

Carbon Free Assessment

Prepared for ***Oak Lawn-Hometown Middle School***

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Acct. Number ending in 7011 • 5345 W 99th St, Oak Lawn, IL 60453 • 10/26/2023

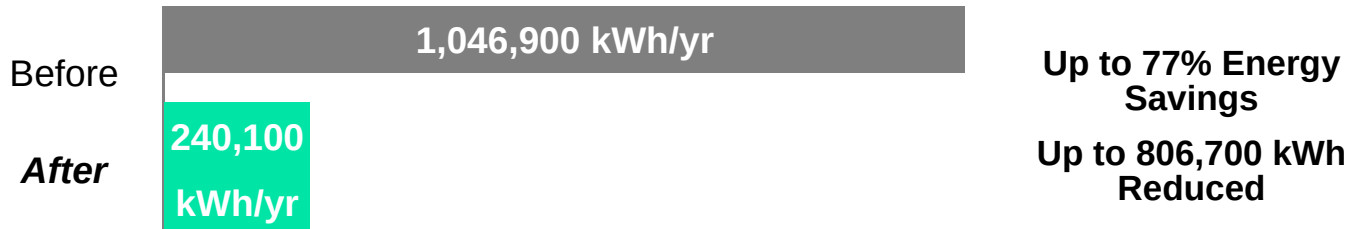
EXECUTIVE SUMMARY

Financial Benefit

We estimate your Facility has the potential for:

	Annual Savings	\$126,580
ComEd® Energy Efficiency Program Incentive		\$16,150

Annual Energy Benefit



Annual Environmental Benefit

Can Reduce Your Carbon Footprint by up to...

1,064 Metric Tons of CO₂ Equivalent
or **286 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	\$670	\$3,790	\$3,340	0.7
Subtotal	\$670	\$3,790	\$3,340	0.7

Estimated 2-5 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Chilled Water Reset Controls	\$210	\$1,700	\$1,100	2.9
Replace Evaporator Fan Motors and Install Controls	\$360	\$1,410	\$270	3.2
Subtotal	\$570	\$3,110	\$1,370	3.1

Estimated >5 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Demand Defrost Controls in Walk-in Freezers and Coolers	\$60	\$380	\$60	5.3
Install Demand Controlled Ventilation	\$4,860	\$42,000	\$1,120	8.4
Replace T5 Lighting	\$1,800	\$27,000	\$6,400	11.4
Subtotal	\$6,720	\$69,380	\$7,580	9.2

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.

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Instant Discount Incentives

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Relamp Compact Fluorescent Lighting	\$100	\$1,400	\$310	10.9
Subtotal	\$100	\$1,400	\$310	10.9

Illinois Commercial Food Services Program

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Hot Food Holding Cabinets	\$2,500	\$19,200	\$960	7.3
Replace Refrigerators	\$40	\$1,400	\$90	
Install Kitchen Fume Hood Exhaust Controls	\$510	\$25,600	\$2,500	
Subtotal	\$3,050	\$46,200	\$3,550	14.0

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

Building Envelope and Mechanical Insulation

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Weather Stripping	\$910	\$740	\$0	0.8
Subtotal	\$910	\$740	\$0	0.8

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

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Energy Efficiency Electrification

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Variable Refrigerant Flow Systems	\$45,000	\$1,804,900	\$0	
Install Air Source Heat Pumps	\$1,700	\$79,000	\$0	
Install Heat Pump Water Heaters	\$120	\$6,200	\$0	
Install Electric Storage Water Heaters	- \$640	\$2,400	\$0	
Subtotal	\$46,180	\$1,892,500	\$0	41.0
ASSESSMENT TOTAL	\$58,200	\$2,017,120	\$16,150	34.4

Please see section titled "Energy Efficiency Electrification" 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 37,000 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): 850

Estimated Cost Savings (\$/yr): \$80

Adjust Hot Water Heater Temperature

The facility has 199,900 btu/hr, 100 gallon gas-fired water heaters on the second and third floors. The storage tanks are maintained at a temperature setpoint of 150°F and 130°F, respectively. A 120°F setpoint is recommended by most experts to prevent bacteria formation which results in illnesses such as Legionnaires' Disease. Turning down the setpoints 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. Note that the water heater on the first floor is maintained at a temperature setpoint of 140°F; however, it supplies water to a dishwasher, which typically requires water temperatures in that range.

Estimated Natural Gas Savings (therms/yr): 250

Estimated Cost Savings (\$/yr): \$190

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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 school to take in improving energy efficiency. SEM offers a long-term partnership with the school through workshops and coaching sessions. At no cost, ComEd will assign the school an energy coach and a support team. They will perform an energy assessment of the site, model and monitor the school'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 school 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: Retro-Commissioning Flex

ComEd's Retro-Commissioning (RCx) Flex Program is a fully funded study that the school is eligible for. It involves a time commitment of 3-6 hours per month for 6-15 months and a financial commitment of at least \$1,000 to implement any energy savings measures. By helping to identify opportunities to tighten building controls as well as other low cost energy savings measures, the RCx program can be expected to save 5-10% of the school'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 school'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.



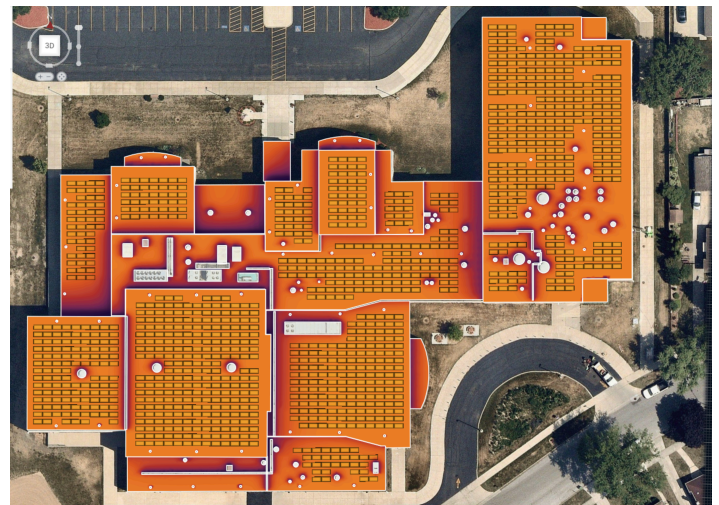
Project Details

Estimated Solar Capacity: **590 kW**

Estimated Annual Generation: **767,000 kWh**

Estimated # of Solar Panels: **1,200**

Annual Energy Use Offset: **62%**



Financial Details

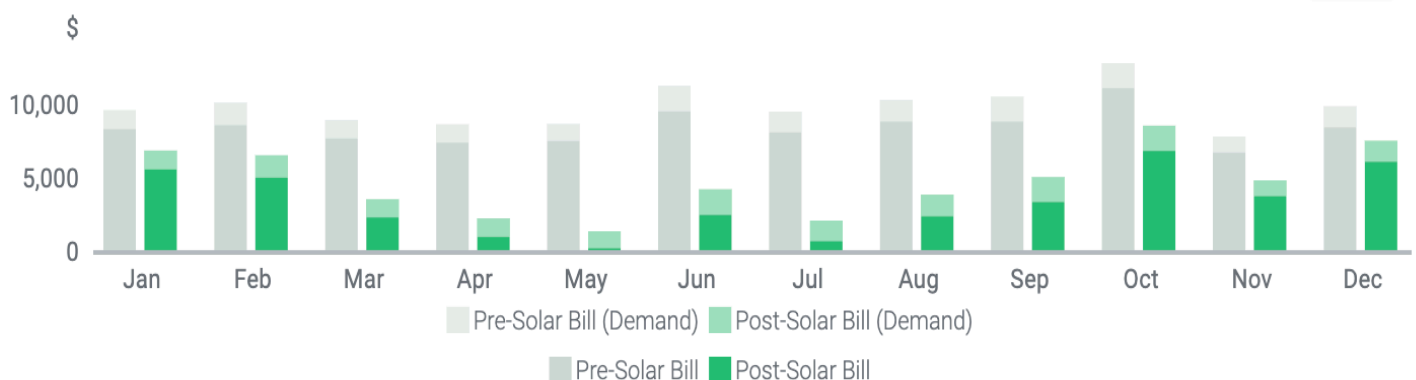
Estimated Project Cost: **\$1,458,700**

Estimated Incentive: **\$1,368,200**

Estimated Payback: **8.7 Years**

Lifetime Savings: **\$1,702,500**

MONTHLY UTILITY BILL SAVINGS



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
	☐	SC1	Support Handwashing	
	☐	SC2	Reduce Surface Contact	
X	☐	SC3	Improve Cleaning Practices	
X	☐	SC4	Select Preferred Cleaning Products	
X	☐	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

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
<i>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.</i>
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

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	
<i>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.</i>	
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

WELL CERTIFICATION

Air And Water Quality Management

1

	☐	SA1	Assess Ventilation
	☐	SA2	Assess and Maintain Air Treatment Systems
	☐	SA3	Develop Legionella Management Plan
X	☐	SA4	Monitor Air and Water Quality
	☐	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

WELL CERTIFICATION

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

Feature Description				
<i>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</i>				
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

WELL CERTIFICATION

Innovation				0
	☐	S11	Innovation I	
	☐	S12	Innovation II	
	☐	S13	Innovation III	
	☐	S14	Gateways to Health-Safety	

Feature Description
<i>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.</i>
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

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 (\$) ^A	Payback (Years)
Hallways and Office	31	26W CFL 4-Pin Lamps (26W)	11W LED 4-Pin Lamps (11W)	1,200	\$100	\$1,400	\$310	10.9
Relamp Compact Fluorescent Lighting			Subtotal	1,200	\$100	\$1,400	\$310	10.9

Replace T5 Lighting

Replace T5 Fluorescent Fixtures with LED Fixtures, which are more efficient and provide comparable lighting levels

Location	Qty	Existing	Proposed ^B	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Cafetorium	90	3-Lamp 4-ft F54 T5 High-Output Fluorescent Fixtures (179W)	LED Highbay Fixtures (90W)	20,000	\$1,800	\$27,000	\$6,400	11.4
Replace T5 Lighting			Subtotal	20,000	\$1,800	\$27,000	\$6,400	11.4

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)
Office and Staff Room	80	45W LED Troffer Fixtures (45W)	Install Occupancy Sensors	2,200	\$190	\$1,000	\$900	0.5
Cafetorium	90	LED Highbay Fixtures (90W)	Install Occupancy Sensors	4,900	\$430	\$2,300	\$2,000	0.7
Mechanical and Custodial Spaces	58	30W LED Troffer Fixtures (30W)	Install Occupancy Sensors	520	\$50	\$490	\$440	1.0
Install Lighting Controls			Subtotal	7,620	\$670	\$3,790	\$3,340	0.7
Lighting Solutions Total			Subtotal	28,820	\$2,570	\$32,190	\$10,050	8.6

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)
Large Gym (AHU-4)	11,300	Conditioned Space without Demand Controlled Ventilation	Install Demand Ventilation Controls	6,600	2,300	\$2,300	\$17,000	\$450	7.2
Practice Gym (AHU-6)	5,500	Conditioned Space without Demand Controlled Ventilation	Install Demand Ventilation Controls	3,200	1,100	\$1,100	\$8,200	\$220	7.3
Cafetorium (RTU-1)	9,400	Conditioned Space without Demand Controlled Ventilation	Install Demand Ventilation Controls	4,800	1,200	\$1,300	\$14,100	\$380	10.6
Fitness (AHU-5)	1,800	Conditioned Space without Demand Controlled Ventilation	Install Demand Ventilation Controls	650	130	\$160	\$2,700	\$70	
Install Demand Controlled Ventilation			Subtotal	15,250	4,730	\$4,860	\$42,000	\$1,120	8.4

Install Chilled Water Reset Controls

Install chilled water reset controls on existing chillers to allow them to operate at higher chilled water temperatures during periods of low cooling loads

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Rooftop Chiller	1	225 Ton Air Cooled Chiller without Chilled Water Reset Controls	Install Chilled Water Reset Controls	2,300	0	\$210	\$1,700	\$1,100	2.9
Install Chilled Water Reset Controls			Subtotal	2,300	0	\$210	\$1,700	\$1,100	2.9

HVAC Solutions Total	Subtotal	17,550	4,730	\$5,070	\$43,700	\$2,220	8.2
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Energy Efficiency Measure Details

Refrigeration Solutions

Replace Refrigerators

Replace existing Refrigerators with ENERGY STAR rated models. It is recommended that this change be made near the end of an existing refrigerator's life.

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$) ^C	Estimated Incentive (\$) ^D	Payback (Years)
Kitchen	2	Conventional Solid Door Refrigerators	ENERGY STAR Solid Door Refrigerators	420	\$40	\$1,400	\$90	
Replace Refrigerators			Subtotal	420	\$40	\$1,400	\$90	

Replace Evaporator Fan Motors and Install Controls

Install more efficient motors and controls that reduce fan air-flow when there is no refrigerant flow

Location	Qty	Existing ^E	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Kitchen (Freezer)	2	1/15 Horsepower Shaded Pole Motors with No Controls	1/15 Horsepower Electronically Commutated Motors with Evaporator Fan Controls	2,800	\$240	\$940	\$180	3.2
Kitchen (Cooler)	1	1/15 Horsepower Shaded Pole Motor with No Control	1/15 Horsepower Electronically Commutated Motor with Evaporator Fan Control	1,400	\$120	\$470	\$90	3.2
Replace Evaporator Fan Motors and Install Controls			Subtotal	4,200	\$360	\$1,410	\$270	3.2

Energy Efficiency Measure Details

Refrigeration Solutions

Install Demand Defrost Controls in Walk-in Freezers and Coolers

Install Demand Defrost Controls to monitor the refrigeration system and delay the defrost cycle as necessary

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Kitchen (Freezer)	2	Evaporator Fans without Demand Defrost Controls	Install Demand Defrost Controls	440	\$40	\$250	\$40	5.3
Kitchen (Cooler)	1	Evaporator Fans without Demand Defrost Controls	Install Demand Defrost Controls	170	\$20	\$130	\$20	5.5
Install Demand Defrost Controls in Walk-in Freezers and Coolers			Subtotal	610	\$60	\$380	\$60	5.3
Refrigeration Solutions Total			Subtotal	5,230	\$460	\$3,190	\$420	6.0

Energy Efficiency Measure Details

Commercial Kitchen Solutions

Install Hot Food Holding Cabinets

Install new ENERGY STAR rated hot food holding cabinets

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$) ^D	Payback (Years)
Kitchen	3	Conventional Hot Food Holding Cabinets	ENERGY STAR Hot Food Holding Cabinets	27,900	\$2,500	\$19,200	\$960	7.3
Install Hot Food Holding Cabinets			Subtotal	27,900	\$2,500	\$19,200	\$960	7.3
Commercial Kitchen Solutions Total			Subtotal	27,900	\$2,500	\$19,200	\$960	7.3

Energy Efficiency Measure Details

Special Purpose Equipment Solutions

Install Kitchen Fume Hood Exhaust Controls

Add control to Kitchen Fans to vary exhaust rate based on cooking load and/or occupancy

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$) ^D	Payback (Years)
Rooftop	1	0.5 Horsepower Kitchen Fume Hood Exhaust Fan	Install Kitchen Demand Ventilation Controls	2,500	390	\$510	\$25,600	\$2,500	
Install Kitchen Fume Hood Exhaust Controls			Subtotal	2,500	390	\$510	\$25,600	\$2,500	
Special Purpose Equipment Solutions Total			Subtotal	2,500	390	\$510	\$25,600	\$2,500	

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 environment.

Install Weather Stripping

Install or replace Weather Stripping on external facing doors to eliminate

Location	Length (ft)	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Payback (Years)
Throughout Facility	93	Total Feet of Visible Gaps on External Doors	Install Weather Stripping	7,400	340	\$910	\$740	0.8
Install Weather Stripping			Subtotal	7,400	340	\$910	\$740	0.8
Building Envelope and Mechanical Insulation Total			Subtotal	7,400	340	\$910	\$740	0.8

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 Cooled Chiller, Split Condensing Units, Air Handling Units, Unit Ventilators	High Efficiency Air Cooled Variable Refrigerant Flow	15,500	61,800	\$45,000	\$1,804,900	
Install Variable Refrigerant Flow Systems			Subtotal	15,500	61,800	\$45,000	\$1,804,900	

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)
Cafetorium (RTU-1)	1	Packaged AC and Natural Gas	Electric Air Cooled (Electric Backup) Cold Climate Air Source Heat Pump	16,000	4,200	\$1,700	\$79,000	
Install Air Source Heat Pumps			Subtotal	16,000	4,200	\$1,700	\$79,000	

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)
Second Floor	1	Natural Gas-Fired Water Heater	Heat Pump Water Heater	4,000	560	\$60	\$3,100	
First Floor	1	Natural Gas-Fired Water Heater	Heat Pump Water Heater	4,000	560	\$60	\$3,100	
Install Heat Pump Water Heaters			Subtotal	8,000	1,120	\$120	\$6,200	

Install Electric Storage Water Heaters

Install Electric Storage 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)
Third Floor	1	Natural Gas-Fired Storage Tank Water Heater	Electric Storage Tank Water Heater	10,900	440	- \$640	\$2,400	
Install Electric Storage Water Heaters			Subtotal	10,900	440	- \$640	\$2,400	

Energy Efficiency Electrification Total	Subtotal	50,400	67,560	\$46,180	\$1,892,500	41.0
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Electrification Baseline Conditions

Baseline System Conditions

Facility System: Building Envelope and Insulation

Oak Lawn-Hometown Middle School is a 147,801 square foot building. The building has masonry walls, double paned windows, and an asphalt and ballasted roof. The walls, windows, roof, and mechanical insulation were in good condition. There are some opportunities for improved weather stripping on doors.

Facility System: Vehicles

The school has no vehicles on site. No electric vehicle measures are included in this report. However, the site contact did state interest in installing electric vehicles charging stations for public use. Shown in this report are cost and funding estimates for the purchase and installation of (2) Level 2 electric vehicle chargers.

Facility System: Lighting

Most of the facility is illuminated with LED lights, except for the cafetorium which has fluorescent lights and several canned light fixtures in the hallways and office with compact fluorescent lights. Interior lights are mostly controlled via occupancy sensors, and exterior lights are controlled via time clocks and photocells.

Facility System: Gas Usage

The annual gas usage for the previous year was approximately 59,000 therms/year. A safety factor of 15% was added for all calculations in order to account for differences in weather year-to-year.

Facility System: HVAC

The school has (2) 8,000 MBH hot water boilers and a 225-ton air-cooled chiller that serve unit ventilators, air handling units (AHU), and reheat coils. The AHUs serve the fitness areas, classrooms, office, library, and kitchen. The office and library AHUs have 40- and 60-ton split condensing units, respectively. There is also a 40-ton rooftop unit serving the cafetorium. The building's HVAC system is controlled via a digital building automation system.

Facility System: Domestic Hot Water

The building has three floors, and each floor has a 199,900 btu/hr, 100 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, chiller, split condensing units, air handling 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. The rooftop unit serving the cafetorium can be replaced by an ASHP for heating, cooling, and ventilation. Lastly, for domestic hot water, heat pump water heaters are recommended as the replacement for the gas storage water heaters on the first and second floor. An electric storage water heater is recommended as the replacement for the gas storage water heater on the third floor.

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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 school.

Estimated Cost: **\$319,000**

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: **\$100,000**

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

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: \$80,000

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: \$146,500

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ADDITIONAL FUNDING OFFERINGS

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: \$784,140

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: \$437,610

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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 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

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

C Indicates that the estimated cost of this solution is equal to the incremental cost difference between the energy-efficient equipment and the standard efficiency option.

D Discounts are available through participating distributors in the Illinois Commercial Food Services Program. Incentive is in the form of a discounted product cost provided at the time of purchase. Learn more and find a list of participating distributors at il-foodservicerebates.com

E Evaporator Fan Motors are concealed and assumed to be Shaded-Pole type. If motors are Electronically Commutated, there is still an incentive to retrofit with fan controls.

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

 = Does Not Payback

Electricity Cost = \$0.0888/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

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.

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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.

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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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