to find energy efficiency improvements. I've had to get creative in my solutions: finding patterns in energy usage data, learning a new manufacturing process quickly to find inefficiencies, and preparing site reports quickly and thoroughly. Through this internship, I was able to challenge myself and grow in a field that I'm truly interested in and plan to pursue in the future." ~ LK*

## Project Background

CEE hosted a MnTAP intern in their Energy Intelligence program, and who focused on four different sites throughout the summer to investigate potential energy saving opportunities. These included St. Agnes Bakery, Endurance Technologies, Artistic Finishes, and Insight Brewing. Each of these businesses is currently growing, and is seeking to lower their energy usage, while simultaneously being able to produce more of their product.

Each site was set up with real-time monitoring before the project started, ensuring enough data was available before each two-week assessment period began. Each site had a list of project ideas that they were hoping to investigate further. The intern worked with every facility and their project ideas, gathered relevant information, and identified opportunities for savings.



## Incentives To Change

The incentives for change vary by company, but each is looking to provide their product at the highest possible quality, while keeping energy costs low.



## SOLUTIONS

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

- implementing automatic controls to turn off equipment when it is not in use
- reducing compressed air pressure set points and fixing leaks
- upgrading to LED lighting
- adjusting process temperatures
- investigating opportunities for VFDs
- identifying opportunities to upgrade to premium efficiency motors
- scoping the opportunity to implement solar arrays as a source of renewable energy

The total proposed savings from this project is 1.4 million kWh, for \$123,000 in total potential savings.

# Solutions

## Saint Agnes Baking Company Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Reduce proofing box temperatures	4,898 kWh	\$513	Recommended
Replace the seal on heated/cooled devices	460 kWh	\$98	Recommended
Recycle waste heat from ovens	79,420 kWh	\$9,094	Recommended
Replace motors with premium efficiency	3,790 kWh	\$397	Recommended
Turn off office power strips	1,445 kWh	\$150	Recommended
<b>Total:</b>	<b>90,013 kWh</b>	<b>\$10,335</b>	

## Endurance Technologies Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Replace motors with premium efficiency	1,540 kWh	\$1,170	Recommended
Add an economizer to the boiler	N/A	\$1,000	Recommended
Schedule ceiling fan operations	26,120 kWh	\$3,853	Planned
Solar array	240,000 kWh	\$30,000	Recommended
Computer power management	6,800 kWh	\$420	Recommended
Lighting assessment	28,650 kWh	\$3,477	Recommended
<b>Total:</b>	<b>305,710 kWh</b>	<b>\$40,080</b>	

## Artistic Finishes Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Install line controls and turn off lines	613,500 kWh	\$38,100	Planned
Fix compressed air leaks	87,600 kWh	\$9,280	Planned
Install gate controls for baghouse	34,000 kWh	\$2,000	Planned
Reduce compressed air pressure	19,400 kWh	\$1,200	Recommended
Adjust startup procedure	31,200 kWh	\$1,900	Implemented
Lighting improvements	59,400 kWh	\$5,950	Recommended
<b>Total:</b>	<b>867,300 kWh</b>	<b>\$60,100</b>	

## Insight Brewing Recommendations

Recommendation	Annual Reduction	Annual Savings	Status
Change lighting to LEDs	69,100 kWh	\$7,400	Planned
Move chiller outside	35,000 kWh	\$3,900	Implemented
Compressed air system adjustments	9,100 kWh	\$730	Recommended
HVAC system upgrades/adjustments	5,900 kWh	\$710	Recommended
Additional recommendations	6,400 kWh	\$640	Recommended
<b>Total:</b>	<b>125,500 kWh</b>	<b>\$13,380</b>	

“Building on the strengths of CEE’s Energy Intelligence program, our intern added capacity and insights to help deliver even deeper energy assessments to the customers she visited. Although small businesses are often hindered by a lack of time or expertise to determine savings potential and specific steps for upgrades, our intern eliminated those barriers by thoughtfully investigating energy saving opportunities and laying out clear next steps for each customer.”

~ Nicole Kessler,  
Program Manager,  
Energy Intelligence,  
Center for Energy and  
Environment

MnTAP Advisor: Jon Vanyo, Assoc. Engineer