

Carbon Free Assessment

Prepared for
Byron Middle School

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Acct. Number ending in 9101 • 850 N Colfax St, Byron, IL 61010 • 1/12/2023

EXECUTIVE SUMMARY

Financial Benefit

We estimate your Facility has the potential for:

	Annual Savings	\$40,752
ComEd® Energy Efficiency Program Incentive		\$38,400

Annual Energy Benefit

Before

1,129,200 kWh/yr

Up to 18% Energy Savings

After

- 250,660 kWh/yr

Up to 198,500 kWh Reduced

Annual Environmental Benefit

Can Reduce Your Carbon Footprint by up to...

656 Metric Tons of CO₂ Equivalent
or 164 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 Automatic Door Closers	\$315	\$320	\$240	0.3
Install Fume Hood Occupancy Controls	\$1,837	\$1,900	\$400	0.8
Convert to a Variable Air Volume (VAV) Fume Hood	\$3,923	\$4,200	\$1,000	0.8
Install Hot Food Holding Cabinet	\$903	\$1,200	\$320	1.0
Subtotal	\$6,978	\$7,620	\$1,960	0.8

Estimated 2-5 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Install Lighting Controls	\$1,984	\$10,100	\$4,940	2.6
Install Demand Controlled Ventilation	\$1,348	\$4,500	\$600	2.9
Subtotal	\$3,332	\$14,600	\$5,540	2.7

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Public School Assessment

Estimated >5 Year Payback Opportunities

Measure	Annual Cost Savings	Project Cost	Incentive	Simple Payback (Years)
Replace T8 Lighting	\$11,184	\$100,000	\$29,700	6.3
Install Kitchen Fume Hood Exhaust Controls	\$3,190	\$25,600	\$1,200	7.6
Subtotal	\$14,374	\$125,600	\$30,900	6.6

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.

Please see section titled "Energy Efficiency Measure Details" 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 ENERGY STAR Electric Steam Cooker	\$1,348	\$2,900	\$0	2.2
Install Heat Pump Water Heater	\$76	\$3,100	\$0	DNP
Install Variable Refrigerant Flow (VRF) System	\$12,537	\$555,400	\$0	DNP
Subtotal	\$13,961	\$561,400	\$0	40.2

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 Vehicle	\$2,107	\$170,000	\$0	DNP
Subtotal	\$2,107	\$170,000	\$0	80.7
ASSESSMENT TOTAL	\$40,752	\$879,220	\$38,400	20.6

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

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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 |

Retro-Commissioning

Offering Description:

Retro-Commissioning is a full-building tune-up 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: Industrial Refrigeration

Participants receive a fully-funded VCx study that uses their ComEd smart meter to identify energy conservation measures. Showing personnel onsite the changes would help the newer personnel get more familiar with HVAC controls.

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ADDITIONAL PROGRAM OFFERINGS

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 partial tuition rebate upon completion of training.

Opportunity at Your Facility:

Building Operator Certification (BOC) is a training and certification for commercial building operators. The curriculum teaches participants how to improve building comfort and efficiency by optimizing the building's systems.

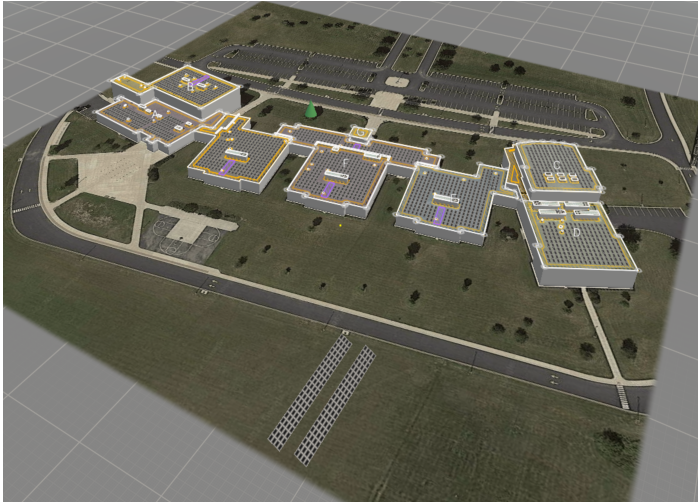
ComEd's BOC Pilot offers partial participant tuition-reimbursement for ComEd customers who complete the curriculum. The goal is to implement energy-saving practices at this location. BOC training has two curricula: BOC Level-I and BOC Level-II. Both curricula require a time commitment for class training and assigned projects spread over several months.

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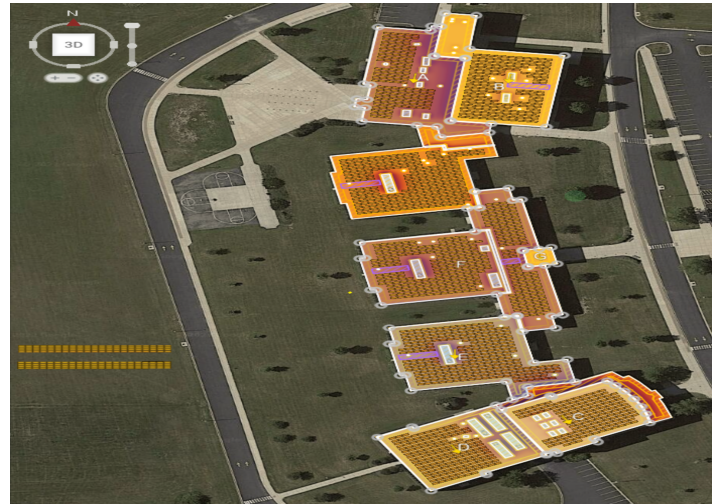
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SOLAR OPPORTUNITIES



Project Details

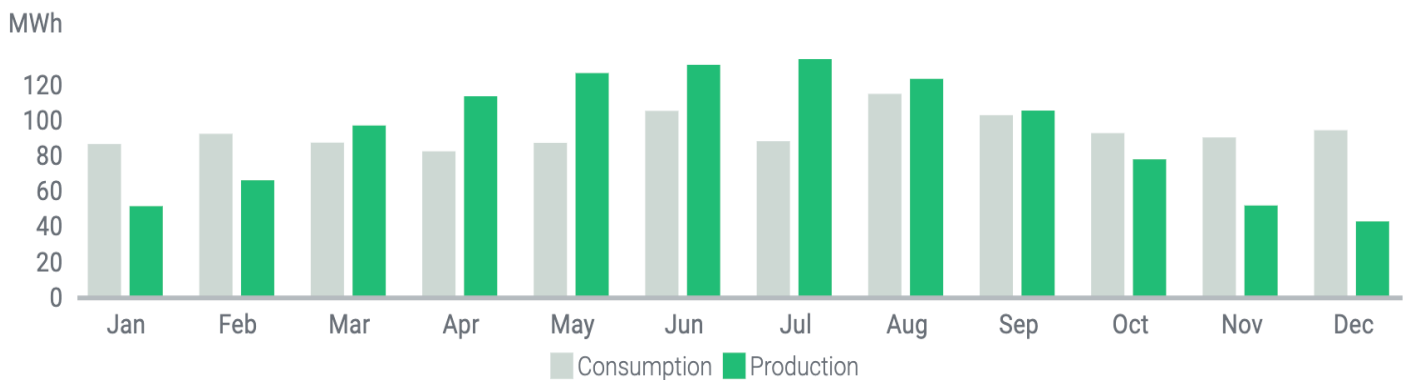
Estimated Solar Capacity: **870 kW**
 Estimated Annual Generation: **1,127,700 kWh**
 Estimated # of Solar Panels: **1,700**
 Annual Energy Use Offset: **90%**



Financial Details

Estimated Project Cost: **\$2,240,000**
 Estimated Incentive: **\$1,765,930**
 Estimated Simple Payback: **4.3 Years**
 Lifetime Savings: **\$2,735,000**

MONTHLY PRODUCTION



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

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WELL CERTIFICATION

The WELL Building Standard™ provides evidence-based applications that could transform healthy learning environments and improve the wellness and well-being of its students, faculties and supporting staff members. promoting physical fitness, providing mental health support and education, reducing air and noise pollution, and engaging teachers and community members. Through these interventions, educational spaces can create an environment that optimizes student well-being and academic performance, allowing them to reach their full potential.

Total Estimated Cost to Achieve Pre-Requisites \$0

Total Estimated Cost to Achieve Certification \$5,250

Air			3
Y	N		
	N	P	A01 Air Quality
Y		P	A02 Smoke-Free Environment
Y		P	A03 Ventilation Design
	N	P	A04 Construction Pollution Management
	N	O	A05 Enhanced Air Quality
	N	O	A06 Enhanced Ventilation Design
	N	O	A07 Operable Windows
	N	O	A08 Air Quality Monitoring and Awareness
	N	O	A09 Pollution Infiltration Management
	N	O	A10 Combustion Minimization
	N	O	A11 Source Separation
	N	O	A12 Air Filtration
Y		O	A13 Enhanced Supply Air
	N	O	A14 Microbe and Mold Control

Feature Description
<i>The Air features in WELL provide an improved, comprehensive approach to address problems of indoor air Quality and its effects on student health.</i>
<i>The list shown is for WELL 2.0 a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0</i> <i>A01.5 (not all air pollutants monitored that are required)</i> <i>A02</i> <i>A03.1</i> <i>A13.1 (It appears as if this measure would qualify but, at present, unknown)</i>
<i>WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears the facility qualifies for 13 of the opportunities, 15 are needed to certify.</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Water			3
Y	N		
	N	P	W01 Water Quality Indicators
	N	P	W02 Drinking Water Quality
	N	P	W03 Basic Water Management
	N	O	W04 Enhanced Water Quality
	N	O	W05 Drinking Water Quality Management
Y		O	W06 Drinking Water Promotion
	N	O	W07 Moisture Management
	N	O	W08 Hygiene Support
	N	O	W09 β Onsite Non-Potable Water Reuse

Feature Description
<i>The Water features in WELL provide an improved, comprehensive approach to address problems of water quality and its effects on student health.</i>
<i>The list shown is for WELL 2.0 a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0:</i> W03.2 (Legionella not likely here due to HVAC equipment assumed no) W07.3 W08.4 <i>WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears the facility qualifies for 13 of the opportunities, 15 are needed to certify. W07.3 is being recommended in order to qualify. An assumed \$1000 per measure is being used to move those that are close to qualify to move it to 'yes' for simple measures or policy changes.</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$1,000

WELL CERTIFICATION

Nourishment

0

Y	N		
Y		P	N01 Fruits and Vegetables
Y		P	N02 Nutritional Transparency
	N	O	N03 Refined Ingredients
	N	O	N04 Food Advertising
	N	O	N05 Artificial Ingredients
	N	O	N06 Portion Sizes
	N	O	N07 Nutrition Education
	N	O	N08 Mindful Eating
	N	O	N09 Special Diets
	N	O	N10 Food Preparation
	N	O	N11 Responsible Food Sourcing
	N	O	N12 Food Production
	N	O	N13 Local Food Environment
	N	O	N14 β Red and Processed Meats

Feature Description

The Nourishment features in WELL provide an improved, comprehensive approach to address problems of nutrition quality and its effects on student health.

*The list shown is for WELL 2.0 a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0.
N02.1 (unknown assumed yes)*

WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears as if 15 measures qualify, 15 are needed to certify. An assumed \$1000 per measure is being used to move those that are close to qualify to move it to 'yes' for simple measures or policy changes.

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Light			2
Y	N		
	N	P	L01 Light Exposure
Y		P	L02 Visual Lighting Design
	N	O	L03 Circadian Lighting Design
Y		O	L04 Electric Light Glare Control
	N	O	L05 Daylight Design Strategies
	N	O	L06 Daylight Simulation
	N	O	L07 Visual Balance
	N	O	L08 Electric Light Quality
	N	O	L09 Occupant Lighting Control

Feature Description
<i>The Light features in WELL provide an improved, comprehensive approach to address problems of light quality and its effects on student health.</i>
<i>None for WELL Health and Safety</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Movement				3
Y	N			
	N	P	V01	Active Buildings and Communities
	N	P	V02	Ergonomic Workstation Design
Y		O	V03	Circulation Network
	N	O	V04	Facilities for Active Occupants
	N	O	V05	Site Planning and Selection
	N	O	V06	Physical Activity Opportunities
	N	O	V07	Active Furnishings
	N	O	V08	Physical Activity Spaces and Equipment
	N	O	V09	Physical Activity Promotion
	N	O	V10	Self-Monitoring
	N	O	V11	β Ergonomics Programming

Feature Description
<i>Movement features promote active living and discourage sedentary behaviors, implemented through environmental design strategies, programs, and policies.</i>
<i>None for WELL Health and Safety</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Thermal Comfort				1
Y	N			
	N	P	T01 Thermal Performance	
	N	O	T02 Verified Thermal Comfort	
	N	O	T03 Thermal Zoning	
	N	O	T04 Individual Thermal Control	
	N	O	T05 Radiant Thermal Comfort	
	N	O	T06 Thermal Comfort Monitoring	
Y		O	T07 Humidity Control	
	N	O	T08 β Enhanced Operable Windows	
	N	O	T09 β Outdoor Thermal Comfort	

Feature Description
<i>The Thermal Comfort features in WELL provide an improved, comprehensive approach to address problems of thermal comfort and its effects on student health.</i>
<i>None for WELL Health and Safety</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Sound				4
Y	N			
Y		P	S01	Sound Mapping
	N	O	S02	Maximum Noise Levels
	N	O	S03	Sound Barriers
Y		O	S04	Reverberation Time
Y		O	S05	Sound Reducing Surfaces
	N	O	S06	Minimum Background Sound
	N	O	S07	β Impact Noise Management
	N	O	S08	β Enhanced Audio Devices
	N	O	S09	β Hearing Health Conservation

Feature Description
<i>The Sound feature also addresses noise pollution by ensuring that indoor spaces are equipped with acoustics that support the learning environment and influence the number of days missed at school.</i>
<i>None for WELL Health and Safety</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Materials				1
Y	N			
Y		P	X01	Material Restrictions
Y		P	X02	Interior Hazardous Materials Management
Y		P	X03	CCA and Lead Management
	N	O	X04	Site Remediation
	N	O	X05	Enhanced Material Restrictions
	N	O	X06	VOC Restrictions
	N	O	X07	Materials Transparency
	N	O	X08	Materials Optimization
	N	O	X09	Waste Management
	N	O	X10	Pest Management and Pesticide Use
	N	O	X11	Cleaning Products and Protocols
	N	O	X12	β Contact Reduction

Feature Description
<i>Classrooms or communal spaces that have direct access to sunlight, green walls, natural materials or smart space design may provide better outcomes for students.</i>
<i>The list shown is for WELL 2.0 a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0.</i>
<i>X11.1</i>
<i>X11.2</i>
<i>X12.1 (not all steps available to comply with measure)</i>
<i>X12.2 (not all steps available to comply with measure)</i>
<i>WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears the facility qualifies for 13 of the opportunities, 15 are needed to certify. An assumed \$1000 per measure is being used to move those that are close to qualify to move it to 'yes' for simple measures or policy changes.</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Mind				3
Y	N			
Y		P	M01	Mental Health Promotion
	N	O	M02	Nature and Place
	N	O	M03	Mental Health Services
Y		O	M04	Mental Health Education
	N	O	M05	Stress Management
	N	O	M06	Restorative Opportunities
Y		O	M07	Restorative Spaces
	N	O	M08	Restorative Programming
	N	O	M09	Enhanced Access to Nature
	N	O	M10	Tobacco Cessation
	N	O	M11	Substance Use Services

Feature Description
<i>Schools have the opportunity to positively impact students' mental health, physical health and academic performance through educational materials and by incorporating natural elements into the space.</i>
<i>The list shown is for WELL 2.0 a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0 M03.4 (assumed yes)</i>
<i>WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears the facility qualifies for 13 of the opportunities, 15 are needed to certify. An assumed \$1000 per measure is being used to move those that are close to qualify to move it to 'yes' for simple measures or policy changes.</i>

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$0

WELL CERTIFICATION

Community

6

Y	N		
	N	P	C01 Health and Well-Being Promotion
	N	P	C02 Integrative Design
Y		P	C03 Emergency Preparedness
	N	P	C04 Occupant Survey
	N	O	C05 Enhanced Occupant Survey
Y		O	C06 Health Services and Benefits
	N	O	C07 Enhanced Health and Well-Being Promotion
	N	O	C08 New Parent Support
	N	O	C09 New Mother Support
	N	O	C10 Family Support
	N	O	C11 Civic Engagement
	N	O	C12 Diversity and Inclusion
	N	O	C13 Accessibility and Universal Design
Y		O	C14 Emergency Resources
Y		O	C15 β Emergency Resilience and Recovery
	N	O	C16 β Housing Equity
	N	O	C17 β Responsible Labor Practices
	N	O	C18 β Support for Victims of Domestic Violence

WELL CERTIFICATION

Feature Description

The Community feature aims to support access to essential healthcare, workplace health promotion and establish inclusive, integrated community through social equity, civic engagement and accessible design.

The list shown is for WELL 2.0, a much more robust and detailed certification. This location opted for the WELL Health and Safety which only uses specific measures from WELL 2.0

C02.2 (assumed no)

C03.1 (assumed yes)

C06.1 (assumed yes)

C06.3 (assumed yes)

C06.4 (assumed no)

C14.1 (assumed yes)

C15.1 (assumed yes)

C15.2 (assumed yes)

C15.3 (assumed no)

C15.4 (assumed no)

WELL Health and Safety cost a minimum of \$3,250 per building to certify. Some measures may require additional cost to qualify. It appears the facility qualifies for 13 of the opportunities, 15 are needed to certify.

C15.4 is being recommended and a assumed \$1000 per measure is being used to move those that are close to qualify to move it to 'yes' for simple measures or policy changes.

Estimated Cost to Achieve Pre-Requisite \$0

Estimated Cost to Achieve Certification \$1,000

WELL CERTIFICATION

Innovation				0
Y	N			
	N	☐	I01	Innovate WELL
	N	☐	I02	WELL Accredited Professional (WELL AP)
	N	☐	I03	Experience WELL Certification
	N	☐	I04	Gateways to Well-Being
	N	☐	I05	Green Building Rating Systems
	N	☐	I06	β Carbon Disclosure and Reduction

Feature Description

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

Estimated Cost to Achieve Certification **\$3,250**

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)
Building Exterior	12	85W LED Outdoor WP Fixtures (85W)	Install Time Clocks	450	\$40	\$200	\$30	4.3
Throughout Facility	800	35W LED TLED Fixtures (35W) ^A	Install Occupancy Sensors	18,300	\$1,800	\$7,800	\$4,500	1.8
Gymnasium	30	85W LED High Bay Fixtures (85W)	Install Occupancy Sensors	1,700	\$160	\$2,100	\$410	10.6
Install Lighting Controls			Subtotal	20,450	\$2,000	\$10,100	\$4,940	2.6

Replace T8 Lighting

Replace T8 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)
Throughout Facility	800	3-Lamp 4-ft F32 T8 with Standard BF Electronic Ballast (88W)	35W LED Troffer Fixtures (35W)	115,300	\$11,200	\$100,000	\$29,700	6.3
Replace T8 Lighting			Subtotal	115,300	\$11,200	\$100,000	\$29,700	6.3

Lighting Solutions Total	Subtotal	135,750	\$13,200	\$110,100	\$34,640	5.7
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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 and Theater	15,000	Conditioned Space without Demand Controlled Ventilation and Gas Heat	Install Demand Ventilation Controls	5,200	1,200	\$1,300	\$4,500	\$600	3.0
Install Demand Controlled Ventilation			Subtotal	5,200	1,200	\$1,300	\$4,500	\$600	3.0
HVAC Solutions Total			Subtotal	5,200	1,200	\$1,300	\$4,500	\$600	3.0

Energy Efficiency Measure Details

Refrigeration Solutions

Install Automatic Door Closers

Install automatic closers to the main insulated opaque door(s) of a walk-in cooler or freezer

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Kitchen	1	Walk-In Freezers without Automatic Door Closers	Install Automatic Door Closers	2,300	\$220	\$160	\$120	0.2
Kitchen	1	Walk-In Coolers without Automatic Door Closers	Install Automatic Door Closers	940	\$90	\$160	\$120	0.4
Install Automatic Door Closers			Subtotal	3,240	\$310	\$320	\$240	0.3
Refrigeration Solutions Total			Subtotal	3,240	\$310	\$320	\$240	0.3

Energy Efficiency Measure Details

Laboratory Solutions

Convert to a Variable Air Volume (VAV) Fume Hood

Retrofit a constant air volume (CAV) bypass fume hood with a variable air volume (VAV) fume hood

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Laboratory	1	4-ft Constant Air Volume Bypass Fume Hood	Retrofit with VAV Fume Hood	20,600	2,700	\$3,900	\$4,200	\$1,000	0.8
Convert to a Variable Air Volume (VAV) Fume Hood			Subtotal	20,600	2,700	\$3,900	\$4,200	\$1,000	0.8

Install Fume Hood Occupancy Controls

Install occupancy-sensor-based two-position controls on fume hoods

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Energy Savings (Therm/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Laboratory	1	4-ft Laboratory Fume Hood without Controls	Add Occupancy Controls to Fume Hood	9,600	1,300	\$1,800	\$1,900	\$400	0.8
Install Fume Hood Occupancy Controls			Subtotal	9,600	1,300	\$1,800	\$1,900	\$400	0.8

Laboratory Solutions Total	Subtotal	30,200	4,000	\$5,700	\$6,100	\$1,400	0.8
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Energy Efficiency Measure Details

Commercial Kitchen Solutions

Install Hot Food Holding Cabinet

Install a new ENERGY STAR rated hot food holding cabinet

Location	Qty	Existing	Proposed	Estimated Energy Savings (kWh/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
Kitchen	1	Conventional Hot Food Holding Cabinet	ENERGY STAR Hot Food Holding Cabinet	9,300	\$900	\$1,200	\$320	1.0
Install Hot Food Holding Cabinet			Subtotal	9,300	\$900	\$1,200	\$320	1.0
Commercial Kitchen Solutions Total			Subtotal	9,300	\$900	\$1,200	\$320	1.0

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		Estimated Savings (\$/Yr)	Estimated Cost (\$)	Estimated Incentive (\$)	Payback (Years)
				Estimated Energy Savings (kWh/Yr)	Savings (Therm/Yr)				
Kitchen	1	3 Horsepower Kitchen Fume Hood Exhaust Fan	Install Kitchen Demand Ventilation Controls	14,900	2,500	\$3,200	\$25,600	\$1,200	7.6
Install Kitchen Fume Hood Exhaust Controls			Subtotal	14,900	2,500	\$3,200	\$25,600	\$1,200	7.6
Special Purpose Equipment Solutions Total			Subtotal	14,900	2,500	\$3,200	\$25,600	\$1,200	7.6

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 ENERGY STAR Electric Steam Cooker

Install an ENERGY STAR Electric Steam Cooker to improve system efficiency and reduce your building's overall carbon emissions

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage	Estimated Energy	Estimated Water	Estimated	Estimated	Payback
				(kWh/Yr)	Savings (Therm/Yr)	Savings (Gal/Yr)	Savings (\$/Yr)	Cost (\$)	(Years)
Kitchen	1	Natural Gas Steam Cookers	ENERGY STAR Electric Steam Cookers	3,000	940	65,700	\$1,300	\$2,900	2.2
Install ENERGY STAR Electric Steam Cooker			Subtotal	3,000	940	65,700	\$1,300	\$2,900	2.2

Install Variable Refrigerant Flow (VRF) System

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

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage	Estimated Energy	Estimated Water	Estimated	Estimated	Payback
				(kWh/Yr)	Savings (Therm/Yr)	Savings (Gal/Yr)	Savings (\$/Yr)	Cost (\$)	(Years)
Roof	1	100 Ton Packaged Air Conditioner and 360 kBTU/hr Natural Gas Hot Water Boiler	Most Efficient Air Cooled Variable Refrigerant Flow	- 70,580 ^C	8,100	0	\$12,500	\$555,400	DNP
Install Variable Refrigerant Flow (VRF) System			Subtotal	- 70,580	8,100	0	\$12,500	\$555,400	DNP

Energy Efficiency Electrification

Install Electric Boiler

Install an Electric Boiler to improve system efficiency and reduce your building's overall carbon emissions

Location	Qty	Existing	Proposed	Estimated	Estimated Energy Savings (Therm/Yr)	Estimated Water Savings (Gal/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Payback (Years)
				Electric Energy Usage (kWh/Yr)					
Mech Area ^D	1	Natural Gas Hot Water Boiler	Electric Resistance Hot Water Boiler	1,667,300	84,600	0	- \$102,300	\$63,900	DNP

Install Electric Boiler	Subtotal	0	0	0	\$0	\$0	DNP
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Install Heat Pump Water Heater

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

Location	Qty	Existing	Proposed	Estimated	Estimated Energy Savings (Therm/Yr)	Estimated Water Savings (Gal/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Payback (Years)
				Electric Energy Usage (kWh/Yr)					
Mechanical Room	1	Natural Gas-Fired Water Heaters	Heat Pump Water Heaters	4,000	660	0	\$80	\$3,100	DNP

Install Heat Pump Water Heater	Subtotal	4,000	660	0	\$80	\$3,100	DNP
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Energy Efficiency Electrification Total	Subtotal	- 63,580	9,700	65,700	\$13,880	\$561,400	40.4
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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 Vehicle

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

Location	Qty	Existing	Proposed	Estimated Electric Energy Usage (kWh/Yr)	Estimated Gasoline Savings (Gal/Yr)	Estimated Savings (\$/Yr)	Estimated Cost (\$)	Payback (Years)
Class 2	2	Class 1 - Gas - Pickup Truck 3.5L - (22.00 mpg)	Class 2 - EV - Pickup Truck - 135 kWh (2.22 mi/kWh)	10,000	920	\$2,100	\$170,000	DNP
Replace Light Duty Vehicle			Subtotal	10,000	920	\$2,100	\$170,000	DNP
Electric Vehicle Total			Subtotal	10,000	920	\$2,100	\$170,000	DNP

Electrification Baseline Conditions

Baseline System Conditions

Facility System: Insulation

The existing facility insulation appears to be in good condition. The hot water piping has some flanges uninsulated and small areas not insulated but much of it is insulated well for the temperature of the piping.

Facility System: Vehicles

While the school district leases, (does not own), a fleet of buses, no buses are stationed out of this building and are therefore not incorporated into this report. There are a couple of pickup trucks used by custodians which are parked at this school during the day.

Facility System: Existing conditions

Byron Middle School was constructed in the 2000s. The school is conditioned by around 17 RTUs with VAVs on a few units. The RTUs have DX cooling and hot water heating coil. There is a separate water heater for domestic hot water. The school has a Energy Management system to control the RTUs. The school has fluorescent fixtures throughout, except for the Gym and exterior lighting, which have been converted to LEDs.

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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: **Upgrade Electrical Infrastructure**

Upgrading your electrical infrastructure may be necessary if increasing the load on the system significantly. For electrification options like electric boilers, it would likely be necessary, and the cost shown is a rough idea of how much this would cost. This cost is separate from the cost of any electrification measures.

Estimated Cost: **\$450,000**

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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:

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

K-12 Solar Schools Grant

Offering Description:

The K-12 Solar Schools Grant program (<https://www.illinoiscleanenergy.org/energy-program/k-12-solar-schools/>) supports the installation of a 1 kW photovoltaic (PV) system. Public K-12 schools may apply for up to \$6,400 or 90% of solar system and installation costs, whichever is less.

Funding Opportunity: \$6,400

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.

Funding Opportunity: \$50,000

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ADDITIONAL FUNDING OFFERINGS

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: \$75,000

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: \$671,995

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 15 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: \$875,435

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: \$218,500

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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 This measure assumes that the controls will be installed after replacing the existing fluorescent lighting throughout the facility with LEDs. If the controls are installed on the existing fluorescent lighting, the savings would vary.

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

C Please note that this number states negative usage, which is savings.

D Presented as an alternative to the VRF system and shown for comparison purposes. Please note this recommendation is not included in the totals.

DNP = Does Not Payback

Electricity Cost = \$0.0970/kWh (provided by the customer)

Natural Gas Cost = \$0.703/therm (provided by the customer)

Water Cost = \$0.01490/gallon (City of Chicago water and sewer rate effective 6/1/2022)

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 Smart Returns 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 SmartReturns@exeloncorp.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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