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Carbon Free Assessment

Prepared for

Oak Lawn-Hometown School District 123 Main Office

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Acct. Number ending in 4002 • 4201 W 93rd St, Oak Lawn, IL 60453 • 10/26/2023

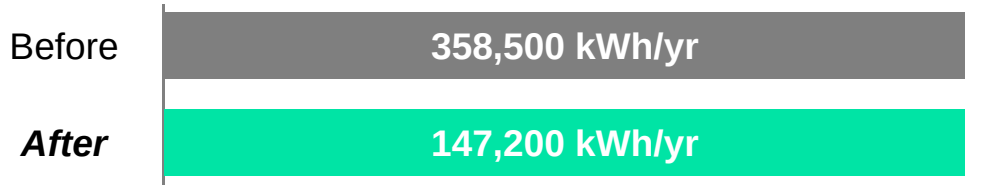
EXECUTIVE SUMMARY

Financial Benefit

We estimate your Facility has the potential for:

Annual Savings	**$55,330**
ComEd® Energy Efficiency Program Incentive	**$20,120**

Annual Energy Benefit



Up to 59% Energy Savings

Up to 211,300 kWh Reduced

Annual Environmental Benefit

Can Reduce Your Carbon Footprint by up to…

541 Metric Tons of CO_2 Equivalent

or **144 Cars off the Road Annually**

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Public School Assessment

Financial Benefit by Simple Payback

Estimated <2 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Lighting Controls	$1,230	$6,270	$5,590	0.6
Subtotal	**$1,230**	**$6,270**	**$5,590**	**0.6**

Estimated >5 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Demand Controlled Ventilation	$570	$4,200	$110	7.2
Replace Metal Halide Lighting	$20	$400	$60	
Replace T8 Lighting	$4,010	$102,200	$14,000	22.0
Subtotal	**$4,600**	**$106,800**	**$14,170**	**20.1**

For the Standard Incentives program, the total incentive paid cannot exceed 100 percent of the incremental measure cost and 100 percent of the total project cost.

Instant Discount Incentives

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Relamp Compact Fluorescent Lighting	$20	$1,620	$360	
Subtotal	**$20**	**$1,620**	**$360**	**63.0**

Please see section titled "Energy Efficiency Measure Details" later on in this report for further information on listed Opportunities

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Building Envelope and Mechanical Insulation

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Piping Insulation	$120	$830	$0	6.9
Subtotal	**$120**	**$830**	**$0**	**6.9**

Please see section titled "Building Envelope and Mechanical Insulation" later on in this report for further information on listed Opportunities

Energy Efficiency Electrification

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Variable Refrigerant Flow Systems	$9,800	$485,900	$0	
Install Air Source Heat Pumps	$140	$14,800	$0	
Replace Fork Trucks	$120	$55,300	$0	
Install Heat Pump Water Heaters	- $40	$3,100	$0	
Subtotal	**$10,020**	**$559,100**	**$0**	**55.8**

Please see section titled "Energy Efficiency Electrification" later on in this report for further information on listed Opportunities

Electric Vehicle

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Replace Light Duty Vehicles	$7,630	$957,000	$0	
Subtotal	**$7,630**	**$957,000**	**$0**	**125.4**
ASSESSMENT TOTAL	***$23,620***	***$1,631,620***	***$20,120***	***68.2***

Please see section titled "Electric Vehicle" later on in this report for further information on listed Opportunities

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OPERATIONAL OPPORTUNITIES

Operational Opportunities offer simple, effective ways to reduce energy costs at your facility. The following recommendations are based on meter data and engineer observations during the site visit. While the following opportunities identified do not offer ComEd incentives, they have no cost and can provide immediate energy savings when implemented.

Optimization Opportunities

Adjust Server Room Thermostat Setpoint

The thermostat in the server room operates a 30,000 btu/hr air conditioning unit and is set to 69°F. According to ASHRAE's guidance, the allowable temperature for data centers is 64-81°F. Adjusting the temperature setpoint to 78°F can result in the shown savings. We recommend implementing this adjustment in 2°F increments to ensure proper equipment operation.

Estimated Electric Savings (kWh/yr): 420 **Estimated Cost Savings ($/yr): $40**

Adjust Hot Water Heater Temperature

The facility has a 199,000 btu/hr, 120 gallon gas-fired water heater. The storage tank is maintained at a temperature setpoint of 139°F. A 120°F setpoint is recommended by most experts to prevent bacteria formation which results in illnesses such as Legionnaires' Disease. Turning down the setpoint to 125°F would be sufficient to maintain a 120°F temperature throughout the system and result in savings, with no obstruction to the current operation.

Estimated Natural Gas Savings (therms/yr): 130 **Estimated Cost Savings ($/yr): $100**

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ADDITIONAL PROGRAM OFFERINGS

Available Offerings

In addition to Standard Incentives, your facility may also be eligible for the following:

- ☑ **Strategic Energy Management**
- ☑ **Retro-Commissioning**
- ☑ **Building Operator Certification**
- ☐ **Industrial Systems**
- ☐ **New Construction**
- ☐ **Multi-Family Assessment**

Strategic Energy Management

Offering Description:

Strategic Energy Management (SEM) is a holistic program identifying opportunities to save energy through operational and behavioral projects. SEM provides coaching and other resources so customers can develop their own energy management capabilities in a peer learning environment.

Opportunity at Your Facility:

ComEd's Strategic Energy Management (SEM) Program is a good next step for the facility to take in improving energy efficiency. SEM offers a long-term partnership with the facility through workshops and coaching sessions. At no cost, ComEd will assign the facility an energy coach and a support team. They will perform an energy assessment of the site, model and monitor the facility's energy consumption over the course of a year, identify operational and behavioral changes that can help reduce energy usage, as well as provide materials and training to help employees save energy while on the job. In addition to the direct cost savings from reduced energy use, ComEd offers $0.02/kWh saved from implementing behavioral and/or operational changes, along with an opportunity to earn up to $2,000 in additional savings.

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ADDITIONAL PROGRAM OFFERINGS

Retro-Commissioning

Offering Description:

Retro-Commissioning is a building efficiency tune-up process that is designed to help your commercial or industrial building perform optimally. Through a systematic evaluation of mechanical and electrical systems, retro-commissioning helps you identify low-cost and no-cost energy saving operational improvements that will pay for themselves in 18 months or less.

Opportunity at Your Facility: Virtual Commissioning

ComEd's Virtual-Commissioning (VCx) Program is a fully funded study that the facility is eligible for. It involves minimal time commitment for 3 months and no financial commitment to implement any energy savings measures. The VCx program can help identify low-cost energy savings opportunities and can be expected to save 5-15% of the facility's annual energy usage.

Building Operator Certification

Offering Description:

Building Operator Certification© (BOC) is a nationally recognized training and certification program focusing on energy-efficient building O&M procedures. Facilities with BOC graduates are proven to save energy, have lower energy bills, and offer improved comfort for occupants. Facility staff with at least one year work experience plus an additional year of work and/or training are eligible. Go to BOCCentral.org/ComEd for information on Illinois tuition and training schedules. ComEd customers are eligible for a full tuition rebate upon completion of training.

Opportunity at Your Facility:

Building Operator Certification is an eight-day training program that provides building operators with training on design, preventative maintenance, equipment troubleshooting, and diagnostic strategies for energy systems and equipment. Trained personnel will be able to implement cost-saving improvements to the facility's energy systems, improving student and staff comfort and equipment durability.

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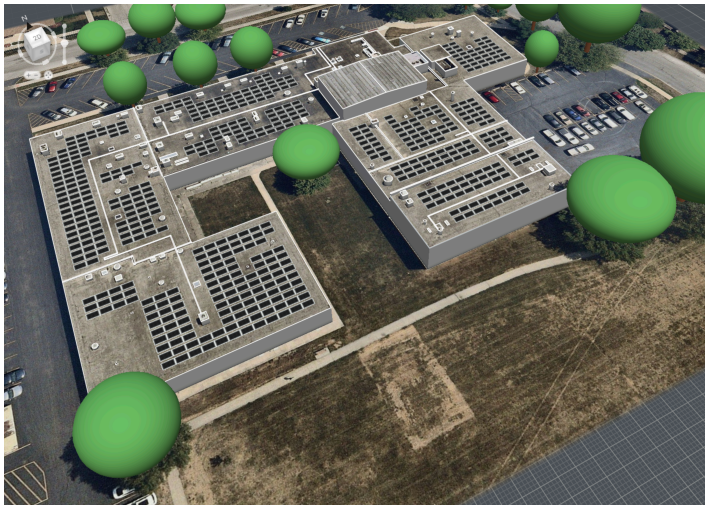
SOLAR OPPORTUNITIES

The facility's solar potential has been evaluated and determined there is enough area with adequate sunlight to be a good candidate for solar deployment. Below is an aerial view of the facility and surrounding property, highlighting where solar panels would be most productive along with the project economics.



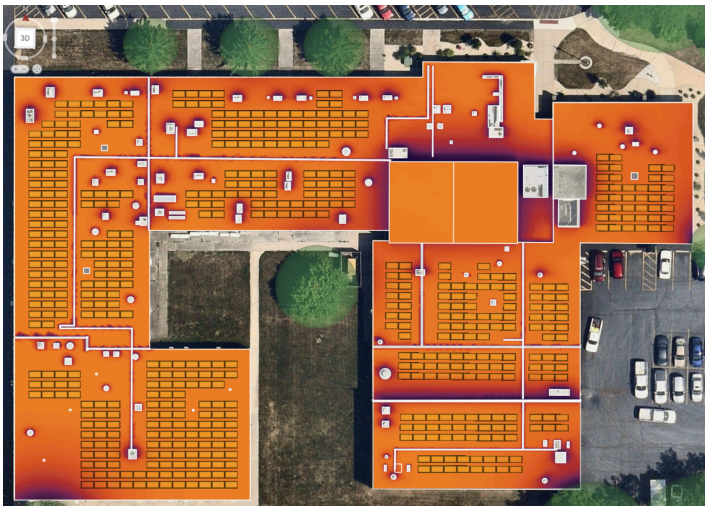
Project Details

Estimated Solar Capacity: ***260 kW***

Estimated Annual Generation: ***347,300 kWh***

Estimated # of Solar Panels: ***540***

Annual Energy Use Offset: ***100%***



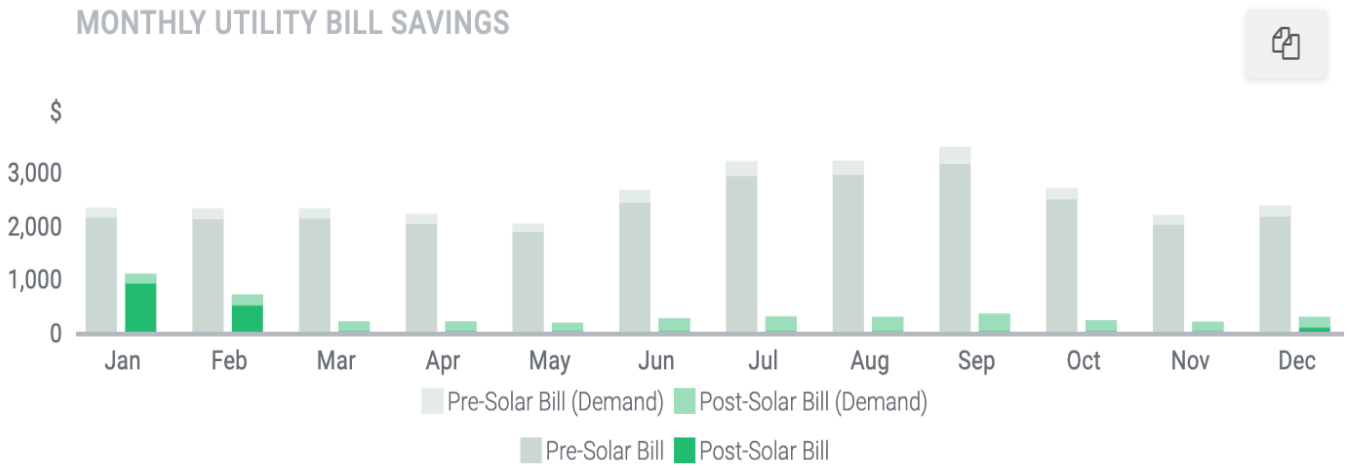
Financial Details

Estimated Project Cost: ***$692,500***

Estimated Incentive: ***$671,300***

Estimated Payback: ***9 Years***

Lifetime Savings: ***$790,000***



The calculation above is based on a satellite overview of the facilities' property, as well as on-site observations made by the assessment Engineer. Total incentives are based on available local, state, federal and tax incentives, further broken out in the "Additional Funding Sources" section of this report.

Learn more about the benefits of solar energy and adjust your own design at ComEd.com/Solar.

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WELL CERTIFICATION

The WELL Health-Safety Rating for Facility Operations and Management is an evidence-based, third-party verified pathway for addressing the health, safety and well-being of building occupants. A visible indication of confidence and trust, the WELL Health-Safety seal communicates to everyone entering a space that evidence-based measures have been adopted and third-party verified. This report identifies any existing practices that meet the WELL Health-Safety standard, suggests additional practices to achieve minimum rating required for certification and identifies costs to do so."

Total Estimated Cost to Achieve Pre-Requisites ***$3,250***

Total Estimated Cost to Achieve Certification ***$0***

Cleaning And Sanitization Procedures				3
	O	SC1	Support Handwashing	
	O	SC2	Reduce Surface Contact	
X	O	SC3	Improve Cleaning Practices	
X	O	SC4	Select Preferred Cleaning Products	
X	O	SC5	Reduce Respiratory Particle Exposure	

WELL CERTIFICATION

Feature Description

COVID-19 and many other infectious diseases are spread primarily through close contact with an infected person via respiratory droplets. However, it is known that coronaviruses and noroviruses, among other pathogens, can survive on surfaces infected by droplets. Maintaining good cleaning protocols can support organizational resilience by helping reduce the risk of infection. Similarly, hand washing promotion is an effective way to reduce the spread of infectious diseases and to confer individual resilience. While sanitization is critical, especially during an infectious disease crisis, commercial cleaning products may contain ingredients suspected to be hazardous to human health and the environment. Low-hazard cleaning products and cleaning practices reduce impacts in indoor air quality and in the health of those performing these duties, while protecting occupants, as well.

The WELL Health and Safety Rating has a registration cost of $3,250. It assesses 27 opportunities. Of those 27 opportunities, 15 opportunities are required to achieve the rating. Overall, this facility is currently expected to meet 16 opportunities.

In the 'Cleaning and Sanitization Procedures' section, this facility is expected to meet 3 opportunities.

The following opportunities were not met:
SC1. This feature aims to support of hygienic hand washing practices for all occupants. To achieve this feature, a building may need to supply the following at all handwashing stations: (1) fragrance-free liquid soap in sealed dispensers at all handwashing stations; (2) hand drying methods such as paper towels or HEPA-equipped hand dryers; (3) signage displaying steps for proper hand washing.
SC2. This feature aims to reduce the amount of hand contact on high-touch surfaces. To achieve this feature, a building may need to implement the following strategies: (1) installing touchless entry systems, touchless faucets, touchless soap dispensers, or other similar technologies; (2) using materials with antimicrobial properties or coatings to reduce the growth of bacteria and other microorganisms on surfaces; (3) developing enhanced cleaning and disinfection protocols for high-touch surfaces; (4) reconfiguring shared spaces to minimize surface contact, such as removing communal items and furniture or adding barriers between workstations.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

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WELL CERTIFICATION

Emergency Preparedness Programs				5
X	O	SE1	Develop Emergency Preparedness Plan	
X	O	SE2	Create Business Continuity Plan	
	O	SE3	Plan for Healthy Re-Entry	
X	O	SE4	Provide Emergency Resources	
X	O	SE5	Bolster Emergency Resilience	
X	O	SE6	Establish Health Entry Requirements	

Feature Description

Emergency preparedness and resilience plans are critical to ensuring that organizations are equipped to immediately confront a crisis, as well as to recover successfully from it. Natural disaster emergencies kill around 90,000 people and affect close to 160 million people worldwide every year, with both an immediate and long-term impact on human lives and built spaces. Emergency management plans can help organizations be better prepared to handle unforeseen events, minimize occupant confusion and improve coordination and safety during emergency situations. Creating plans to support business continuity, remote work readiness and project re-entry after extended remote periods helps maintain business resilience and individual well-being during and after longer-lasting emergencies. Finally, providing access to mental health services, such as psychological first aid, crisis counseling and bereavement counseling, is critical to supporting employee short-term recovery and long-term productivity, functioning and well-being.

In the 'Emergency Preparedness Programs' section, this facility is expected to meet 5 opportunities.

The following opportunity was not met:
SE3. This feature aims to create a plan for safely re-entering the building after a prolonged absence. To achieve this feature, a building may need to develop a healthy re-entry plan that includes the following: (1) enhanced cleaning and disinfection protocols to ensure that the building is thoroughly cleaned before occupants return; (2) ensuring that the building's ventilation and filtration systems are working properly to provide clean indoor air; (3) health screening measures, such as temperature checks and symptom assessments, to ensure that occupants are healthy before entering the building; (4) physical distancing measures, such as reconfiguring workstations and common areas; (5) a communication plan to ensure that occupants are informed and updated on the re-entry process and any new procedures or protocols.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

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WELL CERTIFICATION

Health Service Resources			5
x	O	SH1	Provide Sick Leave
x	O	SH2	Provide Health Benefits
x	O	SH3	Support Mental Health Recovery
x	O	SH4	Promote Vaccines
x	O	SH5	Promote a Smoke-Free Environment

Feature Description

The strategies encompassed within this section focus on ways to foster individual actions that support health and safety for all in a space. Unvaccinated individuals pose a risk to public health, and seasonal flu causes severe illness and death in high-risk populations. Providing free on-site flu vaccines with education on good health habits can increase vaccination rates and reduces flu cases. Studies estimate 20 million Americans go to work sick because they lack sick leave or have only one-day sick leave, respectively, infecting colleagues as a result. Additionally, studies show implementing paid sick leave reduces contagion in the workplace, improves employee productivity and reduces employee turnover. Overall, enhancing access to essential healthcare and paid sick leave can help improve the physical, social and mental health of individuals and communities. Finally, exposure to tobacco smoke persists to detrimentally affect the health of both smokers and those exposed to secondhand smoke.

In the 'Health Service Resources' section, this facility is expected to meet 5 opportunities.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

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WELL CERTIFICATION

Air And Water Quality Management				1
	O	SA1	Assess Ventilation	
	O	SA2	Assess and Maintain Air Treatment Systems	
	O	SA3	Develop Legionella Management Plan	
X	O	SA4	Monitor Air and Water Quality	
	O	SA5	Manage Mold and Moisture	

Feature Description

Research has shown that increased ventilation in a building can reduce the chance of influenza. Some pathogens can also attach themselves onto smaller particles in the air such as dust, which stay in the air longer and travel farther distances than droplets, potentially affecting people within a wider spatial range. Without proper maintenance and filtration, heating, ventilation and air conditioning systems can build up mold and particulates that can propagate respiratory diseases, especially after periods of inactivity. Inhalation exposure to indoor air pollutants can lead to a variety of negative short- and long-term health and well-being outcomes that can range in severity. Less severe symptoms of exposure can include headaches, dry throat, eye irritation or runny nose, while more severe health effects can include asthma attacks and carbon monoxide poisoning. Mold developed on cooling coils may shed particles into the building's indoor air and trigger asthma, headaches, allergies and other respiratory system disorders. In the U.S. alone, indoor pollution contributes to thousands of cancer deaths and hundreds of thousands of respiratory health issues annually. Water is typically treated with chlorine to keep it free of pathogens. However, if left stagnant after a period of vacancy, chlorine is likely to lose its disinfection power, creating opportunity for pathogens to contaminate the water. Additionally, Legionella bacteria is naturally present in waters at low concentrations, but it may colonize recirculated water systems such as hot water loops and cooling towers.

In the 'Air and Water Quality Management' section, this facility is expected to meet 1 opportunity.

SA1 and SA2 were not assessed because they require additional engineering testing and analysis on air and water quality that is outside the scope of this report.

The following opportunities were not met:
SA3. This feature aims to reduce risk of Legionella colonization. To achieve this feature, a building may need to develop Legionella management plan that includes the following: (1) a hazard analysis of water assets within the building; (2) a water system inventory and process flow diagrams of water systems within the building; (3) a list of monitoring actions for relevant variables such as temperature or residual chloring, performance limits associated with these variables, and corrective actions when variables exceed such limits; (4) protocols for documenting results of monitoring activities and corrective actions.
SA5. This feature aims to limit the potential for bacteria and mold growth within buildings from water infiltration, condensation, and internal leaks. To achieve this feature, a building may need to develop a mold and moisture management plan that includes the following: (1) identifying potential sources of moisture; (2) implementing moisture control measures; (3) conducting mold inspections; (4) implementing mold remediation procedures; (5) training for occupants on how to prevent the growth of mold, such as by reporting any leaks or water damage promptly.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

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Stakeholder Engagement And Communication				2
X	O	SS1	Promote Health and Well-Being	
X	O	SS2	Share Food Inspection Information	

Feature Description

During emergencies, stakeholder engagement and communication is critical to instilling confidence, improving coordination and supporting actions that can help protect safety. Regular, clear communication about the emergency preparedness and response strategies being utilized by an owner or operator of a space to support people's health and safety, as well as how stakeholders can build awareness of what to do during an emergency event, provides critical information that supports the health and well-being of all occupants. Through providing such communication, organizations can support occupant health literacy, which refers to a person's cognitive and social ability to access, interpret and understand basic health information, as well as the ability to act on that understanding to maintain health. Low health literacy is linked to lower use of preventive care (e.g., flu shots), poor management of chronic conditions (e.g., high blood pressure) and lower self-reported mental and physical health. By supporting awareness of health and wellness programs and policies, projects can promote health literacy and encourage engagement with health resources, leading to both individual benefits - like increased participation in healthy behaviors and use of health services - and also employer benefits, providing an estimated 4:1 return on investment

In the 'Stakeholder Engagement and Communication' section, this facility is expected to meet 2 opportunities.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

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Innovation			0
	O	SI1	Innovation I
	O	SI2	Innovation II
	O	SI3	Innovation III
	O	SI4	Gateways to Health-Safety

Feature Description
Innovation features address a novel concept or strategy aimed at addressing acute health and safety issues that are not already included within the WELL Health-Safety features. Many of these will not be include in this Audit as it would take more investigation into these types of measures to verify they would qualify.
Because Innovation opportunities require comparatively more time and effort to achieve, at this stage we recommend focusing on the other opportunities above to achieve the WELL Health and Safety Rating.

Estimated Cost to Achieve Pre-Requisite ***$0***

Estimated Cost to Achieve Certification ***$0***

Energy Efficiency Measure Details

Lighting Solutions

Replace T8 Lighting

Replace T8 Fluorescent Fixtures with LED Fixtures, which are more efficient and provide comparable lighting levels

Location	Qty	Existing	Proposed[A]	Estimated Energy Savings (kWh/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Estimated Incentive ($)[B]	Payback (Years)
Gym	8	10-Lamp 4-ft F32 T8 with High BF Electronic Ballast (370W)	LED Highbay Fixture (90W)	5,600	$510	$2,400	$1,800	1.2
Preschool Section	525	2-Lamp 4-ft F32 T8 with Standard BF Electronic Ballast (59W)	30W LED Troffer Fixtures (30W)	38,100	$3,500	$99,800	$12,200	
Replace T8 Lighting			**Subtotal**	**43,700**	**$4,010**	**$102,200**	**$14,000**	**22.0**

Relamp Compact Fluorescent Lighting

Relamp Compact Fluorescent Lighting with LED lamps, which are more efficient and provide comparable lighting levels

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Estimated Incentive ($)[B]	Payback (Years)
Main Entrance Area	22	26W CFL 4-Pin Lamps (26W)	11W LED 4-Pin Lamps (11W)	160	$10	$990	$220	
Conference Room	14	26W CFL 4-Pin Lamps (26W)	11W LED 4-Pin Lamps (11W)	100	$10	$630	$140	
Relamp Compact Fluorescent Lighting			**Subtotal**	**260**	**$20**	**$1,620**	**$360**	

Energy Efficiency Measure Details

Lighting Solutions

Replace Metal Halide Lighting

Replace Metal Halide Fixtures with LED Fixtures, which are more efficient and provide comparable lighting levels

Location	Qty	Existing	Proposed[A]	Estimated Energy Savings (kWh/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Estimated Incentive ($)	Payback (Years)
Flagstaff	1	70W Metal Halide Fixtures (95W)	20W LED Outdoor Fixtures (20W)	210	$20	$400	$60	
Replace Metal Halide Lighting			**Subtotal**	**210**	**$20**	**$400**	**$60**	

Energy Efficiency Measure Details

Lighting Solutions

Install Lighting Controls

Install sensors which turn lights on/off based on space occupancy and/or ambient light levels

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Estimated Incentive ($)	Payback (Years)
Warehouse	9	45W LED TLED Fixtures (45W)	Install Occupancy Sensors	240	$20	$110	$100	0.5
Kitchen and Conference Room Area	16	45W LED TLED Fixtures (45W)	Install Occupancy Sensors	430	$40	$200	$180	0.5
Warehouse	134	30W LED TLED Fixtures (30W)	Install Occupancy Sensors	2,400	$220	$1,100	$1,000	0.5
Warehouse	12	60W LED TLED Fixtures (60W)	Install Occupancy Sensors	430	$40	$200	$180	0.5
Gym	8	LED Highbay Fixture (90W)	Install Occupancy Sensors	430	$40	$200	$180	0.5
Preschool Section	525	30W LED Troffer Fixtures (30W)	Install Occupancy Sensors	9,400	$860	$4,400	$3,900	0.6
Warehouse	12	15W LED TLED Fixtures (15W)	Install Occupancy Sensors	110	$10	$60	$50	1.0
Install Lighting Controls			**Subtotal**	**13,440**	**$1,230**	**$6,270**	**$5,590**	**0.6**
Lighting Solutions Total			***Subtotal***	***57,610***	***$5,280***	***$110,490***	***$20,010***	***17.1***

Energy Efficiency Measure Details

HVAC Solutions

Install Demand Controlled Ventilation

Retrofit the existing building ventilation system with controls that modulate outside air ventilation based on real-time occupancy

Location	Size (sqft)	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Estimated Incentive ($)	Payback (Years)
Gym	2,800	Conditioned Space without Demand Controlled Ventilation	Install Demand Ventilation Controls	1,600	560	$570	$4,200	$110	7.2
Install Demand Controlled Ventilation			**Subtotal**	**1,600**	**560**	**$570**	**$4,200**	**$110**	**7.2**
HVAC Solutions Total			***Subtotal***	***1,600***	***560***	***$570***	***$4,200***	***$110***	***7.2***

Building Envelope and Mechanical Insulation

Building Envelope and Mechanical Insulation address the insulation or efficient material use for Walls, Windows Roof and Mechanical Equipment such as pipes and valves. Using efficient insulation or materials helps improve efficiency for supporting systems such as HVAC and Water heating by reducing the loss of energy through heat transfer to the outside or surrounding envrionment.

Install Piping Insulation

Install or Replace Insulation on your Piping to reduce unnecessary energy loss to surrounding space

Location	Qty	Existing	Proposed	Estimated Energy Savings (Therm/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Payback (Years)
Boiler Room	20	Feet of Uninsulated Domestic Water Pipe with 2-inch Diameter	Install 1.5-inch Pipe Insulation (R-Value ≥ 3.25)	90	$70	$450	6.4
Boiler Room	10	Feet of Uninsulated Domestic Water Pipe with 1.5-inch Diameter	Install 1.5-inch Pipe Insulation (R-Value ≥ 3.25)	40	$30	$220	7.3
Boiler Room	10	Feet of Uninsulated Domestic Water Pipe with 1-inch Diameter	Install 1-inch Pipe Insulation (R-Value ≥ 3.25)	30	$20	$160	8.0
Install Piping Insulation			**Subtotal**	**160**	**$120**	**$830**	**6.9**
Building Envelope and Mechanical Insulation Total			***Subtotal***	***160***	***$120***	***$830***	***6.9***

Energy Efficiency Electrification

Energy Efficiency Electrification (EEE) refers to the process of replacing equipment powered directly by fossil fuel with all-electric equipment. EEE is an important step towards decarbonization and it includes a broad range of environmentally-friendly solutions that enable facilities to achieve their sustainability goals.

Install Variable Refrigerant Flow Systems

Install Variable Refrigerant Flow (VRF) systems to improve system efficiency and reduce your building's overall carbon emissions

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Payback (Years)
Entire Facility	1	Hot Water Boilers, Air Conditioning Units, Rooftop Units, Unit Ventilators	High Efficiency Air Cooled Variable Refrigerant Flow	159,200	32,300	$9,800	$485,900	
Install Variable Refrigerant Flow Systems			**Subtotal**	**159,200**	**32,300**	**$9,800**	**$485,900**	

Install Air Source Heat Pumps

Install Air Source Heat Pumps to improve system efficiency and reduce your building's overall carbon emissions

Location	Qty	Baseline	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Payback (Years)
Gym	1	Packaged AC and Natural Gas	Electric Air Cooled (Electric Backup) Cold Climate Air Source Heat Pump	12,500	1,700	$140	$14,800	
Install Air Source Heat Pumps			**Subtotal**	**12,500**	**1,700**	**$140**	**$14,800**	

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Energy Efficiency Electrification

Install Heat Pump Water Heaters

Install Heat Pump Water Heaters to improve system efficiency and reduce your building's overall carbon emissions

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Payback (Years)
Boiler Room	1	Natural Gas-Fired Water Heater	Heat Pump Water Heater	4,300	470	- $40	$3,100	
Install Heat Pump Water Heaters			**Subtotal**	**4,300**	**470**	**- $40**	**$3,100**	

Replace Fork Trucks

Replace existing Fossil Fuel Fork Trucks with Lithium Ion Fork Trucks

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Propane Savings (Gal/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)[C]	Payback (Years)
Warehouse	1	Propane Powered Fork Truck	Rapid Charging Lithium Ion Electric Fork Truck	380	50	$120	$55,300	
Replace Fork Trucks			**Subtotal**	**380**	**50**	**$120**	**$55,300**	
Energy Efficiency Electrification Total			***Subtotal***	***176,380***	***34,470***	***$10,020***	***$559,100***	***55.8***

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Transportation Vehicle Electrification

Transportation Vehicle Electrification (TVE) refers to the process of replacing transportation vehicles powered directly by fossil fuel with all-electric vehicles and corresponding charging infrastructure. TVE is an important step towards decarbonization and it includes a broad range of environmentally-friendly solutions that enable facilities to achieve their sustainability goals. You can Adjust your own EV design and charging plan at ComEd.com/EV.

Replace Light Duty Vehicles

Replace existing gas powered light duty vehicles with electric light duty vehicles and dedicated chargers

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Gasoline Savings (Gal/Yr)	Estimated Savings ($/Yr)	Estimated Cost ($)	Payback (Years)
Class 3	1	Class 3 - Gas - Pickup Truck (11.20 mpg)	Class 3 - EV - Pickup Truck 142 kWh (1.41 mi/kWh)	840	100	$330	$222,000[D]	
Class 1	2	Class 1 - Gas - Pickup Truck (22.00 mpg)	Class 1 - EV - Light Truck 105 kWh (2.38 mi/kWh)	3,900	380	$1,200	$175,000	
Class 3	2	Class 3 - Gas - Box Truck (14.20 mpg)	Class 3 - EV - Box Truck 70 kWh (2.14 mi/kWh)	5,400	740	$2,500	$220,000	
Class 2	4	Class 2 - Gas - Pickup Truck (17.70 mpg)	Class 2 - EV - Pickup Truck 105 kWh (2.24 mi/kWh)	9,200	1,100	$3,600	$340,000	
Replace Light Duty Vehicles			**Subtotal**	**19,340**	**2,320**	**$7,630**	**$957,000**	
Electric Vehicle Total			***Subtotal***	***19,340***	***2,320***	***$7,630***	***$957,000***	

Electrification Baseline Conditions

Baseline System Conditions

Facility System: **Building Envelope and Insulation**

The Oak Lawn-Hometown School District 123 Main Office is a 57,623 square foot building. The building is split into two sections, a main office and warehouse section and a preschool section. At present, no students occupy the preschool, but the district has plans to renovate the space and begin enrollment shortly. The building has masonry walls, double paned windows, and a flat deck insulated roof with asphalt and gravel ballast. The building envelope and mechanical insulation were in good condition. There are some opportunities for improved insulation on domestic hot water pipes.

Facility System: **Vehicles**

The district owns (9) vehicles, (7) pickup trucks and (2) box trucks, which are parked in the warehouse/garage.

Facility System: **Lighting**

The main office and warehouse have a mixture of T8 fluorescent and TLED lighting. T8 bulbs that burn out are regularly replaced with TLED bulbs that have already been purchased and are in storage. Most spaces have occupancy sensor controls. The preschool section has T8 fluorescent lighting with manual on/off controls. The exterior has LED lighting controlled via time clocks and photocells, except for one metal halide bulb illuminating a flagstaff.

Facility System: **Gas Usage**

The annual gas usage was estimated at 30,000 therms/year using the square footage and benchmark energy intensity data for buildings in the same climate zone. A safety factor of 15% was added for all calculations.

Facility System: **HVAC**

The building has (2) 1,750 MBH hot water boilers that serve unit ventilators and reheat coils. Cooling is provided by (30) air conditioning units ranging from 1 to 3 tons. There are (5) direct-expansion (DX) cooling, gas-fired rooftop units (RTU). Serving the preschool classrooms are (4) 1.5-ton, 40 MBH RTUs. Serving the gym is a 7.5-ton, 180 MBH RTU. There are (3) DX cooling only RTUs. Serving a preschool classrooms is a 3-ton RTU. Serving the preschool office is a 5-ton RTU. Serving the main office is a 20-ton RTU. The building's HVAC system is controlled via a digital building automation system.

Facility System: **Domestic Hot Water**

The building has a 199,000 btu/hr, 120 gallon gas storage water heater.

Facility System: **Proposed Electrification Solution**

One potential way to electrify the building would include a variable refrigerant flow (VRF) system, an air source heat pump (ASHP), and a dedicated outside air system (DOAS). The boilers, air conditioning units, rooftop units, and unit ventilators can be replaced by a VRF system for both heating and cooling. Ventilation in those spaces can be provided by a DOAS. At the end of its useful life, the gym rooftop unit can be replaced by an ASHP for heating, cooling, and ventilation. Lastly, for domestic hot water, a heat pump water heater is recommended as the replacement for the gas storage water heater.

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Electrification Infrastructure

Electrification Infrastructure Upgrades

The following opportunities were identified for electrical infrastructure upgrades to your facility needed to support added load of suggested building and transportation electrification measures. While ComEd suggests these upgrades to the following system, it is strongly recommended you work with an electrical designer to investigate the required changes further.

Opportunity at Your Facility: **Electrical Service and Distribution Cost Estimate**

In addition to the upfront equipment and installation costs for electrification, this cost estimate was also provided for potential electric infrastructure upgrades that may be necessary in supporting an electrification effort at the building.

Estimated Cost: ***$256,200***

Opportunity at Your Facility: **District Electric Vehicle Charging Infrastructure Upgrades**

This cost estimate is provided for the electric infrastructure upgrades necessary to support a complete vehicle fleet electrification project, including all nine pickup trucks and box trucks. See the Transportation Vehicle Electrification and Electrification Baseline Conditions sections for more information. We propose the installation of a new 208/120V 600A panel in the warehouse which would support (1) Level 3 charger and (8) Level 2 chargers. Notes: (1) this cost estimate does not include the cost of the chargers themselves as that cost is included in the recommendations in the Transportation Vehicle Electrification section; (2) based on the peak demand of the building, the main 208/120V 2000A utility service will likely not need to be upgraded.

Estimated Cost: ***$95,000***

Opportunity at Your Facility: **Public Electric Vehicle Charging Infrastructure Upgrades**

This cost estimate is provided for the purchase and installation of (2) Level 2 electric vehicle chargers for public use as well as the associated electric infrastructure upgrades necessary to support that project. See Charging Incentive Program in the Additional Funding Offerings section for information on a grant opportunity.

Estimated Cost: ***$60,000***

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ADDITIONAL FUNDING OFFERINGS

Available Funding Offerings

In addition to Energy Efficiency Incentives Incentives, your facility may also be eligible for the following third party funding offerings:

- ☑ **The Investment Tax Credit**
- ☐ **The Investment Tax Credit - GSHP**
- ☑ **School Maintenance Grant**
- ☑ **Distributed Generation Rebate**
- ☐ **K-12 Solar Schools Grant**
- ☐ **Cook County Solar Schools Grant**
- ☑ **School Construction Grant**
- ☑ **Charging Incentive Program**
- ☑ **Illinois Shines Renewable Energy Credits**
- ☐ **Clean School Bus Program**

School Construction Grant

Offering Description:

The School Construction Grant Program (https://www.isbe.net/Pages/School-Construction.aspx) contributes to the cost of building or renovating public school buildings, based on enrollment and needs of the district. The program historically has covered between 35% and 75% of the cost to build or renovate buildings. School districts that apply for a grant on or after 6/1/23 must submit a copy of their PSCFA Report.

Funding Opportunity: ***$150,000***

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ADDITIONAL FUNDING OFFERINGS

School Maintenance Grant

Offering Description:

The School Maintenance Grant Program (https://www.isbe.net/Pages/School-Maintenance-Project-Grant.aspx) is a dollar-for-dollar state matching grant open to school districts, cooperative high schools, vocational centers, and special education cooperatives. Eligible applicants can receive up to $50,000 to put toward completing proposed maintenance projects. This grant is awarded by school district not individual school and the district must provide matching funds for the project, equal to the awarded grant.

Funding Opportunity: ***$50,000***

Distributed Generation Rebate

Offering Description:

The Distributed Generation Rebate is an optional ComEd incentive. It is included in the rebate total shown on the “Solar Opportunities” page. You can qualify for this by installing a smart inverter and allowing ComEd to control it for purposes of grid reliability. For more information visit the Distributed Generation Rebates page

Funding Opportunity: ***$67,250***

Illinois Shines Renewable Energy Credits

Offering Description:

Illinois Shines (https://illinoisshines.com/illinois-shines-accepting-new-applications/) is the brand name of the Adjustable Block Program, a state-administered program for new solar photovoltaic systems. The program provides payments in exchange for 20 years of Renewable Energy Credits (RECs) generated by new PV systems on site. Payments vary depending on the system's size and where it is located.

Funding Opportunity: ***$396,260***

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ADDITIONAL FUNDING OFFERINGS

The Investment Tax Credit

Offering Description:

The Investment Tax Credit (ITC) is a federal incentive equal to 30% of eligible expenses for qualifying installations and entities. It is included in the rebate total shown on the “Solar Opportunities” page. Through provisions established in the Inflation Reduction Act, tax exempt organizations can take advantage of the tax credits through either direct pay or a transfer of credit. For more information, please visit the Office of Energy Efficiency & Renewable Energy page.

Funding Opportunity: ***$207,761***

Charging Incentive Program

Offering Description:

The Illinois Charging Incentive Program (https://www2.illinois.gov/epa/topics/ceja/Pages/default.aspx) makes awards to public organizations that install and maintain Level 2 or Level 3 electric vehicle charging stations. Grants up to 80% of the installation costs may be awarded. Additional awards may incentivize charging infrastructure in eligible communities.

Funding Opportunity: ***$48,000***

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Footnotes

Values rounded for simplicity.

For the Standard Incentives program, the total incentives paid cannot exceed 100% of the incremental measure cost or 100% of the total project cost.

Programmed Start ballasts are recommended for all lighting sensor applications. (i.e. Occupancy Sensors, Daylighting Controls, etc.)

A Product must be listed on DesignLightsTM Consortium (DLC) Qualified Products list, available at **www.designlights.org**.

B Discounts are available through participating distributors in the Instant Discounts Program. Incentive is in the form of a discounted product cost provided at the time of purchase. As of August 28, 2023, ComEd Instant Discounts will no longer be offering incentives on select lighting products in 2023. Reduced incentives will be offered on TLED products through the remainder of the year, or until funds are depleted. Learn more and find a list of participating distributors at **ComEd.com/InstantDiscounts** or contact ComEd.Instant.Discounts@dnv.com

C Incentives for this fuel switching measure are fully subscribed in 2023 and will be available in 2024 on a limited first come, first served basis. To learn more about this measure, please visit **ComEd.com/ForkTruck**

D Includes the cost of one Level 3 charger. Note that this charger can be used for all vehicles, not just the class 3 pickup truck. Remaining line items include the cost of one Level 2 charger per vehicle.

= Project will only result in carbon emission savings. Total utility charges may increase as a result of the project.

= Does Not Payback

Electricity Cost = $0.0909/kWh (provided by the customer)

Natural Gas Cost = $0.750/therm (average commercial retail price for the State of Illinois in 2022) - Energy Information Administration

Propane Cost = $3.000/gallon (provided by the customer)

Gasoline Cost = $4.050/gallon (provided by the customer)

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APPLICATION PROCESS

1 CHECK PROJECT AND EQUIPMENT ELIGIBILITY

- Project must be a new improvement at an existing facility that results in a permanent reduction in electrical usage (kWh).
- All installed equipment must meet or exceed the ComEd Energy Efficiency Program incentive specifications and be installed in facilities served by ComEd. Customers must have a valid ComEd account number on a ComEd non-residential rate.

2 SUBMIT A PRE-APPLICATION (IF REQUIRED)

- A pre-application is required for certain projects, including all Custom projects. A pre-application is not required for a Standard project when requesting incentives of less than $1,000 or DX tune-up incentives.
- If your Standard project requires a pre-application, complete and submit the ComEd Energy Efficiency Program Standard Application and applicable Incentive Worksheets. If your project requires pre-application, you'll need to wait to start your project until you receive a reservation letter.
- If you are applying for custom incentives, complete and submit a Custom Application. Wait to start your project until you receive a reservation letter.
- Once you receive your reservation letter, incentive funds for your project will be set aside for 90 days or until the end of the program year, whichever comes first.
- A pre-installation inspection may be required. If so, we will contact you to schedule the inspection.

3 INSTALL EQUIPMENT OR PERFORM PROJECT WORK

- The incentive reservation allows you 90 days to complete your project. Contact the ComEd Energy Efficiency Program team if you think your project will require more than 90 days.
- Verify that the equipment to be installed meets or exceeds the specifications found on the ComEd Energy Efficiency Program Incentive Worksheet.

4 SUBMIT A FINAL APPLICATION

- Submit a Final Application as soon as your project is completed, but no more than 60 days after completion. Final Applications received more than 60 days after completion will be rejected.
- The ComEd Energy Efficiency Program team will review your Final Application. You may be contacted during the final review to schedule a post-installation inspection.

5 RECEIVE INCENTIVE PAYMENT

- The incentive check will be sent four to six weeks after your complete Final Application is submitted.

Want to get Started?... Let us help
Or visit: ComEd.com/BizIncentives to learn more

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ENERGY MANAGEMENT RESOURCES

Business Energy Analyzer

The ComEd Business Energy Analyzer is a free tool that allows non-residential customers to analyze their facility's energy usage, learn how the facility's energy-use patterns compare with similar facilities, and track energy usage savings before and after implementing energy efficiency project. To sign up, please visit **www.ComEd.com/BEA** and register using the facility's ComEd account number and zip code.

Voluntary Load Reduction

The ComEd Voluntary Load Reduction (VLR) program offers all non-residential customers financial rewards for reducing electricity use during peak periods on the grid. This program is strictly voluntary and there are never any penalties. Incentive levels and the frequency of VLR events will vary depending upon market and/or system conditions. To sign up, please email **VLR@ComEd.com** or call ComEd at 1-877-426-6331. For more information, please visit **www.ComEd.com/VLR**.

Energy Usage Data System

Building owners, property managers, and benchmarking representatives can use the Energy Usage Data System (EUDS) tool to help retrieve the aggregate energy usage data of their single-tenant and multi-tenant (4 tenants or more) commercial, residential and industrial buildings. EUDS enables users to view whole building energy usage data per month, send usage data to ENERGY STAR® Portfolio Manager® and retrieve building performance metrics from ENERGY STAR Portfolio Manager. Please note that this tool can be used to meet local benchmarking ordinances. Learn more at **www.ComEd.com/EnergyUsageData**.

Electric Vehicles

Driving an electric vehicle can be three to five times cheaper than gasoline and diesel-powered cars, depending on your local gasoline and electric rates. If your facility is considering adding an electric vehicle infrastructure, ComEd has tools to help you determine the savings, benefits & incentives associated with electric vehicles. To learn more, please visit **www.ComEd.com/EV**.

Want to get Started?... Let us help
Or visit: ComEd.com/BizIncentives to learn more

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DISCLAIMER

All values shown in this report are estimates, including potential incentive amounts. Further development and cost analysis of the opportunities are recommended prior to investment. The incentive amounts and application approvals are subject to the terms and conditions of the ComEd Energy Efficiency Program. This letter in no way implies approval of incentive amounts or applications or serves as a pre-approval.

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