Energy Analysis Report

[Company Name]
[Facility Street]
[Facility City], [Facility Prov-State]

[Company Contact]
[Company Phone]
[Company Email]

Prepared on behalf of

Xcel Energy by:

CLEAResult®

[Utility Contact Name]
Energy Efficiency Specialist

Xcel Energy
1414 West Hamilton Ave - PO Box 8
Eau Claire, WI 54701

[CLEAResult Energy Auditor]
[CEA Title]

CLEAResult
3461 Ringsby Ct., Suite 420
Denver, CO 80216

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Executive Summary

The purpose of this report is to identify energy efficiency opportunities that will aid [Company Name] in reducing its energy cost and consumption. The energy efficiency opportunities identified herein encompass both capital projects and low-cost operational and maintenance (O&M) items. All identified opportunities are estimates only, which will result in highlighting projects for further investigation and support project prioritizing. The facility specific information contained in this report was collected through a site visit [CEA Name] of CLEAResult on [Date audit took place] and through interviews with facility personnel from [Company Name].

[Company Name] has already made smart energy choices by implementing the following energy savings opportunities:

- Ex: Installing LED lighting as existing lights burn out
- Ex: Evaporative cooling for kitchen
- Ex: Insulated hot water supply lines

While on site CLEAResult installed the following Instant Savings measures:

DI Measure	QTY	kWh Savings	kW Savings	Therm Savings	Cost savings
LED Lighting – A19	10	2,443	0.4	0	208

Customer Goals:

- Ex: Decrease energy usage while maintaining consistent operations

ENERGY SAVINGS OPPORTUNITIES SUMMARY

Exhibit 1: Potential Energy Savings - SAMPLE

Total Energy Savings	Annual Cost Savings & Payback	Xcel Energy Rebates
32,436 kWh	$2,785	$1,141
59 therms	1.7 year(s)	

Exhibit 2 summarizes the efficiency opportunities identified through this assessment, including both capital projects and low-cost O&M items. It should be noted that the energy savings calculations are estimates only. In most cases, further investigation is required to quantify potential savings and vendor quotes for project costs should be obtained to fully evaluate measure feasibility. Each measure was evaluated individually and did not consider interactive effects of installing multiple measures. Interactive effects should be considered if a set of measures are selected for detailed study.

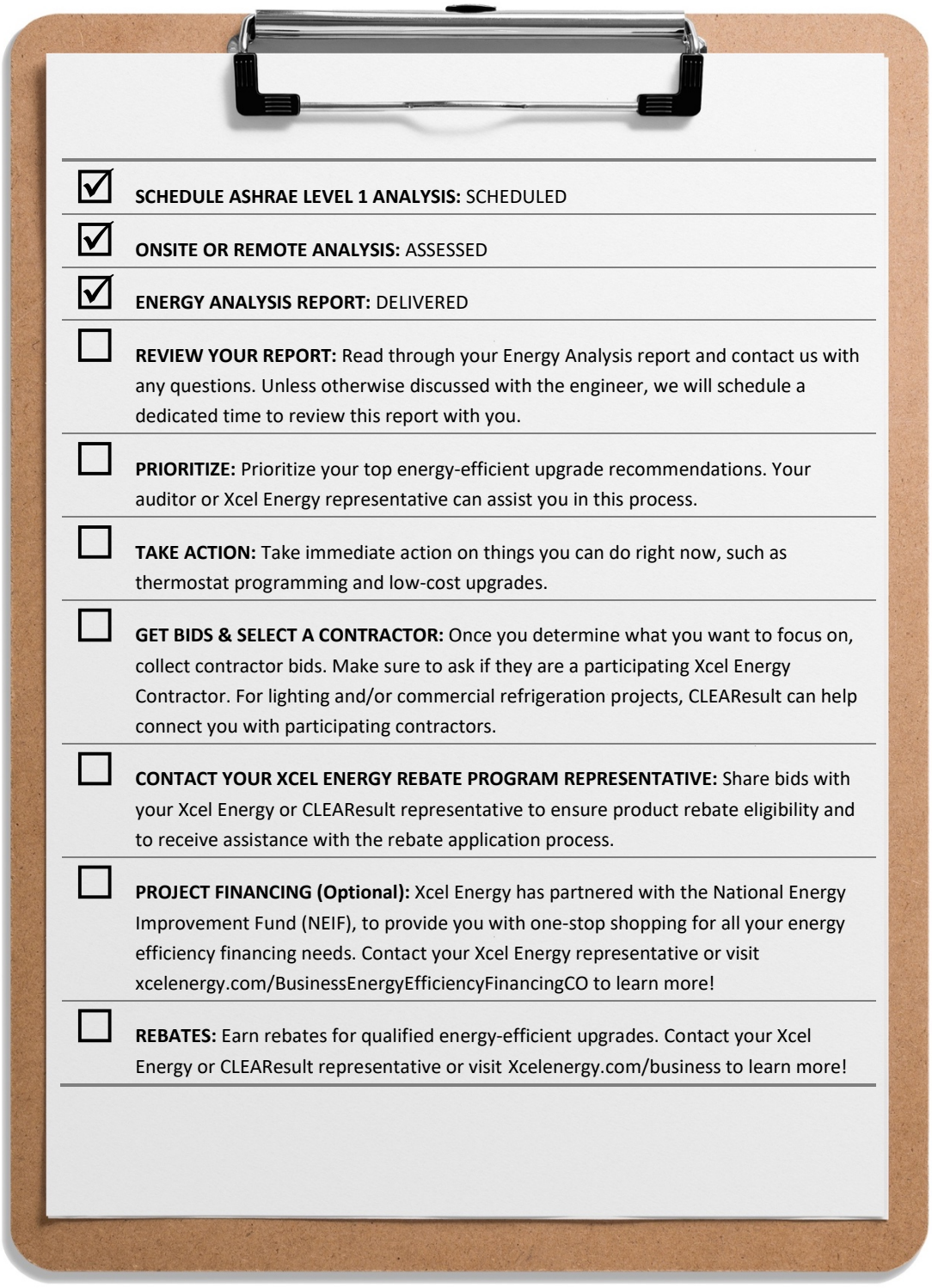
Exhibit 2: Top Energy Saving Recommendations - SAMPLE

Measure Name	Estimated Electric Energy Savings* [kWh/yr]	Estimated Demand Savings* [kW]	Estimated Natural Gas Savings* [therms/Yr.]	Estimated Savings [$/year]	Estimated Project Cost** [$]	Estimated Incentive [$]	Simple Payback, w/incentive [Years]
Pre-Rinse Sprayer	0	0.0	59	28	45	0	1.6
LED Lighting	23,427	3.0	0	1,990	2,781	371	1.2
EC Motors	9,009	1.0	0	767	2,959	770	2.9

** Energy savings estimated based on facility interviews and typical consumption assumptions.*

*** Project cost [$] estimated from consumer data.*

NEXT STEPS



- [x] **SCHEDULE ASHRAE LEVEL 1 ANALYSIS:** SCHEDULED
- [x] **ONSITE OR REMOTE ANALYSIS:** ASSESSED
- [x] **ENERGY ANALYSIS REPORT:** DELIVERED
- [ ] **REVIEW YOUR REPORT:** Read through your Energy Analysis report and contact us with any questions. Unless otherwise discussed with the engineer, we will schedule a dedicated time to review this report with you.
- [ ] **PRIORITIZE:** Prioritize your top energy-efficient upgrade recommendations. Your auditor or Xcel Energy representative can assist you in this process.
- [ ] **TAKE ACTION:** Take immediate action on things you can do right now, such as thermostat programming and low-cost upgrades.
- [ ] **GET BIDS & SELECT A CONTRACTOR:** Once you determine what you want to focus on, collect contractor bids. Make sure to ask if they are a participating Xcel Energy Contractor. For lighting and/or commercial refrigeration projects, CLEAResult can help connect you with participating contractors.
- [ ] **CONTACT YOUR XCEL ENERGY REBATE PROGRAM REPRESENTATIVE:** Share bids with your Xcel Energy or CLEAResult representative to ensure product rebate eligibility and to receive assistance with the rebate application process.
- [ ] **PROJECT FINANCING (Optional):** Xcel Energy has partnered with the National Energy Improvement Fund (NEIF), to provide you with one-stop shopping for all your energy efficiency financing needs. Contact your Xcel Energy representative or visit xcelenergy.com/BusinessEnergyEfficiencyFinancingCO to learn more!
- [ ] **REBATES:** Earn rebates for qualified energy-efficient upgrades. Contact your Xcel Energy or CLEAResult representative or visit Xcelenergy.com/business to learn more!

Facility Description

[Company Name, Segment type, square footage, and hours of operations]

[Description of systems equipment]

Sample Language:

Primary heating and cooling are provided by three rooftop units (RTUs). One of these RTUs has an illegible nameplate, so detailed specifications could not be determined. The other two Carrier RTUs were manufactured and installed in 2019 and have a total cooling capacity of 40-tons. Two evaporative coolers are assumed to provide cooling to the kitchen and are not currently winterized. One Reznor make-up air unit provides make-up air to the kitchen and has a disconnected gas-fired reheat coil. This Reznor make-up air unit did not have an accessible nameplate so detailed specifications could not be determined. Temperature is controlled with digital thermostats inside lockboxes and are currently using unoccupied setbacks.

Domestic hot water is provided by a non-condensing 100-gal natural gas water heater manufactured by State Industries in 2020 and a 50-gal electric water heater manufactured by Rheem in 2004. It was unclear if the electric water heater is still in use. There is a single rack, door type, electric dishwasher with an illegible nameplate, so detailed specifications could not be determined. The pre-rinse spray valve is rated at 1.42 gpm and the kitchen sink aerators are rated at 2.0 gpm.

The commercial kitchen has one walk-in cooler and one walk-in freezer. The walk-in cooler has a one-fan evaporator manufactured by Russell in 2003. The walk-in freezer has a two-fan evaporator manufactured by Russell in 2004. An additional walk-in cooler behind the bar has two four-fan evaporators manufactured by Heatcraft in 2003. All eleven of the evaporator fan motors are assumed to be permanent split capacitor (PSC) motors based on model numbers and visual site inspection. Two 2-hp CentriMaster exhaust fans provide exhaust for the kitchen hood. The other three exhaust fans had illegible nameplates so detailed specifications could not be determined. The four-pan fryer is heated with natural gas. Two standard efficiency reach in refrigerators and an ice machine are located in the kitchen. Facility personnel stated that these units were recently installed.

Lighting consists of a mixture of LED, incandescent, compact fluorescent, fluorescent T8 and T12 lighting fixtures. As existing lights burn out, they are being switched to LEDs.

[Description of energy usage]

Sample Language:

The [Company Name] facility presently has an average yearly peak demand of 67 kW and consumes about 245,983 kWh annually. The average annual cost of this energy is about $20,948.

The [Company Name] facility presently consumes about 10,714 therms annually. The average annual cost of this energy is about $5,150. See the “Facility Energy Use” section for more information on energy consumption.

Facility Energy Use

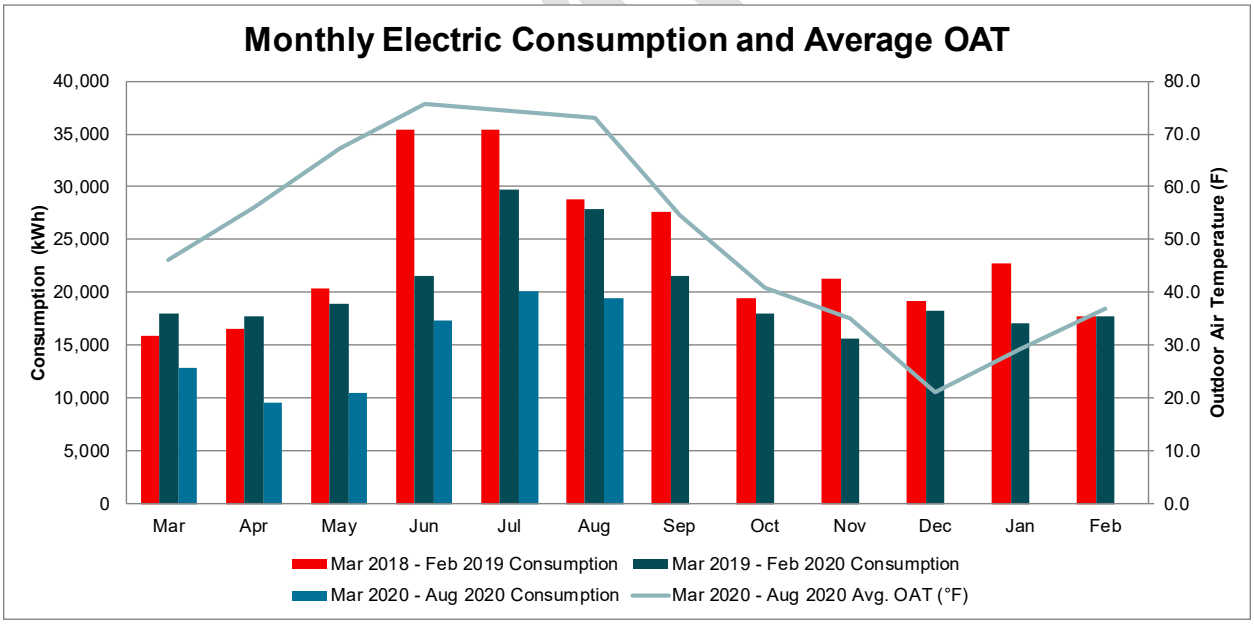
The following sections present the historical energy use within the facility. Additionally, a weather sensitivity analysis is presented for the purpose of demonstrating the impact of outdoor air temperatures (OAT) on energy use. For this report, the weather sensitivity analysis will provide insight as to whether weather is a driver for how the facility consumes energy throughout the year.

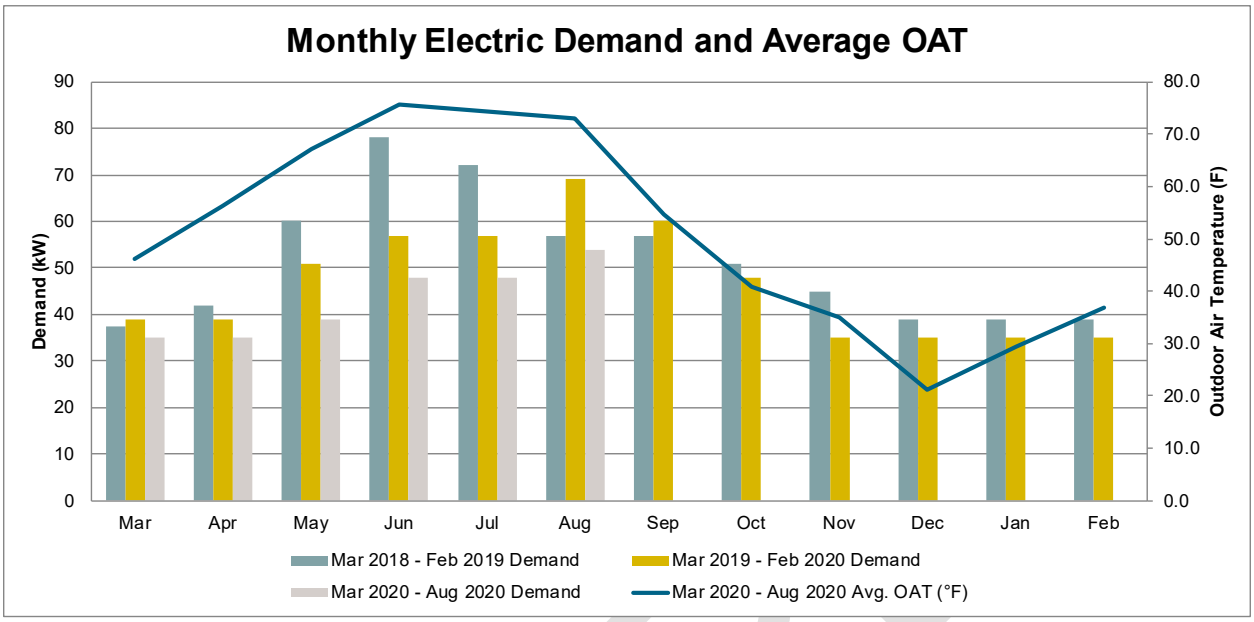
ELECTRICAL BILLING SUMMARY AND WEATHER ANALYSIS

The [Company Name] facility presently has an average yearly peak demand of [0] kW and consumes about [0] kWh annually. The average annual cost of this energy is about [$00.00]. These figures are based on the period from [Date] through [date]. The following exhibit shows recent consumption and demand data from utility bills and the monthly average outdoor air temperature.

Exhibit 3: Electrical Billing Summary - SAMPLE

Year	Annual Consumption [kWh]	Maximum Demand [kW]	Days in Period [#]	Average Daily [kWh/day]
Mar 2018 - Feb 2019	280,500	78	364	771
Mar 2019 - Feb 2020	242,100	69	365	663
Mar 2020 - Aug 2020	90,000	54	180	500
Annual Average	**245,983**	**67**	**365**	**645**





Observations about usage:

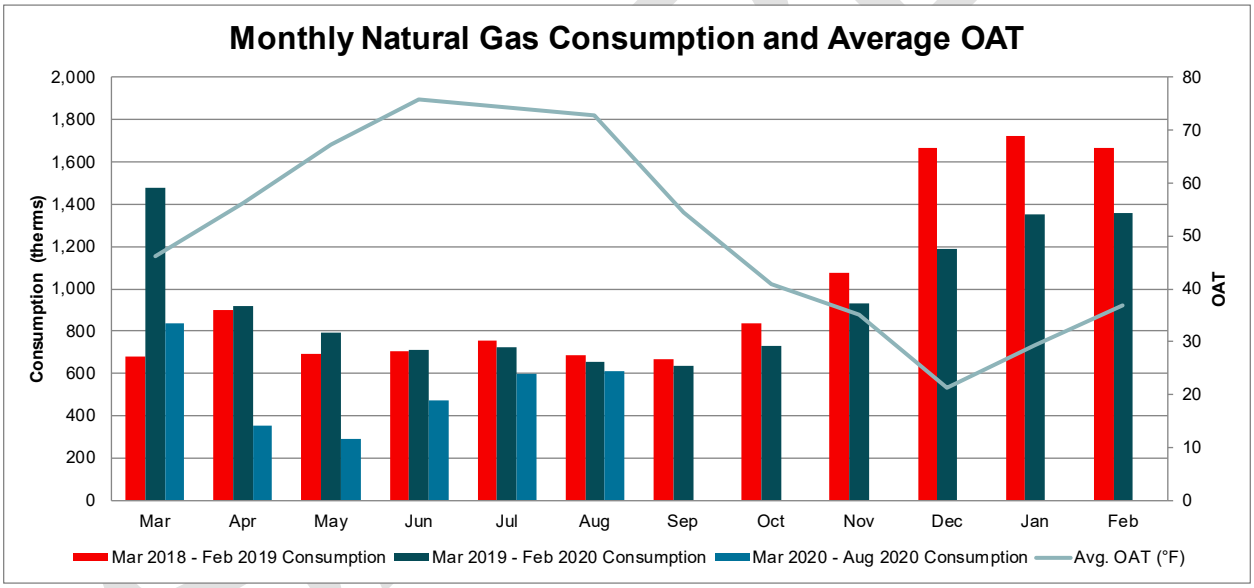
- Electric consumption has decreased over the analyzed billing period, with a significant reduction in March to August 2020 likely due to the COVID-19.
- Electric demand has decreased over the analyzed billing period, with a significant reduction in March to August 2020 likely due to the COVID-19.
- The outdoor air temperatures appear to impact electricity consumption.
- Power factor data is not available.

NATURAL GAS BILLING SUMMARY AND WEATHER ANALYSIS

The [Company Name] facility presently consumes about [0] therms annually. The average annual cost of this energy is about [$0.00]. These figures are based on the period from [Date] through [date]. The following exhibit shows recent consumption data from utility bills and the monthly average outdoor air temperature.

Exhibit 4: Natural Gas Billing Summary- SAMPLE

Year	Annual Consumption [therms]	Days in Period [#]	Average Daily therms/day
Mar 2018 - Feb 2019	12,047	364	33
Mar 2019 - Feb 2020	11,478	365	31
Mar 2020 - Aug 2020	3,158	180	18
Annual Average	**10,714**	**365**	**27**



Observations about usage:

- Natural gas consumption has decreased over the analyzed billing period, with a significant reduction in March to August 2020 likely due to the COVID-19.
- The outdoor air temperatures appear to impact natural gas consumption.

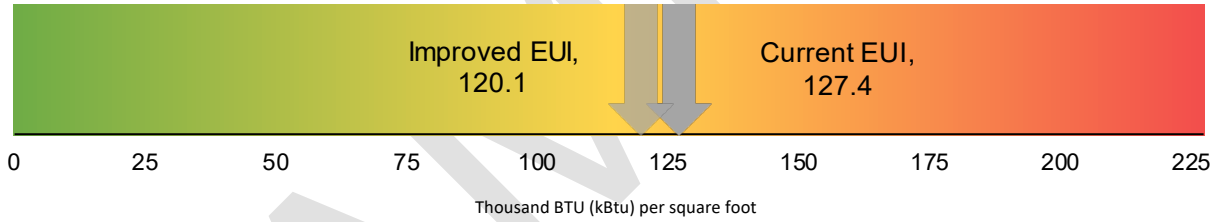
BENCHMARKING - SAMPLE

The energy use intensity (EUI) of a building is defined as the total annual energy used by the facility divided by total floor area. This value is used to compare the building energy performance to similar buildings based on size, usage and geographic location. Benchmark values are determined from The United States Energy Information Administration's Commercial Building Energy Consumption Survey (CBECS) report. The exhibit below presents the benchmark for this facility along with its actual EUI. For this report, we benchmarked [Company Name] against [Facility type]. Variations in your building's use and actual hours of operation compared to averages of similar facility types can significantly affect values.

Exhibit 5: Energy Use Intensity (EUI) Benchmark

		Facility	EnergyStar Benchmark
Electricity EUI	kWh/sqft	16.399	25.617
Natural Gas EUI	therms/sqft	0.714	1.481
All Fuel EUI	kBtu/sqft	127.397	235.573

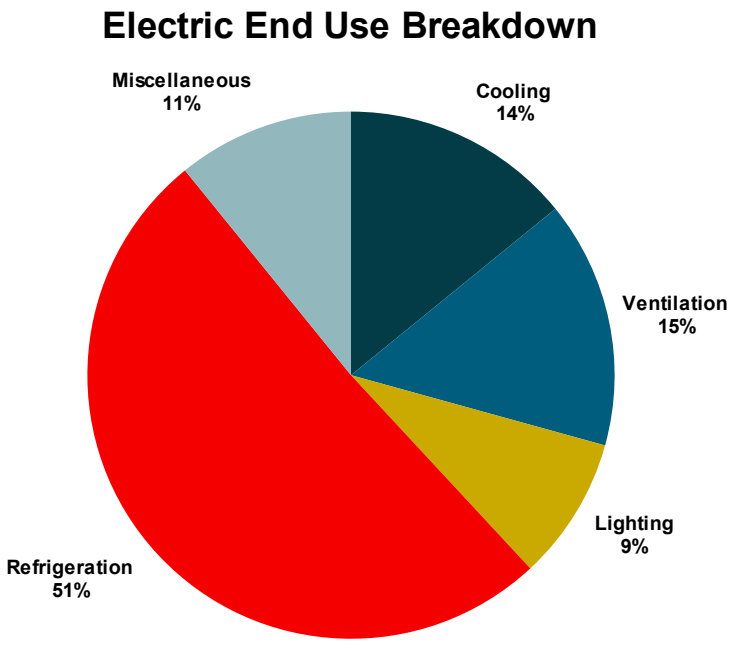
The scale below shows where your business is now compared to the benchmark for your building's energy efficiency as well as where your building could be if the CEEMs outlined in this report are implemented. The lower the EUI, the more efficient the building. Lowering your EUI is essential to meeting current and/or future city and county ordinances.



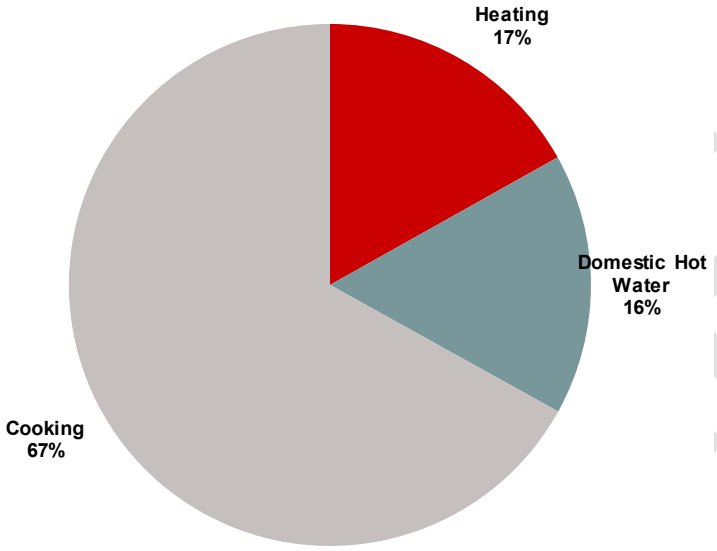
ENERGY END-USE BREAKDOWN - SAMPLE

The energy end-use breakdown presented in this section has been collected from extensive surveys conducted by United States Energy Information Administration presented in the Commercial Building Energy Consumption Survey (CBECS) report. This survey resulted in determining the typical energy consumption breakdown for various commercial buildings based on building activity type and climate zone. The following chart describes this facility's estimated energy end-use breakdown based on the facility type.

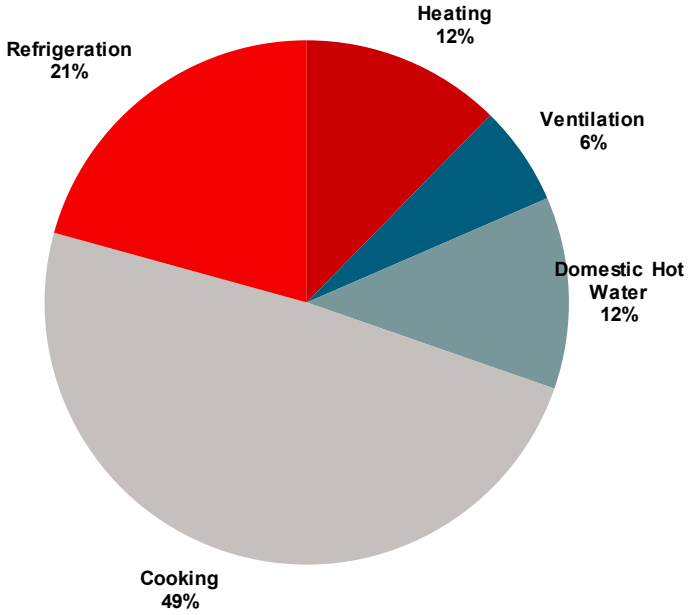
Exhibit 6: Typical end-use breakdown for this facility type - SAMPLE



Natural Gas End Use Breakdown



Energy Usage - All Fuels



Calculated Energy Efficiency Measures

All energy savings estimates are based on facility provided information and assumptions of typical energy use. For quantified savings potential, a detailed study of the system, including measured data collection would be required. Additionally, project costs presented in this report are estimates based on consumer reference data. For detailed project costs, it is recommended to obtain a quote from the appropriate contractor or vendor.

CEEM-1: PRE-RINSE SPRAYER - SAMPLE

Existing Equipment

The existing pre-rinse spray valve (PRSV) was observed to be an older model rated at 1.42 gpm. Direct install was attempted while on-site, but the pre-rinse spray valve could not be removed due to corrosion on the end of the handle.

Energy-Efficient Upgrade Recommendation

A PRSV is a handheld device that uses a spray of water to remove food waste from dishes prior to cleaning in a commercial dishwasher. Pre-rinse spray valves consist of a spray nozzle, a squeeze lever that controls the water flow, and a dish guard bumper.

The expected useful life (EUL) of a measure indicates how long the installed measure will continue to deliver energy savings to the facility if adequate routine maintenance is performed as required. For this measure the EUL is 5 years, the estimated annual energy savings are 59 therms/yr . The full business case is presented below.

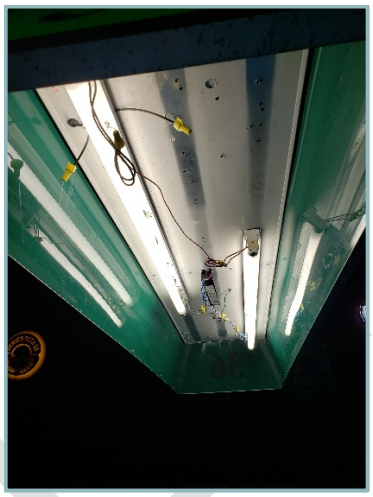
Next Steps

Consider installing new DOE compliant (formerly WaterSense) high-efficiency, low-flow (1.1 gpm) PRSV.

Exhibit 7: Estimated measure savings and resulting business case - SAMPLE

Business Case			
Electrical Savings	0 kWh/yr	Estimated Project Cost	**45 $**
Demand Reduction	0.0 Peak kW	Energy Cost Savings	**28 $/yr**
Natural Gas Savings	59 therms/yr	Potential Rebate	**0 $**
Effective Useful Life	5 years	Simple Payback (after Rebate)	**1.6 years**

CEEM-2: LED LIGHTING - SAMPLE



Existing Equipment

Lighting consists of CFL pin-based fixtures, halogen MR16 recessed can fixtures, and fluorescent T5, T8, and T12 linear bulbs. See exhibit 9 for Lighting Details.

Energy-Efficient Upgrade Recommendation

Upgrading to long-lasting, high-efficiency LED fixtures and lamps can help reduce energy use, lower replacement & maintenance costs, and improve the light quality in your business. Additional savings can be achieved by installing Networked Lighting Controls (NLC) and occupancy sensors in conjunction with an LED upgrade. Estimated savings and rebate amounts were calculated assuming one-for-one type B (direct line voltage retrofits / ballast bypass) lamp (tube) retrofits with Design Lights Consortium certified equipment.

The expected useful life (EUL) of a measure indicates how long the installed measure will continue to deliver energy savings to the facility if adequate routine maintenance is performed as required. For this measure the EUL is 10 years, the estimated annual energy savings are 23,427 kWh/yr, and the estimated peak demand reduction is 3.0 kW. The full business case is presented below.

Next Steps

Consider retrofitting the existing fluorescent T5 T8 and T12, CFL, and halogen lighting with LED fixtures, retrofit kits, or replacement lamps. An Xcel Energy lighting specialist can help connect you with a participating contractor/distributor, review bids, and assist with your lighting rebate application after project completion.

The fluorescent tube lighting opportunities identified qualify for Xcel Energy's Business LED Instant Rebate program, where eligible rebates are applied at the point of sale when purchased from a Participating Distributor. Click here for a list of participating distributors or call 877-287-2250 to speak with a program representative.

Exhibit 8: Estimated measure savings and resulting business case - SAMPLE

Business Case			
Electrical Savings	23,427 kWh/yr	Estimated Project Cost	**2,781 $**
Demand Reduction	3.0 Peak kW	Energy Cost Savings	**1,990 $/yr**
Natural Gas Savings	0 therms/yr	Potential Rebate	**371 $**
Effective Useful Life	10 years	Simple Payback (after Rebate)	**1.2 years**

Exhibit 9: Lighting Details- Type B Retrofit - SAMPLE

Existing Fixture Type	Existing Fixture Wattage (Watts)	Fixture Quantity	Proposed Fixture Type	Proposed Fixture Wattage (Watts)	Annual Op. Hours	kWh Savings	Peak kW Savings	Estimated Energy Cost Savings ($/yr)	Estimated Incentive ($)	Estimated Project Cost ($)	Effective Useful Life (yrs)	Simple Payback (yrs)
8' 2-lamp 75W T12 Linear Ambient-Storage	145	4	DLC Qualified LED Replacement Lamp (UL Type B)	36	6,188	3,042	0.4	259	32	192	10	0.6
4' 2-lamp 32W T8 Linear Ambient-Office	59	2	DLC Qualified LED Replacement Lamp (UL Type B)	30	6,188	413	0.1	35	8	48	10	1.1
4' 2-lamp 32W T8 Troffer- Kitchen	59	12	DLC Qualified LED Replacement Lamp (UL Type B)	30	6,188	2,475	0.3	211	48	288	10	1.1
2' x2' 1-lamp 32W T8 U-bend-Kitchen	32	2	DLC Qualified LED Replacement Lamp (UL Type B)	16	6,188	224	0.0	19	8	48	10	2.1
4' 1-lamp 32W T8 Case Door- Bar	32	4	DLC Qualified LED Replacement Lamp (UL Type B)	16	6,188	448	0.1	38	16	96	10	2.1
Recessed MR16 50W Halogen- Bar Lights	50	30	DLC Qualified LED Four Pin-Based Replacement Lamps	10	6,188	8,391	1.1	715	150	330	10	0.3
2' 1-lamp 13W T5 Linear Ambient-Bar Lights	14	2	DLC Qualified LED Replacement Lamp (UL Type B)	8	6,188	78	0.0	7	4	48	10	6.6
4' 1-lamp 28W T5 Linear Ambient-Bar Lights	32	3	DLC Qualified LED Replacement Lamp (UL Type B)	19	6,188	269	0.0	23	12	72	10	2.6
Pin Based CFL 2-lamp 32W Sconces- Walls Main Area	68	13	DLC Qualified LED Four Pin-Based Replacement Lamps	34	6,188	3,091	0.4	263	91	234	9	0.5
2' 1-lamp 20W T12 Linear Ambient-Display Case	21	1	DLC Qualified LED Replacement Lamp (UL Type B)	5	6,188	110	0.0	9	2	24	10	2.3
3' 1-lamp 25W T8 Linear Ambient-Pool Table Lights	24	57	DLC Qualified LED Replacement Lamp (UL Type B)	12	6,188	4,783	0.6	407	0	1,368	10	3.4
CFL BR30s-Exterior	16	3	DLC Qualified LED Mogul Screw-Based Replacement Lamps	8	4,380	105	0.0	4	0	33	9	8.4
	Total	**133**				**23,427**	**3.0**	**1,990**	**371**	**2,781**	**10**	**1.2**

CEEM-3: EC MOTORS - SAMPLE

Existing Equipment

Based on the visual inspection and model numbers taken during the on-site audit, it is assumed the existing evaporator fan motors are currently permanent split capacitor motors.

Energy-Efficient Upgrade Recommendation

Electronically Commutated Motors (ECM) operate at approximately 75% efficiency. Because ECMs create less heat, this results in both motor and refrigeration energy savings. In addition to lowering energy usage, ECMs run quieter than PSC or shaded pole motors, reducing unwanted noise.

The expected useful life (EUL) of a measure indicates how long the installed measure will continue to deliver energy savings to the facility if adequate routine maintenance is performed as required. For this measure the EUL is 15 years, the estimated annual energy savings are 9,009 kWh/yr, and the estimated peak demand reduction is 1.0 kW. The full business case is presented below.

Next Steps

Consider upgrading existing evaporator fan motors with ECMs in the walk-in cooler and freezer. An Xcel Energy commercial refrigeration specialist can help connect you with a participating contractor/distributor, review bids, and assist with your rebate application after project completion.

Exhibit 10: Estimated measure savings and resulting business case

Business Case			
Electrical Savings	9,009 kWh/yr	Estimated Project Cost	**2,959 $**
Demand Reduction	1.0 Peak kW	Energy Cost Savings	**767 $/yr**
Natural Gas Savings	0 therms/yr	Potential Rebate	**770 $**
Effective Useful Life	15 years	Simple Payback (after Rebate)	**2.9 years**

Custom and O&M Opportunities

CO -1: NEW CONDENSING UNITS - SAMPLE

The expected useful life for a condensing unit is 20 years, so these units are well past their expected useful life.

Existing Equipment

Two of the Scotsman Condensers were manufactured in 1973 and refrigerant lines are missing insulation.

Energy-Efficient Upgrade Recommendation

High-efficiency units are available now that can provide significant energy savings and reduce energy costs. These units past the end of their intended useful life. Consider developing a plan to replace them with high efficiency units.

The refrigerant lines of your refrigeration equipment have damaged and missing insulation. Damaged, degraded or missing insulation can negatively impact system performance. Consider adding insulation to the refrigeration lines that are exposed outside. Refrigerant lines are commonly exposed to harsh environmental conditions and require regular inspection and repair. This is a low-cost measure that can save energy, improve performance, and extend the life of your equipment.

CO -2: WINTERIZE EVAP COOLERS - SAMPLE

Make sure to install a cover to winterize this unit in the fall and winter when it is not in use. Cold air can easily leak down into the space below when it is not sealed up.

Existing Equipment

Two evaporative coolers provide cooling for the kitchen and are not currently winterized.

Energy-Efficient Upgrade Recommendation

Your Evaporative Cooler

Example Evaporative Cooler with Cover

Program Resources

CONTACT INFORMATION

Xcel Energy Analysis program

[Xcel Energy Contact]
Energy Efficiency Specialist

Xcel Energy
1414 West Hamilton Ave - PO Box 8
Eau Claire, WI 54701

(000) 000-0000
XcelEnergyRep@xcelenergy.com

[CEA]
[CEA Title]

CLEAResult
3461 Ringsby Ct., Suite 420
Denver, CO 80216

(000) 000-0000
Auditor Name@clearesult.com

PROGRAM APPLICATIONS AND DOCUMENTS

For more information including program applications and additional documentation, visit the program webpage at:

https://www.xcelenergy.com/programs_and_rebates/business_programs_and_rebates

Glossary of Abbreviations and Terms

Abbreviations:

The following abbreviations are commonly used in the report

ASHRAE	American Society of Heating, Refrigeration, and Air-conditioning Engineers
AHU	Air Handling Unit
BAS	Building Automation System
CBECS	Commercial Building Energy Consumption Survey
CFL	Compact Fluorescent Lamp
CFM	Cubic Feet per Minute
CEEM	Calculated Energy Efficiency Measures
CO	Custom and O&M Opportunities
CO_2	Carbon Dioxide
DCV	Demand-Controlled Ventilation (can be interchanged with BAS)
DDC	Direct Digital Controls
DLC	Design Lights Consortium
DSM	Demand Side Management
ECO	Energy Conservation Opportunity
EIA	Energy Information Administration
EMS	Energy Management System
EUI	Energy Use Intensity
EUL	Expected Useful Life
HID	High Intensity Discharge
HPS	High Pressure Sodium
HVAC	Heating Ventilation and Air Conditioning
HWT	Hot Water Temperature
LED	Light Emitting Diode
MAT	Mixed Air Temperature
MAX	Maximum
MH	Metal Halide
MIN	Minimum
MV	Mercury Vapor
O&M	Operation and Maintenance
OSA	Outside Air
RAT	Return Air Temperature
RTU	Packaged Rooftop Unit
SAT	Supply Air Temperature
STPT	Set Point
VFD	Variable Frequency Drive

Units of measurement

BTU	British Thermal Unit
BTUh	British Thermal Unit per Hour
ft	Feet
ft^2	Square feet
°F	Degrees Fahrenheit
GPM	Gallons per Minute
hp	Horsepower
in	Inches
kWh	Kilowatt Hours
kW	Kilowatt
lbs	Pounds
MBTUh	Thousand BTUh
MCF	Thousand Cubic Feet
Mlbs	Thousand Pounds
OAT	Outside Air Temperature
sq. ft	Square Feet
therms	100,000 BTU (decatherm = Dth = 10 therms)
ton	12,000 BTUh
W	Watt

Terms

Actual Demand

The maximum 15-minutes average kW demand measured over a billing period.

Billed Demand

The actual demand adjusted for power factor, demand ratchet, or an abnormal metering period.

BTU (British thermal unit)

A unit of energy required to raise the temperature of 1 lb. water by 1°F. Additionally, 1 cubic foot of natural gas contains 1,000 BTU.

Capital Cost

The total installed project costs. Does not include tax/shipping for Xcel's purposes.

Incremental Cost

The capital cost difference between the low-efficiency (or existing) and high-efficiency options.

Power Factor

The ratio between true power and apparent power. Simply, it is a measure of how efficiently the load current is being converted into useful work output and more particularly is a good indicator of the effect of the load current on the efficiency of the supply. If your power factor is below 0.9, you will see the effect on your utility bill in the form of an increased billable demand over your actual demand. Install capacitors to correct your power factor to above 0.9.

Insulation

Insulation materials run the gamut from bulky fiber materials such as fiberglass, rock and slag wool, cellulose and natural fibers to rigid foam boards and sleek foils. Bulky materials resist conductive and, to a lesser degree, convective heat flow in a building cavity. Rigid foam boards trap air or another gas to resist conductive and convective heat flow. Highly reflective foils in radiant barriers and reflective insulation systems reflect radiant heat away from living spaces, making them particularly useful in cooling climates. Other less common materials such as cementitious and phenolic foams and vermiculite and perlite are also available.

Design Lights Consortium (DLC)

The DLC® is a non-profit organization whose mission is to drive efficient lighting by defining quality, facilitating thought leadership, and delivering tools and resources to the lighting market through open dialogue and collaboration.

Light Emitting Diode (LED) Lighting

An extremely efficient semiconductor light source. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved physical robustness, and smaller size.