



Energy Audit Report

REPORT DATE: May 2, 2025

PROPERTY INFORMATION:

Waste Water Treatment Plant
136 Ledgelawn Avenue
Bar Harbor, Hancock County, Maine 04609

PROJECT INFORMATION:

AEI Project No. 498450
Site Assessment Date: October 1, 2024

PREPARED FOR:

Town of Bar Harbor
93 Cottage Street
Bar Harbor, Maine 04609

PREPARED BY:

AEI Consultants - Corporate Headquarters
2500 Camino Diablo
Walnut Creek, California 94597



May 2, 2025

James Smith
Town of Bar Harbor
93 Cottage Street
Bar Harbor, Maine 04609

Subject: Energy Audit Report
Waste Water Treatment Plant
136 LedgeLawn Avenue
Bar Harbor, Maine 04609
AEI Project No. 498450

Dear James Smith:

AEI Consultants is pleased to provide the *Energy Audit Report* of the above referenced property. This assessment was authorized and performed in accordance with the scope of services engaged.

We appreciate the opportunity to provide services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (201) 332-1844 or bmorgan@aeiconsultants.com.

Sincerely,

A handwritten signature in black ink that reads "Brian Morgan". The signature is written in a cursive, flowing style.

Brian Morgan
Business Development Manager
AEI Consultants

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1.0 CERTIFICATION/DISCLAIMER

AEI has completed an Energy Audit for the Property located at 136 Ledgelawn Avenue, Bar Harbor, Hancock County, Maine (the "Property"). AEI visited the site on October 1, 2024.

The energy conservation opportunities contained in this report have been reviewed for technical accuracy. The reader is reminded that energy savings ultimately depend on variable factors including occupant behavior, weather, and quality of installation. Estimated installation costs are based on a variety of sources, including our own experience at similar facilities, our own pricing research using local contractors and vendors, and cost handbooks such as those produced by RS Means. The cost estimates represent the best judgment of the auditors for the proposed action. The Owner is encouraged to confirm these cost estimates independently since actual installed costs can vary widely for a particular installation. AEI does not guarantee installed cost estimates and shall in no event be liable should actual installed costs vary from the estimated costs herein.

AEI does not guarantee the costs savings estimated in this report. AEI shall in no event be liable should the actual energy savings vary from the savings estimated herein.

AEI certifies that it has no undisclosed interest in the Property and that AEI's employment and compensation are not contingent upon the findings or estimated costs to remedy any deficiencies due to deferred maintenance and any noted component or system replacements.

2.0 EXECUTIVE SUMMARY

AEI Consultants (AEI) was retained by Town of Bar Harbor to conduct an ASHRAE Level II Energy Audit, in conformance with the scope and limitations of ASHRAE *Procedures for Commercial Building Energy Audits*, Second Edition (2011), ANSI/ASHRAE/ACCA Standard 211-2018, *Standard for Commercial Building Energy Audits* for the Property located at 136 Ledgelawn Avenue, Bar Harbor, Hancock County, Maine (the "Property").

2.1 PURPOSE AND SCOPE

AEI has comprehensively analyzed the Property to identify possible areas where Energy and Water may be conserved. The areas considered include HVAC equipment, lighting, domestic water heating, appliances, fenestration, insulation, roofing, bathroom fixtures, and miscellaneous equipment.

Utility Analysis

AEI has performed a comprehensive utility analysis to determine the buildings' Energy and Water consumption. The study utilizes at least 12 months of utility bills. Energy and water consumption baselines were determined by observing peak loads during the year.

Energy Audit Process

Where possible, in addition to the Site Survey, AEI has utilized construction drawings, interviews, and maintenance records to determine the energy performance of the building and its associated mechanical, electrical, and HVAC equipment.

Accuracy of Analysis

AEI utilized spreadsheet calculations to estimate savings based on the actual conditions of the facility and its energy-consuming equipment. Simple payback is calculated by dividing the new equipment's total labor and material cost by the yearly cost savings. AEI shall not be responsible for equipment that may not reach the end of its useful life or costs more to operate than noted in the Energy Efficiency Measures.

Current Energy Code

The energy codes adopted by at the time of this report are the 2015 International Energy Conservation Code (2015 IECC) and ASHRAE 90.1-2013 for Commercial construction.

2.2 SIGNIFICANT ASSUMPTIONS

The following assumptions are made by AEI in this report. AEI relied on information derived from secondary sources including governmental agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, and personal interviews. AEI has reviewed and evaluated the thoroughness and reliability of the information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, or personal interviews. It appears that all information obtained from outside sources and reviewed for this assessment is thorough and reliable. However, AEI cannot guarantee the thoroughness or reliability of this information.

2.3 LIMITATIONS

Available information has been analyzed using currently accepted assessment techniques and it is believed that the inferences made are reasonably representative of the Property. AEI makes no warranty, expressed or implied, except that the services have been performed in accordance with generally accepted industry practices applicable at the time and location of the study.

Responses received from local government agencies or other secondary sources of information after the issuance of this report may change certain facts, findings, conclusions, or circumstances to the report. A change in any fact, circumstance, or industry-accepted procedure upon which this report was based may adversely affect the findings, conclusions, and recommendations expressed in this report.

2.4 RELIANCE

All reports, both verbal and written, are for the benefit of Town of Bar Harbor. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns.

Reliance is provided in accordance with Town of Bar Harbor and AEI's contract and Terms and Conditions dated August 28, 2024. The limitation of liability defined in the contracted terms is the aggregate limit of AEI's liability to the client and all relying parties.

2.5 FINANCIAL ANALYSIS DEFINITIONS

Simple Payback = The estimated installation cost divided by the calculated annual cost avoidance.

EUL = Estimated Useful Life of components and systems as determined by manufacturers, ASHRAE, HUD, Fannie Mae, Freddie Mac and other authorities.

SIR = Savings to Investment Ratio; $(EUL \times \text{Annual Savings}) \div \text{Initial Cost}$

ROI = Return on Investment; $(EUL \times \text{Annual Savings} - \text{Initial Cost}) \div \text{Initial Cost}$

IRR = Internal Rate of Return; the annual yield from a project, usually expressed as a percentage of the total amount invested; the compound rate of interest which, when used to discount cash flows, will result in zero net savings. If the IRR is greater than the investor's stated discount rate, the measure is considered beneficial.

NPV = Net Present Value; The value (the gain minus the cost) of an investment in today's dollars over some specified time period. If the investment has a positive NPV, it is generally considered to be beneficial.

2.6 SUMMARY OF BUILDING PERFORMANCE

The following table summarizes the current and proposed building performance with the recommended Energy and Water Efficiency Measures (EWEMs) described in the following section.

EWEM Summary Table	
Current Building Energy Usage	5,190,703 kBtu
Current Building Energy Cost	\$194,686
Proposed Energy Savings	406,060 kBtu
Proposed Energy Cost Savings	\$11,666
Energy Savings	7.8%
Energy Cost Savings	6.0%
Investment for EEM's	\$145,228
Payback for Investments (without water savings)	12.4 Years
Payback for Investments (with water savings)	12.3 Years
Site Energy Use	
Current Electric Site Energy Consumption	1,109,443 kWh
Proposed Electric Savings	49,448 kWh
Proposed Electric Savings	4.5%
Current Propane Site Energy Consumption	6,326 Gallons
Proposed Propane Savings	-6,760 Gallons
Proposed Propane Savings	0.0%
Current Fuel Oil (No. 2) Energy Consumption	5,966 Gallons
Proposed Fuel Oil (No. 2) Savings	6,179 Gallons
Proposed Fuel Oil (No. 2) Savings	103.6%
Site Energy Use Intensity	
Total Building Area	14,433 Sq. Ft.
Current Site Energy Use Intensity	359.6 kBtu/Sq. Ft.
Proposed Site Energy Use Intensity	332 kBtu/Sq. Ft.
Current Source Energy Use Intensity	833 kBtu/Sq. Ft.
Proposed Source Energy Use Intensity	783 kBtu/Sq. Ft.
Site Greenhouse Gas Emissions	
Current Site GHG Emissions	369.00 MTCO ₂ e/Yr
Water and Sewer Usage	
Current Usage	26.89 kGal
Current Cost	\$325
Proposed Savings in kGal	12.44 kGal
Proposed Cost Savings	\$150
Percent Water Savings	46.3%

2.7 RECOMMENDED ENERGY AND WATER EFFICIENCY MEASURES (EWEM)

The following recommended EWEMs have been analyzed using calculations based on occupant usage, localized climate conditions, HVAC and ventilation operating hours, and lighting hours. The HVAC operating hours are approximations and may vary depending on the severity of the weather. Water consumption is based on the number of occupants and assumed running times for water consuming devices. The EWEM table shows the initial investment cost, energy and water consumption and cost savings, estimated equipment expected useful life (EUL), investment simple payback, savings to investment ratio (SIR), and return on investment (ROI) for each EWEM. The utility cost increase over the life of the EWEMs implemented was not considered as a factor in the financial analysis for each measure. Any analyzed EWEMs with a Savings to Investment Ratio less than 1.0 (or a negative Return on Investment) are not included in this table.

Energy And Water Efficiency Measures (EWEM) Summary

Energy And Water Efficiency Measure (EWEM) Description	Initial Cost (\$\$)	Electricity Savings (kWh)	Propane Savings (Gal)	Fuel Oil Savings (Gal)	Water/ Sewer Savings (kGal)	Annual Utility Savings (\$\$)	Simple Pay Back (Years)	EUL (years)	SIR	ROI	% Energy Savings	% Water Savings	Projected GHG Emissions Reduction MTCO _{2e}	kBTU Savings
Replace 15 Existing Toilets and 3 Existing Urinals with WaterSense Labeled Low Flow 1.28 GPF Single Flush Toilets and 0.125 GPF Urinals.	\$5,450	0	0	0	12.4392	\$150	36.2	20	0.55	-0.45	0.0%	46.3%	0.00	0
Retrofit 121 Interior Fluorescent Lamps with DLC Certified LED tubular Lamps	\$23,810	32,545	0	0	0	\$4,886	4.9	10	2.05	1.05	2.1%	0.0%	7.99	111,048
Replace 25 Exterior Area Lighting Fixtures with 12 Bi-Level Linear LED Lighting Fixtures	\$1,975	15,513	0	0	0	\$2,329	0.8	25	29.48	28.48	1.0%	0.0%	3.81	52,931
Replace Two (2) Existing 37 kBTUH and Nine (9) 45 kBTUH Standard Efficiency Propane Unit Heaters with Energy Star Certified High Efficiency Condensing Unit Heaters; or equivalent.	\$43,256	0	1,137	0	0	\$2,045	21.2	25	1.18	0.18	2.0%	0.0%	6.39	104,026
Replace Two (2) Existing 29 & 21 kBTUH Standard Efficiency Gas Furnaces with Energy Star Certified High Efficiency Condensing Furnaces; or equivalent.	\$7,865	0	679	0	0	\$316	24.9	25	1.00	0.00	1.2%	0.0%	3.82	62,150
Replace the existing Fuel Oil #2 Boiler with a Condensing Propane Boiler	\$45,129	0	-8,853	5,966	0	\$786	57.4	25	0.44	-0.56	0.3%	0.0%	11.33	16,269
Replace the existing single-pane aluminum frame windows with dual-pane vinyl frame windows with a U-value of 0.30 or less.	\$17,743	1,390	277	213	0	\$1,304	13.6	30	2.20	1.20	0.6%	0.0%	1.80	32,472
Totals =	\$145,228	49,448	-6,760	6,179	12.4	\$11,816	12.3	n/a	n/a	n/a	7.3%	46.3%	35.14	378,897

2.8 ENERGY AND WATER EFFICIENCY MEASURES NOT RECOMMENDED

While the last EWEM in the table above has a projected Savings to Investment Ratio less than 1.0 and a slightly negative Return on Investment, it would not be recommended purely from a financial investment standpoint. However, with a substantial projected emissions reduction of 11.33 MTCO₂e, it represents a significant opportunity for greenhouse gas reduction.

3.0 BACKGROUND

3.1 GENERAL PROPERTY DESCRIPTION

The wastewater treatment system consists of the following key facilities:

- **Main Wastewater Treatment Plant:**
 - Location: 136 Ledgeawn Ave
 - Details: Originally built 1950, underwent substantial renovation [*(Insert year if known or omit)*]. Includes main treatment building, two clarifiers, septic receiving shed.
 - Area: 8,957 sq ft

- **Hulls Cove Wastewater Treatment Plant:**
 - Location: 99 Public Works Way
 - Details: Two buildings constructed in 2005.
 - Area: 1,084 sq ft (total)

- **DeGregoire Park Wastewater Treatment Plant:**
 - Location: 57 DeGregoire Park Road
 - Details: Constructed 1932. Its electrical meter also serves a pump station down the street.
 - Area: 726 sq ft

- **"Main Street" Pump Station:**
 - Location: 1 Cromwell Harbor Road
 - Details: Built 1974.
 - Area: 354 sq ft

- **Eagle Lake Road Pump Station:**
 - Location: 422 Eagle Lake Road
 - Details: Built 1920.
 - Area: 312 sq ft

- **Additional Pump Stations:** The system also includes pump stations at the following addresses (further details not specified):
 - 22 Wilcomb Lane
 - 21 Dr. Ellis Pier
 - 31 Ocean Ave
 - 138 West Street

- 15 State Hwy 3

The the gross building area of all the Properties is 14,433 square feet.

The site contact was Tony Griffin; phone: (207) 288-4028.



Exterior Pumphouse Shell



Exterior Pumphouse Shell



Exterior Pumphouse Shell



Exterior Pumphouse Shell and Exhaust Fan



Pump Lift Station



57 Degregoire Park Exterior Shell



57 Degregoire Park Exterior Shel



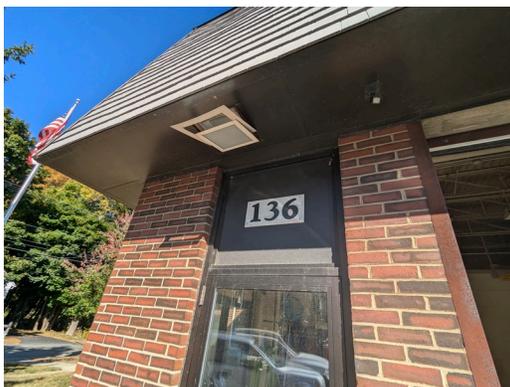
99 Public Works Way Exterior Shell



99 Public Works Way Exterior



99 Public Works Way Exterior Shell



136 LedgeLawn Exterior



136 LedgeLawn Exterior Shell



136 Ledgelawn Exterior Buildings



136 Ledgelawn Exterior



136 Ledgelawn Storage Shed Exterior



Hulls Cove Pump House



Hulls Cove Building



Strawberry Hill Pump House



Eddie Brook Pump Station Generator

3.2 EXISTING ENERGY AND WATER EFFICIENCY MEASURES

The following existing energy and water efficiency improvements were observed at the Property:

1. VFDs installed on 60 HP blowers (manually controlled through SCADA)
2. VFDs on return pumps for clarifier sludge pumping
3. Some LED lighting upgrades completed in office areas
4. Regular maintenance program for pumps and equipment
5. Annual professional boiler maintenance
6. Boiler replacement within last 10 years

4.0 UTILITY ANALYSIS

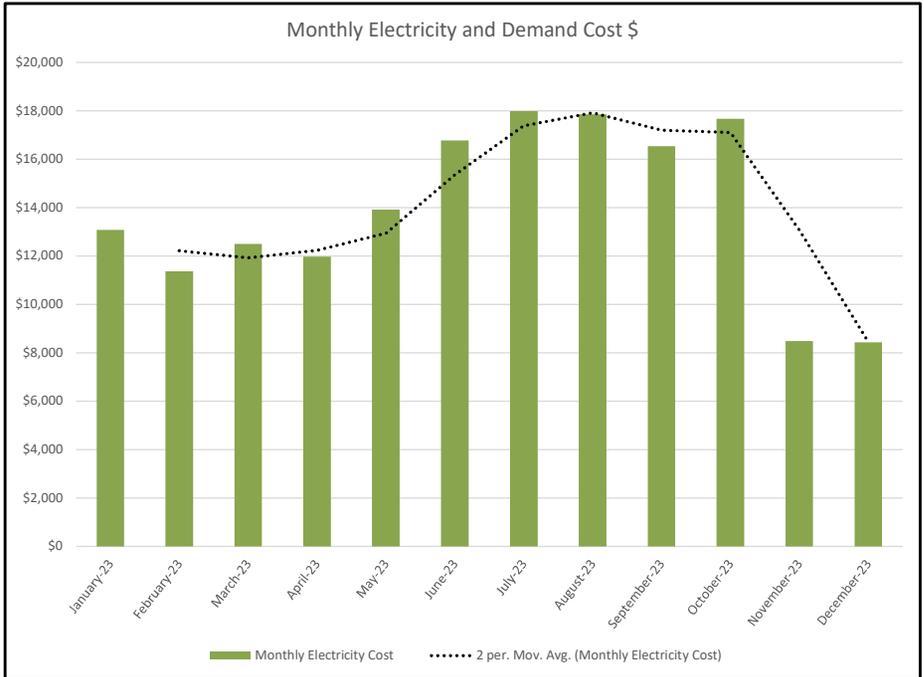
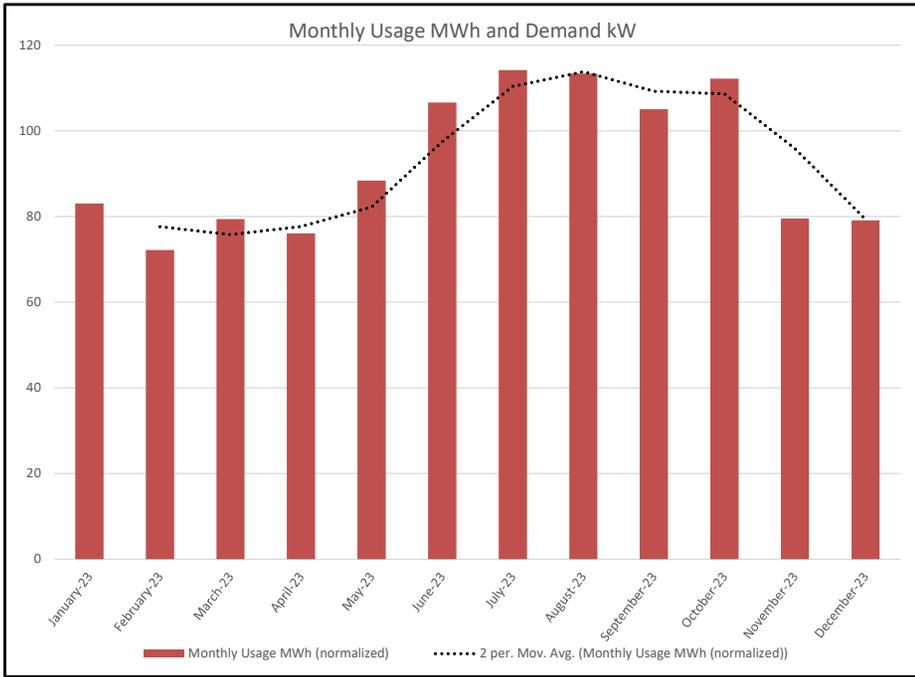
4.1 UTILITY PROVIDERS

Utility Type	Utility Provider Name
Electricity	Constellation NewEnergy
Natural Gas	No Frills Energy
Propane	Propane Provider
Fuel Oil	No Frills Energy
Water	Town of Bar Harbor
Sewage Disposal/Treatment	Town of Bar Harbor

4.1.1 ELECTRICITY

The following utility analysis covers the period of January 2023 to December 2023 and is based on bills obtained from the property owner. The cost per kWh is calculated in the fourth column. The bottom row shows the annual electrical energy consumption and cost.

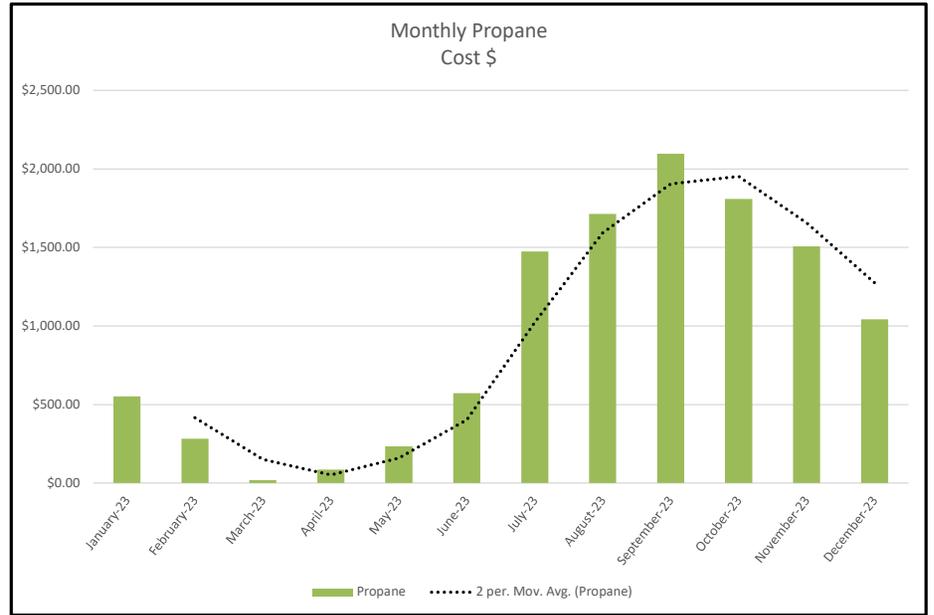
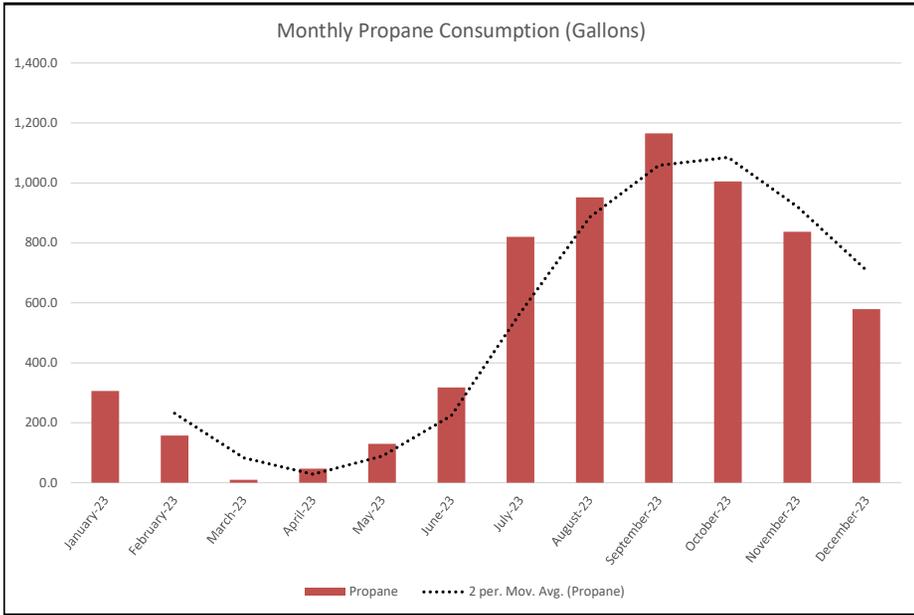
Billing Month & Year	Monthly Electricity Usage (kWh)	Monthly Electricity Cost	Cost per kWh	kBTU Usage (kWh x 3.41)
January-23	83,086	\$13,080	\$0.16	283,501
February-23	72,195	\$11,366	\$0.16	246,339
March-23	79,381	\$12,497	\$0.16	270,859
April-23	76,049	\$11,972	\$0.16	259,490
May-23	88,431	\$13,922	\$0.16	301,739
June-23	106,597	\$16,782	\$0.16	363,724
July-23	114,228	\$17,983	\$0.16	389,762
August-23	113,456	\$17,861	\$0.16	387,128
September-23	105,111	\$16,548	\$0.16	358,653
October-23	112,233	\$17,669	\$0.16	382,955
November-23	79,572	\$8,482	\$0.11	271,511
December-23	79,104	\$8,432	\$0.11	269,914
Annual Electricity Usage & Cost:	1,109,443	\$166,594	\$0.15	3,785,575



4.1.2 LP GAS

Propane billing history was not provided, so propane consumption for these facilities was estimated. The chart below shows the estimated monthly consumption and cost of the liquefied petroleum (LP) gas for the Property. The cost per Gal is shown in the fourth column. The bottom row shows the estimated annual LP gas consumption and cost for these Properties.

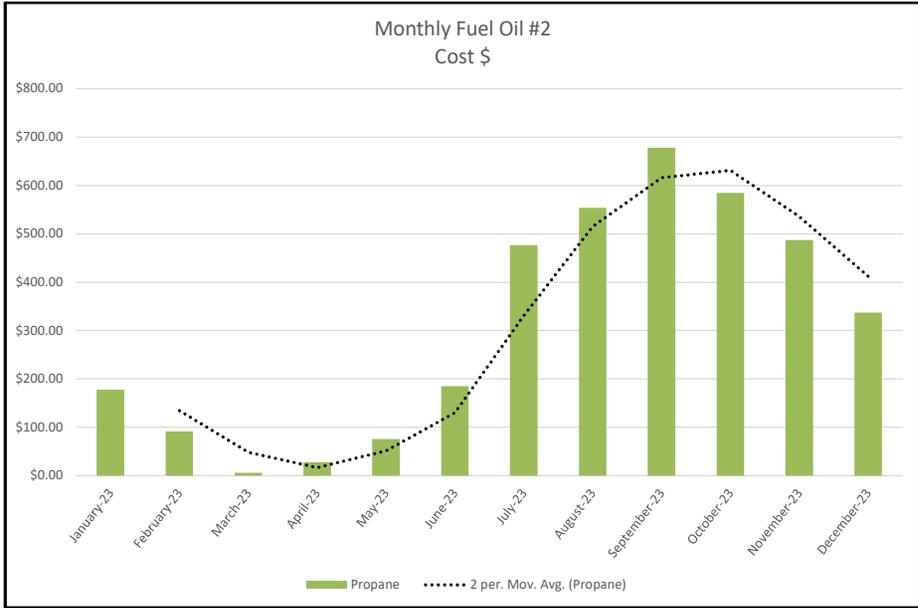
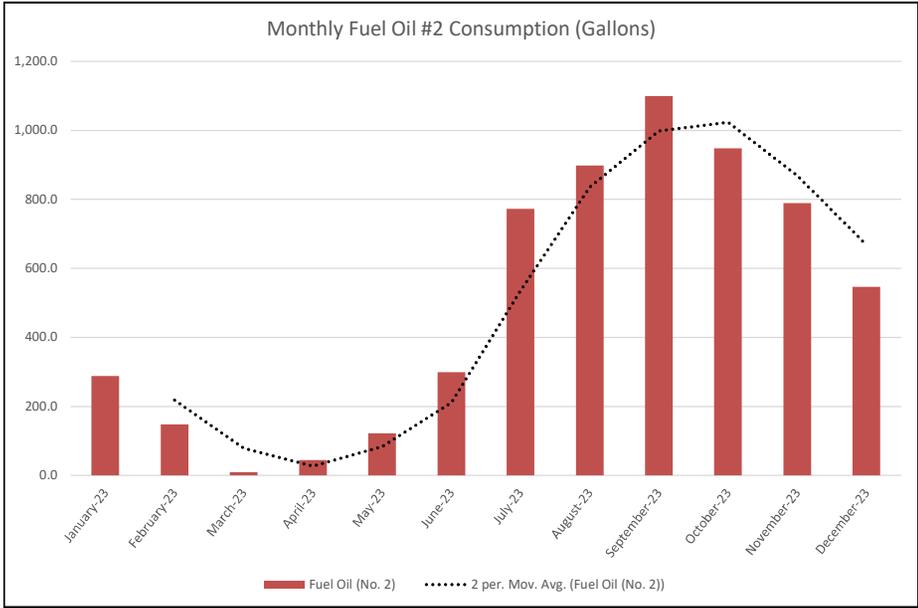
Billing Month & Year	Monthly LP Gas Usage (Gal)	Monthly LP Gas Cost	Cost per Gal	kBTU Usage (Gal x 91,547)
January-23	98.9	\$177.96	\$1.80	9,051.3
February-23	50.7	\$91.18	\$1.80	4,637.4
March-23	3.2	\$5.68	\$1.80	289.0
April-23	15.3	\$27.55	\$1.80	1,401.3
May-23	42.0	\$75.53	\$1.80	3,841.3
June-23	102.7	\$184.82	\$1.80	9,400.2
July-23	265.0	\$476.68	\$1.80	24,244.8
August-23	308.0	\$554.14	\$1.80	28,184.3
September-23	376.8	\$677.85	\$1.80	34,476.6
October-23	325.0	\$584.74	\$1.80	29,741.0
November-23	270.7	\$487.03	\$1.80	24,771.0
December-23	187.4	\$337.16	\$1.80	17,148.3
Annual Propane Delivery (Gal) and Cost:	2,045.7	\$3,680.32	\$1.80	187,187



4.1.3 FUEL OIL (No. 2)

The chart below shows the monthly consumption and cost of the #2 Fuel Oil for the Wastewater Treatment Plant at 136 Ledgelawn Ave. The cost per Gal is calculated in the fourth column. The bottom row shows the annual Fuel Oil consumption for this facility.

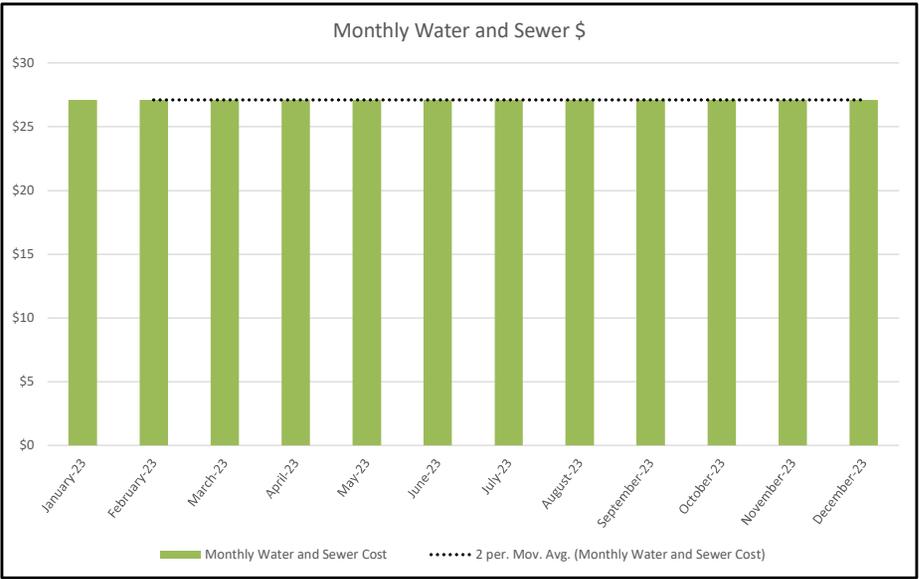
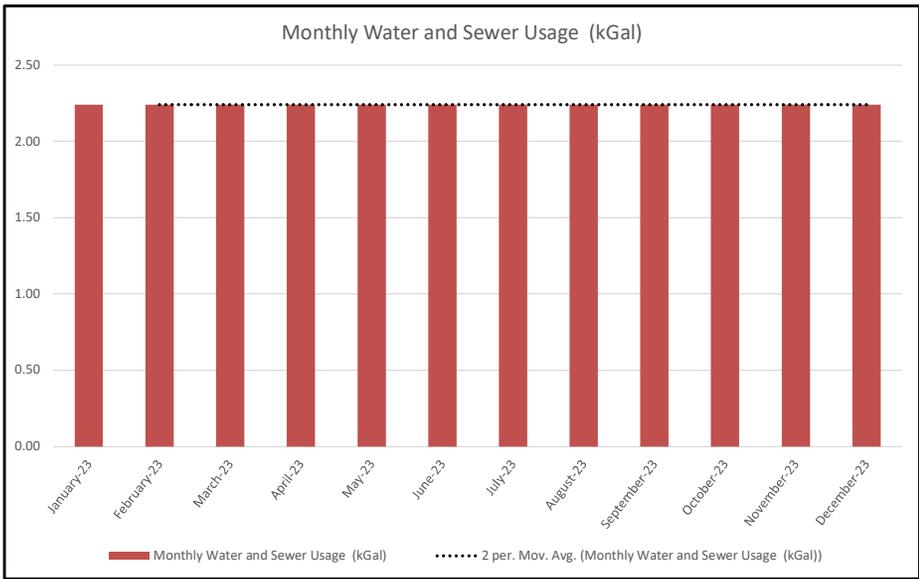
Billing Month & Year	Monthly Fuel Oil Cost	Monthly Fuel Oil Usage (Gal)	Cost per Gal	kBTU Usage (Gal x 138.874)
May-23	288.5	\$795.95	\$2.76	344,458.1
June-23	147.8	\$407.80	\$2.76	176,482.9
July-23	9.2	\$25.41	\$2.76	10,997.8
August-23	44.7	\$123.23	\$2.76	53,328.8
September-23	122.4	\$337.80	\$2.76	146,187.2
October-23	299.6	\$826.63	\$2.76	357,738.4
November-23	772.8	\$2,132.03	\$2.76	922,670.5
December-23	898.3	\$2,478.46	\$2.76	1,072,592.8
January-24	1,098.9	\$3,031.79	\$2.76	1,312,053.4
February-24	947.9	\$2,615.35	\$2.76	1,131,835.4
March-24	789.5	\$2,178.30	\$2.76	942,694.7
April-24	546.6	\$1,759.40	\$3.22	652,602.9
Annual Fuel Oil Delivery (Gal) and Cost:	5,966.2	\$16,712.17	\$2.80	7,123,643



4.1.4 WATER AND SEWER

Water consumption history was not provided for any of these facilities. Water consumption was estimated using industry-standard assumptions based on building occupancy and typical fixture flow rates.

Billing Month & Year	Monthly Water and Sewer Usage (kGal)	Monthly Water and Sewer Cost	Cost per kGal
January-23	2.24	\$27	\$12.10
February-23	2.24	\$27	\$12.10
March-23	2.24	\$27	\$12.10
April-23	2.24	\$27	\$12.10
May-23	2.24	\$27	\$12.10
June-23	2.24	\$27	\$12.10
July-23	2.24	\$27	\$12.10
August-23	2.24	\$27	\$12.10
September-23	2.24	\$27	\$12.10
October-23	2.24	\$27	\$12.10
November-23	2.24	\$27	\$12.10
December-23	2.24	\$27	\$12.10
Annual Water and Sewer Usage & Cost:	26.89	\$325	\$12.08



4.2 ENERGY & WATER BENCHMARKING

The buildings associated with this report are not eligible for an Energy Star Score; therefore, these properties have not been benchmarked in Energy Star Portfolio Manager.

5.0 BUILDING SYSTEMS

5.1 ENVELOPE

The following table shows the building envelope components that were observed at the Property.

Building Component	136 LedgeLawn Ave	Condition
Foundation	Slab-on-grade	Good
Framing	Concrete Masonry Units (CMU)	Good
Exterior Cladding	Unpainted Brick	Good
Roof	Flat, Asphalt Built-up Roofing (BUR) System	Good
Windows	Single pane with Aluminum Frame	Opportunity for improvement
Exterior Doors	Single pane with Aluminum Frame	Opportunity for improvement
Attic Insulation	Fiberglass Batts	Opportunity for improvement

5.2 LIGHTING

Interior Lighting consists of:

- Mix of T12, T8, and LED fixtures throughout facility
- Main garage: Eight 2-lamp 8' 96W T12 fixtures
- Chemical treatment room: Three 2-lamp T12 fixtures
- Sludge dewatering: Twenty 2-lamp 8' T12 fixtures
- Basement/pump room: Thirteen 2-lamp 8' T8s
- Lab area: Seven 4' 2-lamp T8 fixtures
- Explosion-proof room: Fourteen 2-lamp 4' T8 explosion-proof fixtures
- LED fixtures in office areas

Exterior Lighting consists of:

- Mix of incandescent/LED fixtures (16 fixtures at approximately 60W each)
- Six HID pole lights (approximately 250W each)
- Issues with water infiltration in some exterior fixtures

The following table provide an inventory of observed lighting fixtures, lamp type, and wattage.

Lighting Audit

Area of Building	Exitsting Fixture	Total # Fixures	Bulbs Per Fixture	Total # of Bulbs	LED Equivalent Wattage	Current kWh Usage	kWh Usage w/ LED	kWh Saved Per Year	Cost Per kWh	Current Annual Op Cost	Annual Cost Using LEDs	Savings	Cost to Install Lighting	Pay back
Interior Lights	1B 8W LED	8	1	8	0	186	0	0	0.15	\$28	\$0	\$0	\$0	-
Exterior Lights	1B 15W LED	4	1	4	0	404	0	0	0.15	\$61	\$0	\$0	\$0	-
Interior Lights	2B 32W 4' T8	3	2	6	11	399	137	262	0.15	\$60	\$21	\$39	\$52	1.3
Explosion Proof Lights	1B 70W Incandescent	1	1	1	11	146	23	123	0.15	\$22	\$3	\$18	\$14	0.7
Interior Lights	2B 100W 8' T12 Electronic	43	2	86	15	25112	3767	21345	0.15	\$3,771	\$566	\$3,205	\$10,342	3.2
Interior Lights	2B 32W 4' T8	54	2	108	11	10092	3469	6623	0.15	\$1,515	\$521	\$994	\$13,160	13.2
Exterior Lights	1B 60W Incandescent	16	1	16	10	6461	538	5922	0.15	\$970	\$81	\$889	\$1,975	2.2
Garage Lights	4B 16W LED	4	4	16	0	374	0	0	0.15	\$56	\$0	\$0	\$0	-
						60,070	9,837	48,058		\$ 9,020	\$ 1,477	\$ 7,216	\$ 25,786	3.57

Lighting Photographs



Exterior Lighting



Exterior Lighting



99 Public Works Way Exterior Light Fixture



99 Public Works Way Interior Lighting



99 Public Works Way Interior Lighting



99 Public Works Way Interior Light Fixture



136 LedgeLawn Exterior



136 LedgeLawn Interior Linear Fluorescent Light Fixtures



136 LedgeLawn Interior Lighting



136 LedgeLawn Exterior Light Fixture



136 LedgeLawn Exterior LED Light Fixture



Halls Cove Exterior Building Lighting

5.3 BUILDING MECHANICAL SYSTEMS

136 LedgeLawn Ave:

HVAC:

- Four mini-split heat pumps (one installed in 2020)
- Four Modine hot water unit heaters in the main garage
- One make-up air unit (MAU) serving the entire building
- Two electric resistance heaters

Plumbing:

- 1.8 GPM showerhead (minimal usage)
- Electric tank water heater for domestic hot water

Process Equipment:

- 60 HP blowers with VFD controls
- Return pumps for sludge handling
- Small motors running 24/7 (7A motor replaced bi-annually)
- 4 HP submersible centrifugal pump
- Downstairs pump operating 4 hours daily
- Regular pump rebuilding program based on performance monitoring

57 DeGregiore Park Road:

HVAC:

- One 37 MBH propane unit heater

99 Public Works Way:

HVAC:

- One 16.56 MBH propane furnace
- One window-mounted cooling-only PTAC unit
- One 5 kW electric resistance heater
- One 36.9 MBH propane unit heater

Building Mechanical System Photographs



Exterior Pumphouse Shell and Exhaust Fan



Backup Generator



Typical Pump and Motor



57 Degregoire Park Unit Heater



57 Degregoire Park Water Heater



57 Degregoire Park Water Heater



99 Public Works Way Water Heater



99 Public Works Way PTAC Unit



99 Public Works Way Unit Heater



136 Ledgeawn Mini-Split Condensing Unit



136 Ledgeawn Interior Mini-Split Unit



136 Ledgeawn Unit Heater



136 Ledgelawn Air Compressor



136 Ledgelawn Air Dryer



136 Ledgelawn Exterior Mini-Split Condensing Unit



136 Ledgelawn Mini-Split Condensing Unit



136 Ledgelawn Heater



136 Ledgelawn Unit Heater



136 Ledgelawn Interior Mini-Split Unti



136 Ledgelawn Interior Mini-Split Unti



Hulls Cove Interior Heater



Eddie Brook Pump Station Generator

5.4 APPLIANCES

Appliances at these facilities consist of refrigerators, incubators, and residential laundry machines.

The following table provides the details of the typical appliances observed in these facilities.

Appliance Photographs



136 Ledgelawn Refrigerator



136 Ledgelawn Refrigerator

5.5 LAUNDRY EQUIPMENT

Laundry equipment at this facility consist of a single residential clothes washing machine and a single residential electric clothes dryer.

The following table provides the details of the laundry equipment observed at these facilities.

Laundry Equipment Photographs



136 Ledgelawn Laundry Equipment

Laundry Equipment

Number	Location	Appliance Type	Manufacturer	Typical Model #	Typical Serial #	YEAR of Manufacture	EUL	RUL	Quantity	Annual Usage (kWh, gal/cycle, etc.)	Energy Star?	kWh/Cycle	MEF	Water Factor	Avg Hot Water Use Hot Cycle	Avg Hot Water Use Warm Cycle
	136 Ledgeawn Ave	Clothes Dryer	Maytag	MDE20MNBW1	MB1101590	2020	10	6	1			0.054	2.45	3.5	2.71	0.71
	136 Ledgeawn Ave	Clothes Washer	Maytag	MHN33PRCWW2	CX3300085	2020	10	6	1	10.71 Gal/cycle	Yes					

Motors, Fans, and Pumps

Location	Description	Type	Manufacturer	Model #	Spec.	Year of Mfg.	ELC	R/L	Quantity	Size	Size Units	Volts	Amps	Frame	Nom. Eff.	RPM	Service Factor	Inverter Duty?	Head (Ft.)	GPM	VFD Speed	VFD Speed	Hours/Day	kWh/Year		
99 Public Works Way		Motor	Westinghouse	4E3HP	E1191418037		16	0	1	3/2.2	HP/VW	230/460	7.70/3.85	182T	89.5%	1755	1.15									
136 Ledglawn Ave	Aeration Blower B-1	Motor	Baldor	EM4314T		2018	16	9	1	60	HP	460	49	364T	95.0%	1780	1.15	Yes	0.604494382							
136 Ledglawn Ave	Aeration Blower B-2	Motor	Baldor	EM4314T	1196-1239	2022	16	13	1	60	HP	230/460	138/69	364T	95.0%	1780	1.15	Yes	0.611666667							
136 Ledglawn Ave	Aeration Blower B-3	Motor	Baldor	EM4314T		2019	16	10	1	60	HP	230/460	138/69	364T	95.0%	1780	1.15	Yes								
136 Ledglawn Ave	Aeration Blower B-4	Motor	Baldor	EM4314T		2021	16	12	1	60	HP	230/460	138/69	364T	95.0%	1780	1.15	Yes								
1 Cromwell St 'Main Street'	Sewage Pump	Pump	Smith & Lowless, Inc			2021	20	16	1	50	HP	460	61			1185						1.752	65,320			
1 Cromwell St 'Main Street'	Sewage Pump	Motor	Siemens	1M821213C216AG3		2021	16	12	1	50	HP	230/460	124.0/62.0	365T	94.1%	1185	1.15						1.752	130,699		
136 Ledglawn Ave	PW.1	Pump	Peerless Pump Company	8195 - 112.10	992708417-10-A	1997	20	-8	1	20	HP	230/460	47.2/23.6	256T	92.4%	3545	1.25	Yes	160	80				0		
136 Ledglawn Ave	PW.2	Pump	Peerless Pump Company	A448		1997	20	-8	1	20	HP	230/460	57.6/28.8	256T	92.4%	3545	1.25	Yes	310	100				0		
136 Ledglawn Ave	PW.3	Pump	Peerless Pump Company	8196 - 102.10	175272A	1997	20	-8	1	20	HP	230/460	57.6/28.8	256T	92.4%	3545	1.25	Yes	310	100				0		
136 Ledglawn Ave	PW.3	Motor	U.S. Electrical Motors	A448		1997	16	0	1	20	HP	230/460	57.6/28.8	256T	92.4%	3545	1.25	Yes	310	100				0		
136 Ledglawn Ave	Return Sludge Pump RS-17	Pump	Wemco	CE - 6111	96W13281		20	0	1	20	HP	230/460	57.6/28.8	256T	92.4%	3545	1.25	Yes	37	250				0		
136 Ledglawn Ave	Return Sludge Pump RS-1 & RS-2	Pump	Wemco	ESK-H-E25M	96X13285 & 96X13286		20	0	2	20	HP					1800/1650/1650						16/50/36	250/1050/1500			
136 Ledglawn Ave	RS-1, RS-2, & RS-3	Motor	Reliance Electric	01UR2A303801 G 2 ZY			16	0	3	20	HP	230/460	48/24	256T	92.4%	1760	1.15	Yes								
136 Ledglawn Ave	Supply Fan SF-1	Motor	Nidec Motor Corporation	D713	U20PID		16	0	1	20	HP	208 230/460	53.00/48.00/23.10	256T	91.0%	3533	1.25									
136 Ledglawn Ave	WS-1	Pump	Wemco	D4K-HS-825M	96X13287		20	0	1	20	HP					1450						32/25	325/450			
136 Ledglawn Ave	WS-1	Motor	Reliance Electric				16	0	1	20	HP	230/460	48.0/24.0	256T	92.4%	1540	1.15									
136 Ledglawn Ave	WS-1	Pump	Moyno	1H115G1 LQD 50K	AS4703196-2 ZB		20	0	1	15	HP					242								0		
136 Ledglawn Ave	WS-1	Motor	Moyno	1H115G1 LQD 50K	AS4703196-1 ZB		20	0	1	15	HP					242								0		
136 Ledglawn Ave	WS-1	Motor	Reliance Electric	01UR2A438801C 1 PZ			16	0	1	15	HP	460	18.1	254TC	92.4%	1765	1.15	Yes	44	50-250				0		
136 Ledglawn Ave	WS-1	Motor	Reliance Electric	01UR2A438801C 1 PZ			16	0	1	15	HP	460	18.1	254TC	92.4%	1765	1.15	Yes	44	50-250				0		
136 Ledglawn Ave	WS-1	Motor	Marathon	3zy			16	0	1	15	HP	230/460			92.4%	1765	1.15							0		
136 Ledglawn Ave	WS-1	Pump	Peerless Pump Company	3T51		2014	20	0	1	10	HP				92.4%	1765	1.15							0		
136 Ledglawn Ave	WS-1	Motor	U.S. Electrical Motors	A438B		2014	16	5	1	10	HP	230/460	24.6/12.3	215T	91.7%	3510	1.25							0		
136 Ledglawn Ave	WS-1	Motor	Reliance Electric Industrial Co.	P21P101		2014	16	0	1	10	HP	230/460	25/12.5	215T	90.5%	1760	1.15							0		
1 Cromwell St 'Main Street'	Exhaust Fan	Motor	Westinghouse				16	0	1	7.5	HP	230/460	17.7/8.85	213L	91.7%	1760	1.15	Yes								
136 Ledglawn Ave	Return Sludge Pump RS-1	Motor	Reliance Electric	01UR2A30301G 1 Y1	WJ0239516028		16	0	1	7.5	HP	230/460	18.0/9.0	213T	90.2%	1760	1.15	Yes								
136 Ledglawn Ave	Return Sludge Pump RS-1	Motor	Reliance Electric	39C02JP30C			16	0	1	7.5	HP	230/460	18.0/9.0	213T	90.2%	1760	1.15	Yes								
1 Cromwell St 'Main Street'	Air Compressor	Motor	WEG	0516073416F		2021	16	12	5	HP	230/460	12.7/6.33	182-14T		89.5%	1760	1.15	Not Inverter								
136 Ledglawn Ave	Downstairs	Motor	U.S. Electrical Motors	A906			16	0	2	5	HP	200	15.5	184T	84.0%	1745	1.25					100	5	37		
136 Ledglawn Ave	WS-1	Motor	Reliance Electric	01UR2A30391G 1 Y2			16	0	1	5	HP	230/460	12.7/6.1	L184T	88.5%	1750	1.15	Yes								
136 Ledglawn Ave	WS-1	Pump	Nord Gear Corporation	225112M4	130767		20	0	1	5	HP	230/460	14.8/7			1745								0		
136 Ledglawn Ave	WS-1	Pump					20	0	1	4	HP														0	
136 Ledglawn Ave	WS-1	Pump	GEA/DOY	Tromm	GR-TXHQ2-4000-56C					3.63	HP														0	
57 Degreepore Park	Scum Waste Pump	Motor	WEG	1120M171		2021	16	12	2	3	HP	208/230	13-12.7	56H	78.6%	3480									0	
57 Degreepore Park	RS/WAS Pump	Motor	Westinghouse		VA Q3158302019		16	0	1	3	HP	230/460	7.7/3.85		89.5%	1755	1.15	Yes							0	
99 Public Works Way	RS/WAS/SCUM PUMPS P-1	Motor	WEG	00318ET3E12TC			16	0	1	3	HP	208 230/460	8.63/7.80/3.90	182TC	89.3%	1760	1.15					25	104			
99 Public Works Way	RS/WAS/SCUM PUMPS P-2	Pump	Hayward Gordon Inc.	CL54-B	282300-2		20	0	1	3	HP					1260									0	
57 Degreepore Park	RS/WAS/SCUM PUMPS P-2	Motor	U.S. Electrical Motors	7964B			16	0	1	3	HP	230/460	8.1/4.05	182T	89.5%	1760	1.15								0	
57 Degreepore Park	RS/WAS/SCUM PUMPS P-2	Motor	Dodge APG	PT81344001XZ 079163-98-AG	56DM1A		16	0	1	2.42	HP					188.17									0	
57 Degreepore Park	RS/WAS/SCUM PUMPS P-2	Motor	Dodge		56DM1A		16	0	1	2.42	HP					188.17										0
136 Ledglawn Ave	WS-1	Motor	Baldor	at. No.: V3M157; Spec.: 13615-77	0901113858	2006	16	-3	1	2	HP	208 0/230 0/460 0	6.7/6.14/3.1	56C	80.0%	1740	1.15	Not Inverter							0	
136 Ledglawn Ave	WS-1	Motor	Baldor	at. No.: V3M157; Spec.: 13615-77	0904194262	2006	16	-3	1	2	HP	208 230/460	6.8-6.4/3.2	56C	78.5%	1725	1.15								0	
136 Ledglawn Ave	WS-1	Pump	Thermo Scientific	Herathermo2060		2019	20	14	1	1.73	kW	115/208 230	7.7/3.9-3.9	56C		1725	1.15							Adjust formula for Units		
136 Ledglawn Ave	WS-1	Motor	Dayton	6K3438E			16	0	1	1.5	HP	115/208 230	7.7/3.9-3.9	56C		1725	1.15							0		
136 Ledglawn Ave	WS-1	Motor	Baldor	ECP3581T-4	05668W91		16	0	1	1	HP	460	1.4	143T	85.5%	1790	1.15	Inverter Ready							0	
136 Ledglawn Ave	WS-1	Motor	Dayton Electric Mfg. CO.	4C291			16	0	1	1	HP					1750									0	
1 Cromwell St 'Main Street'	Ventilation Fan	Motor	Dayton Electric Mfg. CO.	6E2788A			16	0	1	0.75	HP	115/230	10.2/5.1	56		1725								8,760	4,901	
136 Ledglawn Ave	Clarifier Buildings	Motor	U.S. Electrical Motors	E437205293930P			16	0	2	0.75	HP	115/230	11/4/5.7	56	77.0%	1750	1.25								0	
57 Degreepore Park	Mixer	Motor	Baldor	V13507	34G452W981		16	0	2	0.75	HP	115/208 230	8.2/4.5-4.1	56C		1725	1.25							3,648	2,041	
57 Degreepore Park	Mixer	Motor	Baldor	V13507	34G452W981		16	0	1	0.75	HP	208 230/460	208 320/460	56C		1708	208 230/460	1.15	Yes						1	0.56
57 Degreepore Park	Mixer	Motor	Marathon Electric	B1 5611704B44			16	0	1	0.75	HP	220/440	2.8/1.4	56-9		1725									0	
57 Degreepore Park	Mixer	Motor	Dayton	6K3438E			16	0	1	0.75	HP	115/230				1725									0	
57 Degreepore Park	Mixer	Motor	Baldor	V3K342	34463-883		16	0	1	0.625	HP	208 230/460	208 230/460	56C	79.5%	208 230/460	1.25	Yes							Adjust formula for Units	
136 Ledglawn Ave	Garage Door Opener	Motor	A.D. Smith				16	0	2	0.5	HP														0	
99 Public Works Way	Garage Door Opener	Motor	U.S. Electrical Motors	F046A		2000	16	-9	2	0.5	HP	208 230/460	2.2	56C		1745	1.25	Yes							0	
57 Degreepore Park	Garage Door Opener	Motor	Baldor	C13504	34C3-5																					

6.0 RECOMMENDED EWEMS

The Recommended EWEMs table found at the beginning of the report identifies the measures that should be considered for further evaluation or implementation. This section describes each Recommended EWEM in further detail.

6.1 CAPITAL COST EWEMS

AEI has identified six (6) capital cost EWEMs for this Property. This includes recommended measures for which the total individual cost is greater than \$1,000.

EWEM #1: RETROFIT BATHROOMS WITH ULTRA LOW-FLOW TOILETS AND URINALS

Existing Condition: The toilets have an average flush volume of 1.6 GPF, and the existing urinals have a flush rate of 1.0 GPF. It is recommended to replace 15 existing toilets and 3 existing urinals with new WaterSense labeled 1.28 GPF toilets and 0.125 GPF urinals. With new lower flush toilets, less water will be consumed per flush saving on water usage and associated costs.

Total estimated cost including labor and material: \$5,450

Estimated O&M savings: None

Operational changes of staff required to support the measure: None

Available rebates or incentives for this measure: More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

Implementation impact to occupants: Minimal; Installation should take less than 30 minutes per toilet

EWEM #2 - RETROFIT INTERIOR LIGHTING WITH ENERGY STAR CERTIFIED LEDs

Existing Condition: This measure recommends retrofitting 121 existing common area light fixtures containing 229 linear fluorescent tube lamps with new Energy Star-certified LED fixtures or lamps. The current fluorescent lighting system exhibits inefficient energy consumption and can be significantly improved by transitioning to modern LED technology.

LED lighting offers a significantly higher lumen-per-watt ratio than traditional fluorescent lighting. LED fixtures consume considerably less energy for the same light output, which results in substantial energy savings. Additionally, LED lamps have a significantly longer lifespan, reducing the frequency of replacements and associated maintenance costs.

The retrofit should prioritize Energy Star-certified LED products to ensure optimal energy efficiency and product quality. The selection of LED fixtures or lamps should be based on the existing fixture types and the desired light output, color temperature, and distribution to maintain or improve the existing lighting quality.

Benefits:

- **Significant Energy Savings:** Reduced electricity consumption due to the higher lumen-per-watt efficiency of LEDs.

- **Reduced Operating Costs:** Maintenance costs will be reduced due to the longer LED lifespans, leading to less frequent replacement intervals.
- **Improved Lighting Quality:** Consistent light output, improved color rendering, and reduced flicker.
- **Extended Lifespan:** LEDs offer a significantly longer lifespan than fluorescent lamps, minimizing replacement frequency.
- **Reduced Environmental Impact:** Lower energy consumption translates to reduced greenhouse gas emissions.

Total Estimated Cost (including labor and materials): \$23,810

Estimated Annual Savings: \$4,886

Estimated Annual Operational & Maintenance (O&M) Savings: The extended lifespan of LED lamps will significantly reduce replacement and maintenance costs over time.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The retrofit will occur in common areas and on-site during regular business hours. Minimal disruption to occupants is expected.

Available Rebates or Incentives:

- Efficiency Maine offers the 2025 Discounted Screw-In LEDs Program. This program provides discounted screw-in LEDs at retailers and distributors across the state. While this program focuses on screw-in bulbs, it is worth investigating whether any common area fixtures can utilize these discounted bulbs.
- Efficiency Maine offers the 2025 Commercial and Industrial (C&I) Custom Program - Electric Projects. This program is for electrical energy efficiency projects that result in at least 36,000 kWh of annual reductions in grid-supplied energy. If the total project savings meet the minimum requirements, this project may qualify for custom incentives. Performing a detailed energy savings calculation to determine eligibility is highly recommended.
- This project may also qualify for the 2025 Commercial and Industrial (C&I) Custom Program - Electric Projects because this program funds electrical energy efficiency projects.
- It is advised to review the Program Opportunity Notice (guidelines and project application) found on the Efficiency Maine website.

More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

EWEM #3 - RETROFIT EXTERIOR LIGHTING WITH ENERGY STAR CERTIFIED LEDs

Existing Condition: This measure recommends retrofitting 25 existing exterior light fixtures with new Energy Star certified bi-level LED fixtures or lamps. Bi-level, occupancy controlled fixtures will dim the exterior lights to 50% when no motion is detected, and raise the brightness to 100% when occupancy is detected.

The retrofit should prioritize Energy Star certified LED products designed for outdoor applications to ensure optimal energy efficiency, weather resistance, and product quality. The selection of LED fixtures or lamps should be based on the existing fixture types, the desired light output, color temperature, and distribution to maintain or improve the existing lighting quality, while also considering safety and security requirements.

Benefits:

- **Significant Energy Savings:** Reduced electricity consumption due to higher lumen-per-watt efficiency of LEDs.
- **Reduced Operating Costs:** Lower energy bills and reduced maintenance costs due to longer LED lifespan.
- **Improved Lighting Quality:** Consistent light output, improved color rendering, and reduced light pollution.
- **Extended Lifespan:** LEDs offer a significantly longer lifespan than traditional exterior lighting, minimizing replacement frequency.
- **Enhanced Safety and Security:** Improved light distribution and color rendering can enhance visibility and security.
- **Reduced Environmental Impact:** Lower energy consumption translates into reduced greenhouse gas emissions.

Total Estimated Cost (including labor and materials): \$1,975

Estimated Annual Savings: \$2,329

Estimated Annual Operational & Maintenance (O&M) Savings: The extended lifespan of LED lamps will significantly reduce replacement and maintenance costs over time, especially for exterior fixtures that may be difficult to access.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The retrofit will occur during normal business hours in exterior areas. Minimal disruption to occupants is expected.

Available Rebates or Incentives:

- Efficiency Maine offers the 2025 Discounted Screw-In LEDs Program. This program offers discounted screw-in LEDs at retailers and distributors across the state. While this program focuses on screw-in bulbs, it is worth investigating if any of the exterior fixtures can utilize these discounted bulbs.

- Efficiency Maine offers the 2025 Commercial and Industrial (C&I) Custom Program - Electric Projects. This program is for electrical energy efficiency projects that result in at least 36,000 kWh of annual reductions in grid-supplied energy. If the total project savings meet the minimum requirements, this project may qualify for custom incentives. It is highly recommended that a detailed energy savings calculation be performed to determine eligibility.
- This project may also qualify for the 2025 Commercial and Industrial (C&I) Custom Program - Electric Projects because this program funds electrical energy efficiency projects.
- It is advised to review the Program Opportunity Notice (guidelines and project application) found on the Efficiency Maine website.

More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

EWEM #4 - REPLACE EXISTING STANDARD EFFICIENCY UNIT HEATERS WITH CONDENSING PROPANE UNIT HEATERS

Existing Condition:

136 Ledgelawn Ave contains nine 45 MBH propane unit heaters. Single 36.9 MBH propane unit heaters serve the 57 DeGregoire Park and 99 Public Works Way facilities. The existing unit heaters are all standard efficiency ranging from 80-83% efficient.

This measure recommends replacing the existing unit heaters with a high-efficiency condensing propane unit heaters.

Condensing propane unit heaters offer significantly higher thermal efficiencies by recovering latent heat from the flue gases, which results in substantial fuel savings compared to traditional combustion heaters.

A professional HVAC contractor should calculate heat load to determine the appropriate size and capacity of the new condensing propane unit heater to ensure optimal heating performance and prevent over sizing or under sizing of the equipment.

Estimated Cost of Condensing Propane Unit Heater: \$43,256

Estimated Annual Savings: \$2,045

Benefits:

- **Significant Energy Savings:** Reduced fuel consumption due to higher thermal efficiency of condensing propane.
- **Reduced Operating Costs:** Lower fuel bills due to reduced energy consumption.
- **Improved Heating Performance:** Consistent and even heating distribution.
- **Reduced Maintenance:** Modern condensing propane unit heaters require less maintenance than older fuel oil units.
- **Environmental Benefits:** Reduced greenhouse gas emissions compared to fuel oil combustion.

Estimated Annual Operational & Maintenance (O&M) Savings: O&M savings may result from reduced maintenance requirements of the new unit.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The installation will require coordination between the facility management and the contractor to minimize heating downtime. It is recommended that the installation be scheduled during off-peak usage periods.

Available Rebates or Incentives:

- Based on the 2025 Commercial Heating, Ventilation, and Air Conditioning (HVAC) Solutions from Efficiency Maine, this project could qualify for rebates on the propane unit heater itself, as well as potential boiler control and ancillary equipment rebates.
 - Efficiency Maine offers incentives for Commercial Boilers, Furnaces, and Commercial Boiler Controls and Ancillary Equipment (retrofit only).
- It is advised to review the Program Opportunity Notice (guidelines and project application) found on the Efficiency Maine website.
- It is highly recommended that you work with an Efficiency Maine Qualified Partner to maximize potential incentives.

More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

EWEM #5 - REPLACE EXISTING STANDARD EFFICIENCY FURNACES WITH CONDENSING PROPANE FURNACES

Existing Condition:

136 Ledgelawn Ave contains a 29.2 MBH propane furnace. A 20.7 MBH furnace serves the 99 Public Works Way facility. The existing furnaces are all standard efficiency ranging from 80-83% efficient.

This measure recommends replacing the existing furnaces with a high-efficiency condensing propane furnaces.

Condensing propane furnaces offer significantly higher thermal efficiencies by recovering latent heat from the flue gases, which results in substantial fuel savings compared to traditional furnaces.

A professional HVAC contractor should calculate heat load to determine the appropriate size and capacity of the new condensing propane unit heater to ensure optimal heating performance and prevent over sizing or under sizing of the equipment.

Estimated Cost of Condensing Propane Unit Heater: \$7,865

Estimated Annual Savings: \$679

Benefits:

- **Significant Energy Savings:** Reduced fuel consumption due to higher thermal efficiency of condensing propane.
- **Reduced Operating Costs:** Lower fuel bills due to reduced energy consumption.
- **Improved Heating Performance:** Consistent and even heating distribution.
- **Reduced Maintenance:** Modern condensing propane unit heaters require less maintenance than older fuel oil units.
- **Environmental Benefits:** Reduced greenhouse gas emissions compared to fuel oil combustion.

Estimated Annual Operational & Maintenance (O&M) Savings: O&M savings may result from reduced maintenance requirements of the new unit.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The installation will require coordination between the facility management and the contractor to minimize heating downtime. It is recommended that the installation be scheduled during off-peak usage periods.

Available Rebates or Incentives:

- Based on the 2025 Commercial Heating, Ventilation, and Air Conditioning (HVAC) Solutions from Efficiency Maine, this project could qualify for rebates on the propane unit heater itself, as well as potential boiler control and ancillary equipment rebates.
 - Efficiency Maine offers incentives for Commercial Boilers, Furnaces, and Commercial Boiler Controls and Ancillary Equipment (retrofit only).
- It is advised to review the Program Opportunity Notice (guidelines and project application) found on the Efficiency Maine website.
- It is highly recommended that you work with an Efficiency Maine Qualified Partner to maximize potential incentives.

More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

EWEM #6 - REPLACE EXISTING FUEL OIL #2 BOILER SERVING THE POLICE STATION WITH A CONDENSING PROPANE BOILER

Existing Condition:

The existing boiler is beyond the end of its expected useful life. It was originally rated at 87% efficient.

This measure recommends replacing the existing fuel oil #2 boiler serving 136 Ledgelawn Ave with a high-efficiency condensing propane boiler.

Condensing propane boilers offer significantly higher thermal efficiencies than standard efficiency units by recovering latent heat from the flue gases, which results in substantial fuel savings.

Estimated Cost of Installing a Condensing Propane Unit Heater: \$45,129

Estimated Annual Savings: \$786

Estimated Greenhouse Gas Emissions Reduction: 11.33 MTCO₂e

Benefits:

- **Significant Energy Savings:** Reduced fuel consumption due to higher thermal efficiency of condensing propane.
- **Reduced Operating Costs:** Lower fuel bills due to reduced energy consumption.
- **Environmental Benefits:** Reduced greenhouse gas emissions compared to fuel oil combustion.

Estimated Annual Operational & Maintenance (O&M) Savings: None expected.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The installation will require coordination between the facility management and the contractor to minimize heating downtime in the facility. It is recommended that the installation be scheduled during off-peak usage periods.

Available Rebates or Incentives:

- Based on the 2025 Commercial Heating, Ventilation, and Air Conditioning (HVAC) Solutions from Efficiency Maine, this project could qualify for rebates on the propane unit heater itself, as well as potential boiler control and ancillary equipment rebates.
 - Efficiency Maine offers incentives for Commercial Boilers, Furnaces, and Commercial Boiler Controls and Ancillary Equipment (retrofit only).
- It is advised to review the Program Opportunity Notice (guidelines and project application) found on the Efficiency Maine website.
- It is highly recommended that you work with an Efficiency Maine Qualified Partner to maximize potential incentives.

More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

EWEM #7 - REPLACE WINDOWS WITH ENERGY STAR RATED WINDOWS

Existing Condition: The existing windows at 136 Ledgelawn are presumed to be nearing the end of their functional lifespan. They are single-paned with aluminum frames and possess poor thermal performance characteristics (high U-factor and potentially inappropriate Solar Heat Gain Coefficient - SHGC for the climate), leading to significant heat loss in winter and potentially unwanted heat gain in summer.

Recommendation: This measure recommends replacing the existing 17 windows and 1 entry door with new, high-performance windows meeting or exceeding ENERGY STAR® specifications for Maine's climate zone. The replacement windows should feature U-factors and SHGC below

0.30 to minimize heat loss and to balance passive solar gains in winter with minimizing overheating in summer. Features typically include double or triple glazing, low-emissivity (Low-E) coatings, inert gas fills (e.g., Argon or Krypton), and thermally broken frames.

Rationale: High-performance windows significantly reduce energy transfer compared to older, less efficient units. The improved glazing systems and frame designs minimize conduction, convection, and radiation heat losses during the heating season and reduce solar heat gain during warmer months. This leads to lower demand on the building's heating and potentially cooling systems, resulting in substantial energy savings and improved occupant comfort by reducing drafts and cold spots near windows.

Estimated Cost of Window Replacement: \$17,743 - *Note: This cost is highly variable based on window size, type, quantity, and installation complexity.*

Estimated Annual Savings: \$1,304 - *Note: Savings assume the original heating systems in place.*

Estimated Greenhouse Gas Emissions Reduction: 1.8 MTCO₂e

Benefits:

- **Significant Energy Savings:** Reduced heating fuel/energy consumption due to lower heat loss in winter and potentially reduced cooling energy in summer.
- **Reduced Operating Costs:** Lower energy bills due to reduced heating and cooling loads.
- **Environmental Benefits:** Reduced greenhouse gas emissions associated with decreased fossil fuel or electricity use for space conditioning.
- **Improved Occupant Comfort:** More stable indoor temperatures, reduced drafts near windows, and potentially reduced exterior noise transmission.
- **Enhanced Building Aesthetics:** New windows can improve the visual appearance of the building's interior and exterior.
- **Potential for Reduced Maintenance:** New units eliminate issues like rot, peeling paint (on old wood frames), or condensation between panes (in failed double-pane units).

Estimated Annual Operational & Maintenance (O&M) Savings: Potential minor savings related to reduced need for caulking, painting, or repairs associated with deteriorated old windows.

Operational Changes for Staff: None required.

Implementation Impact to Occupants: The installation will require coordination with building management and occupants, as contractors will need access to both the interior and exterior spaces around the windows being replaced. Some level of noise, dust, and temporary disruption in specific areas is expected during the installation process. Phasing the project or scheduling work during periods of lower occupancy can help minimize impact.

Available Rebates or Incentives:

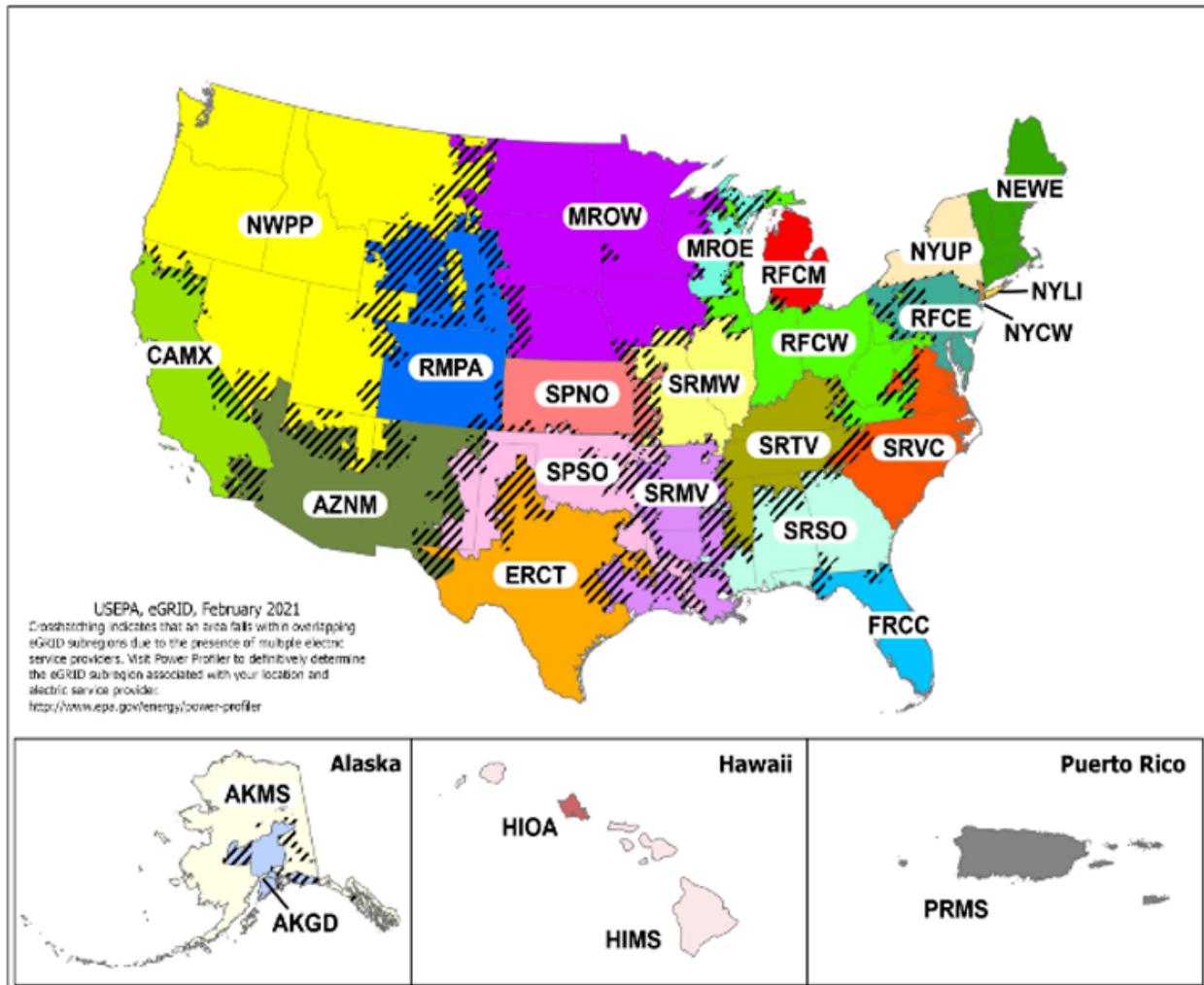
- As of May 2025, Efficiency Maine offers rebates for ENERGY STAR certified windows primarily through its **Home Energy Savings Program** for residential properties.

- While direct rebates for *commercial* window replacements may be less common or structured differently than HVAC rebates, significant energy savings from large window projects might qualify for support under Efficiency Maine's **Commercial Custom Program**. This program offers incentives for cost-effective electric or natural gas saving measures not covered by other prescriptive programs.
- It is advised to review the current Program Opportunity Notices and guidelines found on the Efficiency Maine website for the most up-to-date information on commercial offerings.
- It is highly recommended that you work with an Efficiency Maine Qualified Partner to evaluate project eligibility, estimate savings accurately, and identify all potential incentives and financing options.
- More information about available incentives and funding opportunities can be found in Section 8.1 State Level Incentives .

7.0 GHG EMISSIONS ANALYSIS

7.1 EGRID SUBREGIONS

A map of the the eGRID subregions and the equivalent CO₂ emissions factor used in the GHG emissions analysis calculations are shown below.

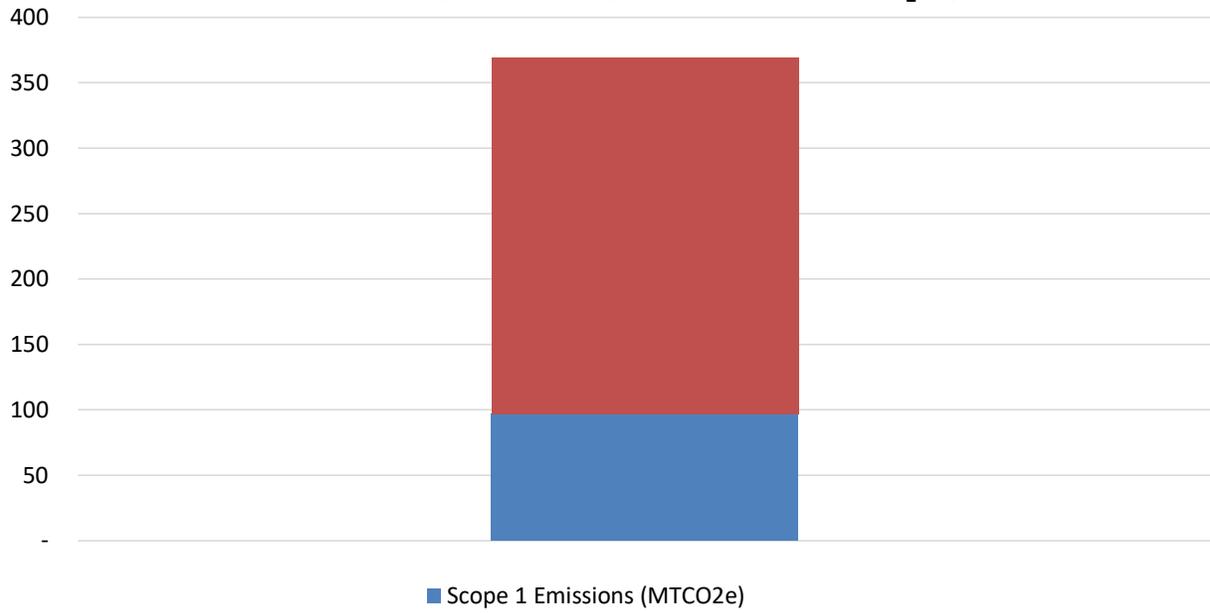


eGRID Subregion Name	eGRID Acronym	CO ₂ e Emissions Factor (lb/MWh)
NPCC New England	NEWE	541.1
National Average	N/A	775.2

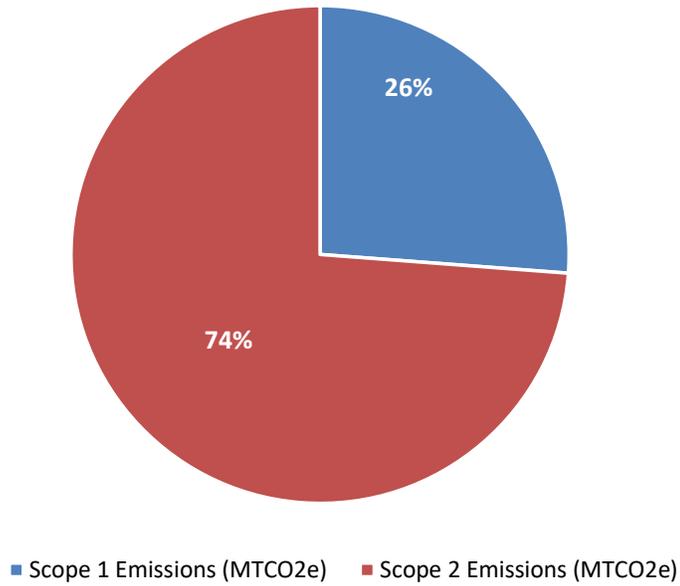
7.2 BASELINE SCOPE 1 AND SCOPE 2 GHG EMISSIONS

The following charts show the existing Scope 1 and Scope 2 emissions calculated for the Property using the above equivalent CO₂ emissions factor for the applicable region.

Baseline Scope 1 and Scope 2 Emissions (MTCO₂e/yr)



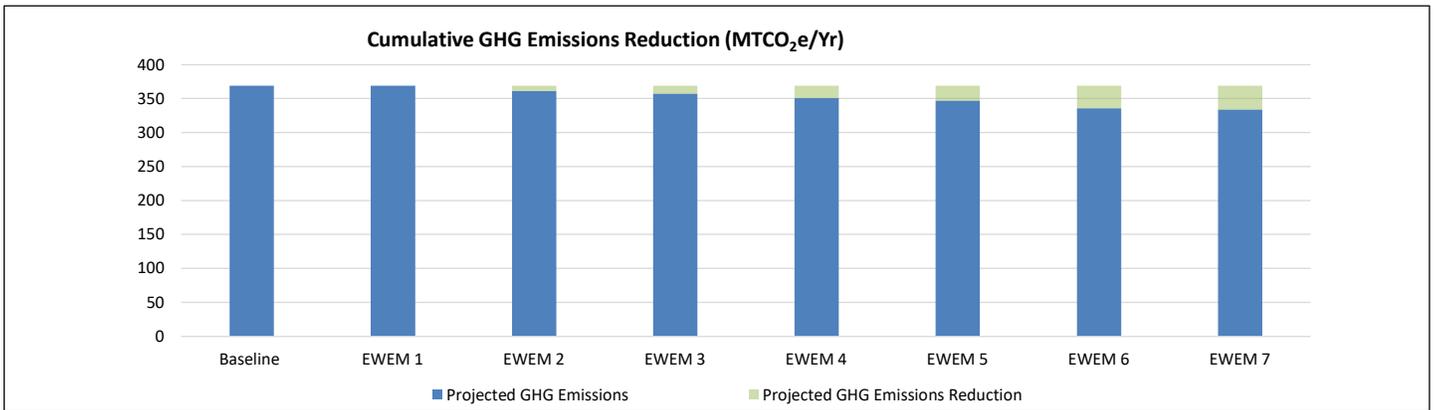
Baseline Scope 1 and Scope 2 Emissions (%)



7.3 GHG EMISSIONS REDUCTION PER EWEM

The following table and chart show the equivalent CO₂ emissions reduction per EWEM and the cumulative reduction of the combined EWEMs. The cumulative reduction chart assumes each EWEM will be implemented.

EWEM #	Energy And Water Efficiency Measures (EWEM) Summary Description	Projected GHG Emissions (MTCO ₂ e)	Emissions Reduction (MTCO ₂ e)	Emissions Reduction (%)
Baseline	Current GHG emissions	369.00		
EWEM 1	Replace 15 Existing Toilets and 3 Existing Urinals with WaterSense Labeled Low Flow 1.28 GPF Single Flush Toilets and 0.125 GPF Urinals.	333.86	0.00	0.0%
EWEM 2	Retrofit 121 Interior Fluorescent Lamps with DLC Certified LED tubular Lamps		7.99	2.2%
EWEM 3	Replace 25 Exterior Area Lighting Fixtures with 12 Bi-Level Linear LED Lighting Fixtures		3.81	1.0%
EWEM 4	Replace Two (2) Existing 37 kBTUH and Nine (9) 45 kBTUH Standard Efficiency Propane Unit Heaters with Energy Star Certified High Efficiency Condensing Unit Heaters; or equivalent.		6.39	1.7%
EWEM 5	Replace Two (2) Existing 29 & 21 kBTUH Standard Efficiency Gas Furnaces with Energy Star Certified High Efficiency Condensing Furnaces; or equivalent.		3.82	1.0%
EWEM 6	Replace the existing Fuel Oil #2 Boiler with a Condensing Propane Boiler		11.33	3.1%
EWEM 7	Replace the existing single-pane aluminum frame windows with dual-pane vinyl frame windows with a U-value of 0.30 or less.		1.80	0.5%
Total	Projected GHG emissions and reduction from baseline	333.86	35.14	9.5%



8.0 FINANCIAL INCENTIVES

The following section will identify available incentives across the country and how they may or may not apply to the property and the recommendations made in this report. AEI will provide a summary of available energy efficiency incentives. The best resource to stay current on active energy efficiency incentives is at: dsireusa.org.

8.1 STATE LEVEL INCENTIVES

2025 Technical Assistance

(Existing Buildings)

Administrator: Efficiency Maine

Apply Services

IncentiFind can connect you to our expert who can explain why this incentive may be right for your project.

Description

Efficiency Maine offers incentives for Technical Assistance Studies to those customers that have already identified a project but need additional outside assistance to move it forward. Customers are guided through the process of developing the energy savings analyses and project cost estimates necessary for our Custom Program application. Efficiency Maine may provide up to 50% of the cost of an approved Technical Assistance Study up to \$20,000.

Eligible Scope

Efficiency Maine's Commercial and Industrial (C&I) Custom Program provides funding for Technical Assistance (TA) Studies to help program participants lay the necessary groundwork for project investment. The Program incentive is 50% of the approved TA Study cost up to \$25,000. Eligible TA Studies include investment-grade analysis of large and more complex projects, as well as development of systems designs and preparation of construction bid documents for targeted measures. Additionally, Efficiency Maine will support interconnection applications and studies required for battery projects that are applying for an incentive through the Energy Storage System (ESS) Program Opportunity Notice

Funded TA Studies must focus on complex projects that require engineering to proceed, and that are found likely to be eligible for Custom Program or ESS Program funding. All award decisions will be made by Efficiency Maine based on a review of potential project eligibility, alignment with Program goals, and a preliminary cost effectiveness screening. Examples of potentially eligible studies include: custom process improvement upgrades, large or complex beneficial electrification or HVAC projects, and battery system designs.

[C&I Custom Program Technical Assistance guidelines](#)

Estimated Funds

Min Funds

Varies by Project.

Max Funds

- Efficiency Maine may provide 50% of the cost of an approved Technical Assistance Study up to \$25,000.
- \$200,000 is being initially allocated to this program for the remainder of the 2024 fiscal year (July 1, 2023 through June 30, 2024).

Next Steps

1. The customer and/or TA Provider provide Efficiency Maine preliminary estimates of measure costs and energy impacts in order to determine cost effectiveness. These preliminary estimates could also come from an Efficiency Maine scoping audit.
2. If cost effectiveness found positive, customer and TA Provider submit a TA Study application.
3. Coordinate a TA Study kick off meeting between the customer, TA Provider, and Efficiency Maine in order to clearly define the study scope, and agreed upon deliverables.
4. The Efficiency Maine representative reviews the TA Study application package and, if applicable, recommends award of the TA incentive to the Efficiency Maine Program Manager. The Efficiency Maine representative communicates the final decision to the customer and the TA Provider.
5. The customer authorizes the TA Provider to proceed with the study. The Efficiency Maine representative remains engaged with the process to address questions and provide input, guidance, and assistance as necessary. The TA provider must inform Efficiency Maine of any changes in the TA Study scope of work as soon as they are known.
6. Once the TA Study is complete, it is submitted to Efficiency Maine for review.
7. Efficiency Maine reviews the study to confirm the agreed-upon deliverables are completed.
8. Efficiency Maine requests clarification or elaboration, if appropriate.
9. Efficiency Maine issues TA incentive award.

2025 Commercial and Industrial (C&I) Custom Program - Thermal Projects

(Existing Buildings)

Administrator: Efficiency Maine

Apply Services

IncentiFind can help you APPLY to this incentive. Our fee is 30% of the total rebate value.

Description

Maine businesses, nonprofits, institutions, and governments are eligible for funding for a variety of thermal energy efficiency projects through Efficiency Maine's Commercial and Industrial (C&I) Custom Program. Funding is available for thermal projects that involve a measure (or set of measures) that reduces the consumption of natural gas, oil, biomass, and other fuels.

Awarded projects have included heat recovery measures, boiler upgrades and controls, and HVAC controls. For a list of previously awarded custom projects, [click here](#).

Eligible Scope

Eligible Projects

- A measure (or set of such measures) at a single facility or campus that reduces inefficient energy use (or increases efficient energy use), leading to fuel savings related to producing thermal energy for end uses such as heating, steam production and hot water.
- Projects must save a minimum of 400 MMBtu annually (4,000 therms of piped natural gas).

Ineligible Projects

- Measures that are eligible for [Efficiency Maine's C&I Prescriptive Incentive Program](#).
- Projects that have a benefit-to-cost ratio less than 1, as per Efficiency Maine's Total benefit-cost test.
- Projects that have a simple payback of under one year (after factoring in the Efficiency Maine incentive).
- Projects that involve measures required by state or federal law or local building or energy codes, or projects that are deemed by Efficiency Maine to represent standard industry practice measures.
- Projects for which the customer (or its affiliate) has made binding commitments to proceed prior to the official award of funding under the Custom Program.
- Measures that rely solely on human behavior changes or facility maintenance.
- Feasibility studies.
- Fundraising seed money for projects to be completed and funded subsequently.

Estimated Funds

Min Funds

Varies by project.

Max Funds

- Funding levels will range from a minimum of \$5,000 to a maximum of \$1,000,000 per facility up to 50% of the total project costs.
- Incentive awards are capped based on the magnitude of the validated annual reduction in grid-supplied energy (kWh/year) and/or fuel savings (MMBtu/year). Incentives will not exceed \$0.30 per kWh of validated annual reduction in grid supplied electricity plus \$25 per MMBtu of annual fuel savings.

Next Steps

1. To get started, review the [Thermal Project Application Cover Sheet](#), and [Program Opportunity Notice](#) (guidelines and project application).

2025 Lighting Solutions

Lighting can be a significant operating expense in existing buildings. Maine businesses can reduce lighting expenses by upgrading to high-efficiency fixtures and installing lighting controls. Lighting control technologies allow building managers to carefully tailor lighting conditions to the requirements of specific spaces. These upgrades can also enhance productivity and improve aesthetics. Efficiency Maine also incentivizes high-efficiency screw-in LEDs at participating distributors across Maine. [Click here](#) to learn more about the Discounted Screw-in LED Program.

Eligible Scope

Solutions

Interior LED Lighting

- LED Retrofit Kits
- New LED Fixtures
- Refrigerated Case Fixtures and Controls
- Lighting Controls

Exterior LED Lighting

- LED Retrofit Kits
- New LED Fixture

Distributor Pathway Interior Lighting

- High/Low Bay Lamps (Mogul Screw Base)
- Tubular Lamps: T-8 • T8 U-Bend • T-5 • T-5HO replacement

Distributor Pathway Exterior Lighting

- Outdoor LED Mogul Screw-Base Replacement Lamp

Estimated Funds

Min Funds

Varies by Project

Max Funds

Incentives

Interior LED Lighting

- \$0.28 per kWh of first year savings up to 65% of measure cost

Exterior LED Lighting

- \$0.28 per kWh of first year savings up to 65% of measure cost

Small Business LED Lighting

- 75% of total measure cost for qualifying interior and exterior lighting
- Small business customers must have an electric account labeled “Small General Service” (SGS), “General Service” (GS), or “Medium General Service” (MGS) with an average monthly electrical demand under 50kW
- [Click here](#) for more information on small businesses

Distributor Pathway Interior Lighting

- Incentive depends on the specific distributor
- [Click here](#) to find a participating distributor

Distributor Pathway Exterior Lighting

- Incentive depends on the specific distributor
- [Click here](#) to find a participating distributor

Next Steps

1. Work with an Efficiency Maine Qualified Partner to install high-efficiency lighting. [Click here](#) to find a Qualified Partner working near you. or If you work with a contractor that is not yet a Qualified Partner, urge your contractor to find out more information [here](#).
2. Efficiency Maine reserves the right to require pre-approval for any Program application proposing an incentive of **\$5,000 or more**.
3. As part of the project approval process, you will accept the C&I Prescriptive Program’s [Terms and Conditions](#).

2025 Water Heating Solutions

Maine businesses can reduce water heating costs by upgrading to high-efficiency water heating systems. Efficiency Maine offers incentives for heat pump water heaters and ECM circulator pumps. These upgrades can reduce water heating costs and provide hot water when you need it.

Eligible Scope

Eligible Equipment

Light Duty Commercial Heat Pump Water Heaters

- Light duty heat pumps can be used for small commercial or residential facilities that have some hot water demand. These typically have a tank with up to 50 gallon storage capacity.
- Tens of thousands of Mainers own these heat pump water heaters. They're popular because they produce lots of hot water, can save more than \$5,000 over their 10-year life, and help to dehumidify.

Heavy Duty Commercial Heat Pump Water Heaters

- Heavy duty commercial heat pump water heaters can offer hot water needs for commercial settings, including hospitals, hotels, motels, multifamily buildings, long-term care facilities, and offices.

ECM Circulator Pumps

- Businesses can reduce electric costs with the installation of ECM circulator pumps. Forced hot water (“hydronic”) heating systems use circulator pumps to move heated water from boilers to radiators and back. These pumps run whenever a thermostat calls for heat. Traditional circulator pumps run at one fixed speed and use some electricity to magnetize their rotor. Electronically commutated motor (ECM) circulator pumps can modulate their speed and use permanent magnet motors that don't require any electricity to have magnetic properties. ECM circulator pumps cost less to buy and less to operate than traditional circulator pumps.
- [Click here](#) to learn more about this technology and [click here](#) to find a participating distributor.

Estimated Funds

Min Funds

Varies by equipment type.

Max Funds

Incentives

Light Duty Commercial Heat Pump Water Heaters

- [Click here](#) for information on incentives for light duty heat pump water heaters.

Heavy Duty Commercial Heat Pump Water Heaters

- See the table below for information on incentives for both retrofit and new construction projects.
- Incentives are limited to hospitals, hotels, motels, multifamily buildings, long-term care facilities, and offices.

Heat Pump Water Heater Integrated Storage || Minimum Qualifying Efficiency Criteria || Incentive Amount

- 80 gallons || ENERGY STAR® || \$1,800 per unit
- 120 gallons || ENERGY STAR® || \$3,000 per unit
- Split-system with minimum of 80 gallons || ENERGY STAR® || \$3,000 per unit

ECM Circulator Pumps

- [Click here](#) for information on incentives for ECM circulator pumps.

Next Steps

1. [Click here](#) to find a Qualified Partner working near you. If you work with a contractor that is not yet a Qualified Partner, urge your contractor to find out more information [here](#).

2025 Commercial Heating, Ventilation, and Air Conditioning (HVAC) Solutions

Businesses can save money, increase equipment reliability, and create more comfortable and productive workplaces by making energy-efficient choices when installing, renovating, or replacing HVAC equipment. By upgrading to an efficient electric HVAC system, a business can move towards beneficial electrification, or the transition of electric systems in a way that reduces overall emissions and energy costs.

Incentives for these HVAC systems are designed to encourage the installation of primary whole building heating and cooling systems. Installing electric heat pump equipment can help a business's operating systems become fossil fuel free.

[Click here](#) for more information on incentives for HVAC solutions.

Eligible Scope

Eligible Equipment

Heat Pump Solutions

- Mini-Split Heat Pumps (Air-to-Air) Heat Pump Rooftop Units (RTUs)
- Packaged Terminal Heat Pumps
- Vertical Packaged Terminal Heat Pumps
- Variable Refrigerant Flow (VRF) Systems
- Water Source Heat Pumps

Other Electric HVAC Solutions

- Demand Control Ventilation
- Electronically Commutated Motor (ECM) Circulator Pumps
- Energy Recovery Ventilator (ERV) Systems
- Variable-Frequency Drive (VFD) Systems

Propane and Natural Gas Solutions

- Biomass Boilers and Furnaces
- Commercial Boilers and Furnaces
- Commercial Boiler Controls and Ancillary Equipment (retrofit only)**

Estimated Funds

Min Funds

Varies by equipment type.

Max Funds

Heat Pump Incentives

Mini-Split Heat Pumps

- Single-zone - \$1,000
- Single-zone air source heat pumps

Small Business Mini-Split Heat Pump Retrofits

- Single-zone - \$1,400
- Single-zone air source heat pumps
- [Click here](#) for more information on eligibility.

Multifamily Mini-Split Heat Pumps

- 1 to 3 Zones: \$6.00/sq. ft.

Variable Refrigerant Flow (VRF) Systems

- \$8.00/sq. ft. single-phase without heat recovery
- \$10.00/sq. ft. without heat recovery
- \$12.00/sq. ft. with heat recovery

Heat Pump Rooftop Units (RTUs)

- 60 to <= 120 MBH: \$168 per MBH
- 121 to <= 450 MBH: \$125 per MBH

Packaged Terminal Heat Pumps

- < 7,000 Btu/h: \$430 per unit
- >= 7,000 Btu/h and =15,000: \$450 per unit
- > 15,000 Btu/h: \$480 per unit

Vertical Packaged Terminal Heat Pumps

- < 7,000 Btu/h: \$700 per unit
- >= 7,000 Btu/h and =15,000: \$850 per unit
- > 15,000 Btu/h: \$1,000 per unit

Other Electric HVAC Incentives

ECM Circulator Pumps

- ECM Circulator Pump Instant Discount: \$100
- [Click here](#) for more information.

Energy Recovery Ventilator (ERV) Systems

- Sensible heat recovery = 55% to< 65% - \$1.50/CFM
- Sensible heat recovery = 65% to< 75% - \$1.75/CFM
- Sensible heat recovery = 75% to< 85% - \$2.00/CFM
- Sensible heat recovery = 85% - \$2.25/CFM

Variable-Frequency Drive (VFD) Systems

- \$400 - \$2,300 per unit (incentive varies by system horsepower)

Biomass Boilers and Furnaces

- [Click here](#) for information on incentives for these systems.

Next Steps

1. Work with an Efficiency Maine Qualified Partner to install high-efficiency cooling solutions. [Click here](#) to find a Qualified Partner working near you. Or If you work with a contractor that is not yet a Qualified Partner, urge your contractor to find out more information [here](#).
2. Efficiency Maine reserves the right to require pre-approval for any Program application proposing an incentive of **\$5,000 or more**.
3. As part of the project approval process, you will accept the C&I Prescriptive Program's [Terms and Conditions](#).

2025 Discounted Screw-In LEDs Program

(Existing Buildings)

Administrator: [Efficiency Maine](#)

Description

Efficiency Maine discounts screw-in LEDs at retailers and distributors across the state. There's no paperwork for customers to file and no waiting for rebate checks.

Eligible Scope

Eligibility

- All customers are eligible as long as the bulbs are installed in Maine.
- Customers buying more than 20 bulbs at a retail location need to ask for a bulk-purchase waiver.
- Customers buying from a distributor must provide a Maine installation address as well as other information.
- Bulbs purchased from a distributor may be subject to inspection.
- It is not necessary to work with a registered contractor.
- Discounts are available on LEDs of various bulb shapes, bases, and wattages.
- Eligible products include A-line bulbs, spotlights, floodlights, and candelabra bulbs.

Resources

- [Find a participating retailer](#)
- [Find participating distributors](#)
- [Learn about business incentives for other types of lighting](#)
- [Learn more about screw-in bulbs](#)

- [Read Retail LED Upgrade Case Studies](#)

Estimated Funds

Min Funds

Incentive depends on the specific distributor.

Max Funds

Incentive depends on the specific distributor.

Next Steps

1. Discounts are available on LEDs of various bulb shapes, bases, and wattages.
 - > To find a participating retailer, [click here](#).
 - > To find a participating distributor, [click here](#).
 - > To find the best prices on retail bulbs, [click here](#).

2025 Commercial and Industrial (C&I) Custom Program - Electric Projects

(Existing Buildings)

Administrator: Efficiency Maine

Apply Services

IncentiFind can help you APPLY to this incentive. Our fee is 30% of the total rebate value.

Description

Maine businesses, nonprofits, institutions and governments are eligible for funding for electrical energy efficiency projects through Efficiency Maine's Commercial and Industrial (C&I) Custom Program.

Eligible Scope

Maine businesses, nonprofits, institutions and governments are eligible for funding for electrical energy efficiency projects through Efficiency Maine's Commercial and Industrial (C&I) Custom Program.

Awarded projects include process improvements, HVAC controls, installation of VFDs on motors, chiller and refrigeration enhancements, and pump upgrades. For a list of previously awarded custom projects, [click here](#).

Eligible Projects

- A measure (or set of measures) at a single facility or campus that increases the end-use electrical efficiency, resulting in at least 36,000 kWh of annual reductions in grid-supplied energy when compared to a baseline.

Ineligible Projects

- Measures that are eligible for Efficiency Maine’s C&I Prescriptive Incentive Program. This includes the majority of lighting measures, with a few specific exceptions.
- Projects that have a benefit-to-cost ratio less than 1, as per Efficiency Maine’s benefit-cost test.
- Projects that have a simple payback under one year (after factoring in the Efficiency Maine incentive).
- Projects that involve measures required by state or federal law or local building or energy codes, or are deemed by Efficiency Maine to be standard industry practice measures.
- Projects for which the customer (or its affiliate) has made binding commitments to proceed prior to the official award of funding under this Custom Program.
- Measures that rely solely on human behavior changes or facility maintenance.
- Projects for customers that do not have an account with a Maine electric utility.
- Feasibility studies.
- Power quality, power factor, and power conditioning projects.
- Projects that do not result in an overall kWh use reduction. An exception is made for measures that are intended to expand facility use or production and will result in an overall kWh use reduction when compared to an alternative code-compliant, baseline alternative.
- Fundraising seed money for projects to be completed and funded subsequently.

Custom Program’s Terms and Conditions

Program Opportunity Notice (guidelines and project application).

Estimated Funds

Min Funds

Varies by project.

Max Funds

Funding Overview

- Funding levels will range from a minimum of \$10,000 to a maximum of \$1,000,000 per facility up to 50% of the total project costs.
- Projects with an estimated incentive over \$200,000 will require a formal contract with the Efficiency Maine Trust.
- Projects with an estimated incentive below \$200,000 require that participants agree to the Custom Program’s Terms and Conditions.
- For retrofits of existing equipment, applicants must provide a minimum 50% cost share for the project.

- Incentive awards are capped based on the magnitude of the validated annual reduction in grid-supplied energy (kWh/year). Incentives will not exceed \$0.28 per kWh of validated annual reduction in grid supplied energy.
- Efficiency Maine will consider new applications until the available program funding is exhausted.

Next Steps

1. To get started, review the [Electric Project Application Cover Sheet](#) and review the [Program Opportunity Notice](#) (guidelines and project application).

2025 Commercial and Industrial (C&I) Custom Program - Energy Storage System Projects

(Existing Buildings)

Administrator: Efficiency Maine

Apply Services

IncentiFind can connect you to our expert who can explain why this incentive may be right for your project.

Description

Efficiency Maine's Energy Storage System (ESS) Program Opportunity Notice (PON) offers performance based incentives for the deployment of energy storage systems during summer peak demand conditions.

All demand metered customers (commercial, nonprofits, institutions and government) are eligible to participate.

Eligible Scope

Efficiency Maine's Energy Storage System (ESS) Program Opportunity Notice (PON) offers performance based incentives for the deployment of energy storage systems during summer peak demand conditions.

All demand metered customers (commercial, nonprofits, institutions and government) are eligible to participate.

Eligible Projects

Eligible projects must be interconnected behind the facility utility meter and must be located in Maine with a Maine electric utility account. Awarded incentives will be based on the amount of facility electric load (kW) that the proposed system can reduce during summer peak demand hours. Additionally, awarded systems must:

- Be approved by the Trust prior to installation.
- Be at least 20 kW.
- Maintain a minimum 80% round-trip efficiency.

- Be able to collect and transmit 15-minute interval data.
- Carry a 10-year manufacturer warranty.
- Be UL-listed or certified by another nationally recognized testing lab.

Ineligible Projects

- Systems configured for grid export.
- Participants without the required interval metering and data transmission capability.
- Facilities not located in Maine or served by a Maine electric utility.
- Residential and small business customers.

Estimated Funds

Min Funds

Varies by project.

Max Funds

Funding Overview

Incentives awarded through this PON will be paid each fall for 5 years following an annual evaluation of the project's performance. Additionally, incentives will be subject to the following limitations:

- \$200 per kW of validated reduction in grid supplied power.
- Incentives will be on average load reduction achieved for fifteen (15) dispatches during summer peak demand conditions.
- Incentive awards will be at least \$4,000 and not more than \$600,000 per year, per project, for 5 years.
- All projects awarded will require a formal contract with Efficiency Maine.

Next Steps

1. Check your eligibility.
2. To get started, please review the [Program Opportunity Notice](#) (application guidelines, award criteria, and limitations).

2025 Commercial and Industrial (C&I) Custom Program - Custom Distributed Generation Projects

(Existing Buildings)

Administrator: Efficiency Maine

Apply Services

IncentiFind can help you APPLY to this incentive. Our fee is 30% of the total rebate value.

Description

Maine businesses, nonprofits, institutions and governments are eligible for funding for distributed generation projects through Efficiency Maine's Commercial and Industrial (C&I) Custom Program. Distributed generation projects are behind-the-meter generation projects that reduce the consumption of grid-supplied electricity and meet Efficiency Maine's cost-benefit analysis.

Combined heat & power (CHP) projects are the most common type of distributed generation project completed through the C&I Custom Program.

Eligible Scope

Maine businesses, nonprofits, institutions and governments are eligible for funding for distributed generation projects through Efficiency Maine's Commercial and Industrial (C&I) Custom Program. Distributed generation projects are behind-the-meter generation projects that reduce the consumption of grid-supplied electricity and meet Efficiency Maine's cost-benefit analysis.

Combined heat & power (CHP) projects are the most common type of distributed generation project completed through the C&I Custom Program.

Eligible Projects

- A distributed generation project that reduces on-site electricity consumption from the grid.
- A distributed generation project must have an operating efficiency of 60% or greater.
- The project must result in kWh reductions of at least 36,000 kWh annually
- The project also must include a meter dedicated to providing 15-minute interval energy data to Efficiency Maine.

Ineligible Projects

- Projects that have a benefit-to-cost ratio less than 1, as per Efficiency Maine's benefit-cost test.
- Projects that have a simple payback under one year (after factoring in the Efficiency Maine incentive).
- Projects that export electricity to the grid (net metering) or to other customers.
- Projects for which the customer (or its affiliate) has made binding commitments to proceed prior to the official award of funding under this Custom Program.
- Projects for customers that do not have an account with a Maine electric utility.
- Feasibility studies.
- Power quality, power factor, and power conditioning projects.
- Fundraising seed money for projects to be completed and funded subsequently.

Estimated Funds

Min Funds

Varies by project.

Max Funds

Funding Overview

- Funding levels will range from a minimum of \$10,000 to a maximum of \$1,000,000 per facility up to 50% of the total project costs.
- Projects of all sizes will require a formal contract with the Efficiency Maine Trust.
- Applicants must provide a minimum 50% cost share for the project.
- Incentive awards are capped based on the magnitude of the validated annual reduction in grid-supplied energy (kWh/year). Incentives will not exceed \$0.28 per kWh of validated annual reduction in grid-supplied energy.
- Efficiency Maine will consider new applications until the available program funding is exhausted.

Next Steps

1. Check your eligibility.
2. To get started, please review the following:
[Distributed Generation Project Application Cover Sheet](#)
[Program Opportunity Notice](#) (project application and guidelines)
[Distributed Generation Technical Analysis Checklist](#) for those projects involving a Technical Assistance (TA) study
[Distributed Generation Project Application Checklist](#)

8.2 FEDERAL INCENTIVES

179D - Energy Efficient Commercial Buildings Deduction

Section 179D of the U.S. Internal Revenue Code provides a tax deduction for investments in energy-efficient improvements made to commercial buildings. The provision is designed to incentivize property owners and tenants to enhance the energy performance of their properties, thereby promoting energy conservation and reducing utility costs. The deduction can be claimed by the owner of the commercial building or, if they are not the taxpayer, the tenant who makes the qualifying improvements. The deduction applies to improvements made to buildings used for commercial purposes, including retail spaces, office buildings, and industrial facilities. The deduction is allowed under Internal Revenue Code (IRC) Section 179D. It was expanded under the Inflation Reduction Act of 2022.

1. Types of Improvements:

- The interior lighting systems, the heating, cooling, ventilation, and hot water systems, or the building envelope

- It must be certified as being installed as part of a plan to reduce the total annual energy and power costs for the above systems by 25% or more in comparison to a reference building meeting the minimum requirements of ASHRAE Reference Standard 90.1.

2. Amount of Deduction

- The cost of the installed property, or;
- The savings per square foot calculated as:
 - \$0.50 per square foot for a building with 25% energy savings
 - **Plus \$0.02** per square foot for each percentage point of energy savings above 25%
 - **Up to** a maximum of \$1.00 per square foot for a building with 50% energy savings
- Expenses deducted in the prior 3 years (4 years for an allocated deduction) reduce the maximum deduction before computing the current-year deduction.
- Prevailing wage and apprenticeship bonus: Beginning in 2023, if local prevailing wages are paid and apprenticeship requirements are met, an increased maximum deduction applies. The maximum amount increases to **5 times** the savings per square foot amount.

3. Certification Process:

- **Qualified Professional:** A certification must be provided by a qualified professional confirming that the improvements meet the required energy savings.
- **Documentation:** Detailed documentation and calculations are required to substantiate the claim, including energy modeling and performance testing.

4. Benefits:

- **Tax Savings:** The deduction can significantly reduce a business's tax liability, offering a financial incentive to invest in energy-efficient upgrades.
- **Operational Savings:** Beyond tax benefits, energy-efficient improvements often lead to reduced utility bills and lower operational costs.

5. Legislative Context:

- **Expiration and Extensions:** Now that the IRC 179D provision is permanent, there is an inflation adjustment for the deduction for property placed in service after December 31, 2020.

6. What can the property do?

- AEI can connect the property with partners qualified to complete 179D certification if requested.

2025 National Electric Vehicle Infrastructure (NEVI) Formula Program

(Existing Buildings)

Administrator: U.S. Department of Energy

Apply Services

IncentiFind can connect you to our expert who can explain why this incentive may be right for your project.

Description

The U.S. Department of Transportation's (DOT) Federal Highway Administration (FHWA) NEVI Formula Program will provide funding to states to strategically deploy electric vehicle (EV) charging stations and to establish an interconnected network to facilitate data collection, access, and reliability.

Eligible Scope

The NEVI Formula Program will provide funding to states to strategically deploy electric vehicle (EV) charging stations and to establish an interconnected network to facilitate data collection, access, and reliability.

Eligibility:

- EV charging stations must be non-proprietary, allow for open-access payment methods, be publicly available or available to authorized commercial motor vehicle operators from more than one company, and be located along designated FHWA Alternative Fuel Corridors (AFCs).
- If a state and DOT determine that all AFCs in the state have been fully developed, then the state can propose alternative public locations and roads for EV charging station installation.

FHWA must distribute the NEVI Program Formula Program funds made available each fiscal year (FY) through FY 2026, so that each state receives an amount equal to the state FHWA funding formula determined by 23 U.S. Code 104

Project Eligibility:

- NEVI Formula Program funds are restricted to projects that are directly related to EV charging infrastructure that is open to the public or to authorized commercial motor vehicle (see 23 CFR 658.5) operators from more than one company.
- Publicly accessible means the equipment is available to the public without restriction. A station that is not maintained or restricts access only to customers, tenants, employees, or other consumers is not publicly accessible.
- Please note that while hydrogen, propane, and natural gas fueling infrastructure are not eligible under the NEVI Formula Program, these additional fuels are eligible under the Corridor Charging Grants and the Community Charging Grants (23 U.S.C. § 151).
- Paragraph (2) under the Highway Infrastructure Program heading in title VIII of division J of BIL.

NEVI Formula Program Q&A

The National Electric Vehicle Infrastructure (NEVI) Formula Program Guidance

For additional information, see the [FHWA NEVI](#) website and the [Joint Office](#) website.

Estimated Funds

Min Funds

Varies by project

Max Funds

Funding is available for up to 80% of eligible project costs, including:

- The acquisition, installation, and network connection of EV charging stations to facilitate data collection, access, and reliability;
- Proper operation and maintenance of EV charging stations; and,
- Long-term EV charging station data sharing.

Next Steps

1. To receive funding, states must submit plans FHWA and the [Joint Office of Energy and Transportation](#) for review and public posting annually, describing how the state intends to distribute NEVI funds.

2025 Electric Vehicle (EV) Charging Reliability Grants

(New Construction)

Administrator: U.S. Department of Energy

Apply Services

IncentiFind can help you APPLY to this Incentive. Our fee is 30% of the incentive value.

Description

The U.S. Department of Transportation's (DOT) Federal Highway Administration (FHWA) EV Charger Reliability and Accessibility Accelerator offers funding for the repair and replacement of existing, non-operational publicly accessible Level 2 and direct current fast charging (DCFC) stations.

Eligible Scope

Eligible applicants include State departments of transportation and local governments.

For more information, see the DOT FHWA EV Charger [Reliability and Accessibility Accelerator](#) website.

Reference [Public Law 117-58](#)

Estimated Funds

Min Funds

Varies by Project

Max Funds

Funding is available for up to 80% of eligible project costs.

Next Steps

1. For more information, see the DOT FHWA EV Charger [Reliability and Accessibility Accelerator](#) website.

2025 Community Alternative Fuel Infrastructure Grants

(Existing Buildings)

Administrator: U.S. Department of Transportation

Apply Services

IncentiFind can help you APPLY to this incentive. Our fee is 30% of the total incentive received.

Description

The U.S. Department of Transportation (DOT) shall establish a competitive grant program to fill gaps in publicly accessible electric vehicle charging and hydrogen, propane, and natural gas fueling infrastructure in community locations, such as a parking facilities, public schools, public parks, or along public roads.

Eligible Scope

Eligibility

The U.S. Department of Transportation (DOT) shall establish a competitive grant program to fill gaps in publicly accessible electric vehicle charging and hydrogen, propane, and natural gas fueling infrastructure in community locations, such as a parking facilities, public schools, public parks, or along public roads.

Funding of up to 80% of project costs will be available for both development-phase planning activities and the acquisition and installation of charging or alternative fueling infrastructure. Five percent of the grant fund awarded may be used for educational and community engagement activities to develop and implement education programs through partnerships with schools, community organizations, and vehicle dealerships to support the use of zero-emission vehicles and associated infrastructure.

DOT must prioritize projects that expand access to charging and alternative fueling infrastructure within rural areas, low- and moderate-income neighborhoods, and communities with limited parking space or a high ratio of multi-unit dwellings to single-family homes. Eligible entities include states, metropolitan planning organizations, local governments, political subdivisions, and tribal governments. Additional funding eligibility and considerations will apply.

Estimated Funds

Min Funds

Varies by Project.

Max Funds

Funding of up to 80% of project costs will be available for both development-phase planning activities and the acquisition and installation of charging or alternative fueling infrastructure.

Next Steps

1. For more information, please contact 866.835.5322.

2025 Clean Renewable Energy Bonds (CREBs)

(Existing Buildings)

Administrator: U.S. Internal Revenue Service (IRS)

Apply Services

IncentiFind can connect you to our expert who can explain why this incentive may be right for your project.

Description

The Clean Renewable Energy Bonds (CREBs) Federal Loan Program is a Tribal Government, Municipal Utility, Rural Electric Cooperative, Local Government, and State Government program for those who have energy efficient improvements made with the following: Landfill

Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Solar Thermal Electric, and Photovoltaic.

Eligible Scope

The Clean Renewable Energy Bonds (CREBs) Federal Loan Program is for:

- Tribal Government,
- Municipal Utility,
- Rural Electric Cooperative,
- Local Government, and
- State Governments

The program is eligible for the above entities if they have or plan have energy efficient improvements made with the following:

- Landfill Gas,
- Wind,
- Biomass,
- Hydroelectric,
- Geothermal Electric,
- Municipal Solid Waste,
- Hydrokinetic Power,
- Anaerobic Digestion,
- Tidal Energy,
- Wave Energy,
- Ocean Thermal, -Solar Thermal Electric, and
- Photovoltaic (PV).

For more details use the following links and contact below:

- http://www.irs.gov/irb/2007-14_IRB/ar17.html
- <https://www.treasurydirect.gov/GA-SL/SLGS/selectCREBDate.htm>
- <https://www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm>
- <http://www.ustreas.gov/press/releases/tg333.htm>

Estimated Funds

Min Funds

Varies by project

Max Funds

Varies by project

Next Steps

1. **Contact for more information:**
Public Information - IRS
U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web Site: <http://www.irs.gov>

8.3 LOAN PROGRAMS

C-PACE (Commercial Property Assessed Clean Energy)

C-PACE (Commercial Property Assessed Clean Energy) is a financing program that helps commercial property owners fund energy-efficient and renewable energy improvements to their buildings. Through C-PACE, property owners can access long-term financing for upgrades like solar panels, energy-efficient HVAC systems, lighting, and water conservation measures.

The unique feature of C-PACE is that the financing is repaid through a property tax assessment, which is tied to the property rather than the owner. This allows for longer repayment terms and can often result in positive cash flow for property owners, as the energy savings from the upgrades can exceed the cost of the financing.

C-PACE programs are available in many states in the U.S., and they aim to promote environmental sustainability while helping businesses lower energy costs.

C-PACE is not available everywhere and is administered by independent programs in each state.

This program can be used to finance recommendations made in this report and can also include energy/water audit costs.

Energy Savings Performance Contracting (ESPC)

ESPC is a financing mechanism that enables organizations to implement energy efficiency improvements without upfront capital costs. The ESPC process includes the following:

1. **Partnership with an Energy Service Company (ESCO):** The organization partners with an ESCO, which conducts an energy audit to identify potential energy-saving projects, such as lighting upgrades, HVAC improvements, or renewable energy installations.
2. **Project Financing:** The ESCO typically arranges financing for the project, so the organization doesn't need to invest its own funds. The project is paid for over time through the energy savings it generates.
3. **Guaranteed Savings:** The ESCO guarantees that the energy savings will be sufficient to cover the project costs. If the savings fall short, the ESCO is responsible for making up the difference.

4. **Implementation and Monitoring:** The ESCO manages the project from start to finish, including design, installation, and maintenance. The ESCO also monitors the energy performance to ensure that savings are realized as expected.
5. **Contract Duration:** ESPC contracts typically last several years, during which the energy savings are used to pay off the project costs. After the contract period, the organization benefits from reduced energy costs without additional payments.

Overall, ESPC allows organizations to improve energy efficiency, reduce utility costs, and minimize environmental impact without needing upfront capital, while transferring the performance risk to the ESCO.

AEI is not an ESCO and does not offer this program as a service.

9.0 SIGNATURES OF PARTICIPATING PROFESSIONALS

AEI Consultants performed this ASHRAE Level II Energy Audit for the Property located at 136 Ledgeawn Avenue, Bar Harbor, Hancock County, Maine, in conformance with the scope and limitations of ASHRAE *Procedures for Commercial Building Energy Audits, Second Edition*, ANSI/ASHRAE/ACCA Standard 211-2018, *Standard for Commercial Building Energy Audits*.

Prepared By:



Joshua Martin
Report Author

Reviewed By:



Thomas Lapoint
Senior Author



Joshua Martin
Site Assessor

APPENDIX A

PROPERTY PHOTOGRAPHS



1. Hulls Cove Pump House

APPENDIX B

SUPPORTING DOCUMENTATION

ABBREVIATIONS AND ACRONYMS

AC	Air Conditioning	kBTU	Kilo-British Thermal Unit
AEI	AEI Consultants	kGal	Kilogallons
ALTA	American Land Title Association	kW	Kilowatt
APN	Assessor's Parcel Number	kWh	Kilowatt hour
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	LED	Light Emitting Diode
BTU	British Thermal Unit	M	Model
CH	Clubhouse	MBH	1,000 BTUs/hour
DHW	Domestic Hot Water	O	Occupied
ECM	Energy Conservation Measure	OFC	Office
EEM	Energy Efficiency Measures	OSHA	Occupational Safety and Health Administration
EUI	Energy Use Intensity	PCA	Property Condition Assessment
EUL	Estimated Useful Life	PCR	Property Condition Report
EWEM	Energy and Water Efficiency Measures	ROI	Return On Investment
F	Fahrenheit	RP	Responsible Party
FCU	Fan Coil Unit	SEDI	Statement of Energy Design Intent
Gal	Gallon	SF	Square Footage/Square Feet
GFA	Gross Floor Area	SIR	Savings to Investment Ratio
GPF	Gallons Per Flush	SP	Subject Property
GPM	Gallons Per Minute	SEP	Statement of Energy Performance
HUD	Department of Housing and Urban Development	V	Vacant
HVAC	Heating, Ventilation and Air Conditioning	ZAR	Zoning Analysis Report

ASHRAE Equipment Life Expectancy chart

ASHRAE is the industry organization that sets the standards and guidelines for most all HVAC-R equipment.
For additional info about ASHRAE the website is www.ashrae.org .

Equipment Item	Median Years	Equipment Item	Median Years	Equipment Item	Median Years
Air conditioners		Air terminals		Air-cooled condensers	20
Window unit	10	Diffusers, grilles, and registers	27	Evaporative condensers	20
Residential single or Split Package	15	Induction and fan coil units	20	Insulation	
Commercial through-the wall	15	VAV and double-duct boxes	20	Molded Blanket	20 24
Water-cooled package	15	Air washers	17	Pumps	
Heat Pumps		Ductwork	30	Base-mounted	20
Residential air-to-air	15	Dampers	20	Pipe-mounted	10
Commercial air-to-air	15	Fans		Sump and well	10
Commercial water-to-air	19	Centrifugal	25	Condensate	15
Roof-top air conditioners		Axial	20	Reciprocating engines	20
Single-zone	15	Propeller	15	Steam turbines	30
Multi-zone	15	Ventilating roof-mounted	20	Electric motors	18
Boilers, hot water (steam)		Coils		Motor starters	17
Steel water-tube	24 (30)	DX, water, or steam	20	Electric transformers	30
Steel fire-tube	25 (25)	Electric	15	Controls	
Cast iron	35 (30)	Heat Exchangers		Pneumatic	20
Electric	15	Shell-and-tube	24	Electric	16
Burners	21	Reciprocating compressors	20	Electronic	15
Furnaces		Packaged chillers		Valve actuators	
Gas- or oil-fired	18	Reciprocating	20	Hydraulic	15
Unit heaters		Centrifugal	23	Pneumatic	20
Gas or electric	13	Absorption	23	Self-contained	10
Hot water or steam	20	Cooling towers			
Radiant Heaters		Galvanized metal	20		
Electric	10	Wood	20		
Hot water or steam	25	Ceramic	34		

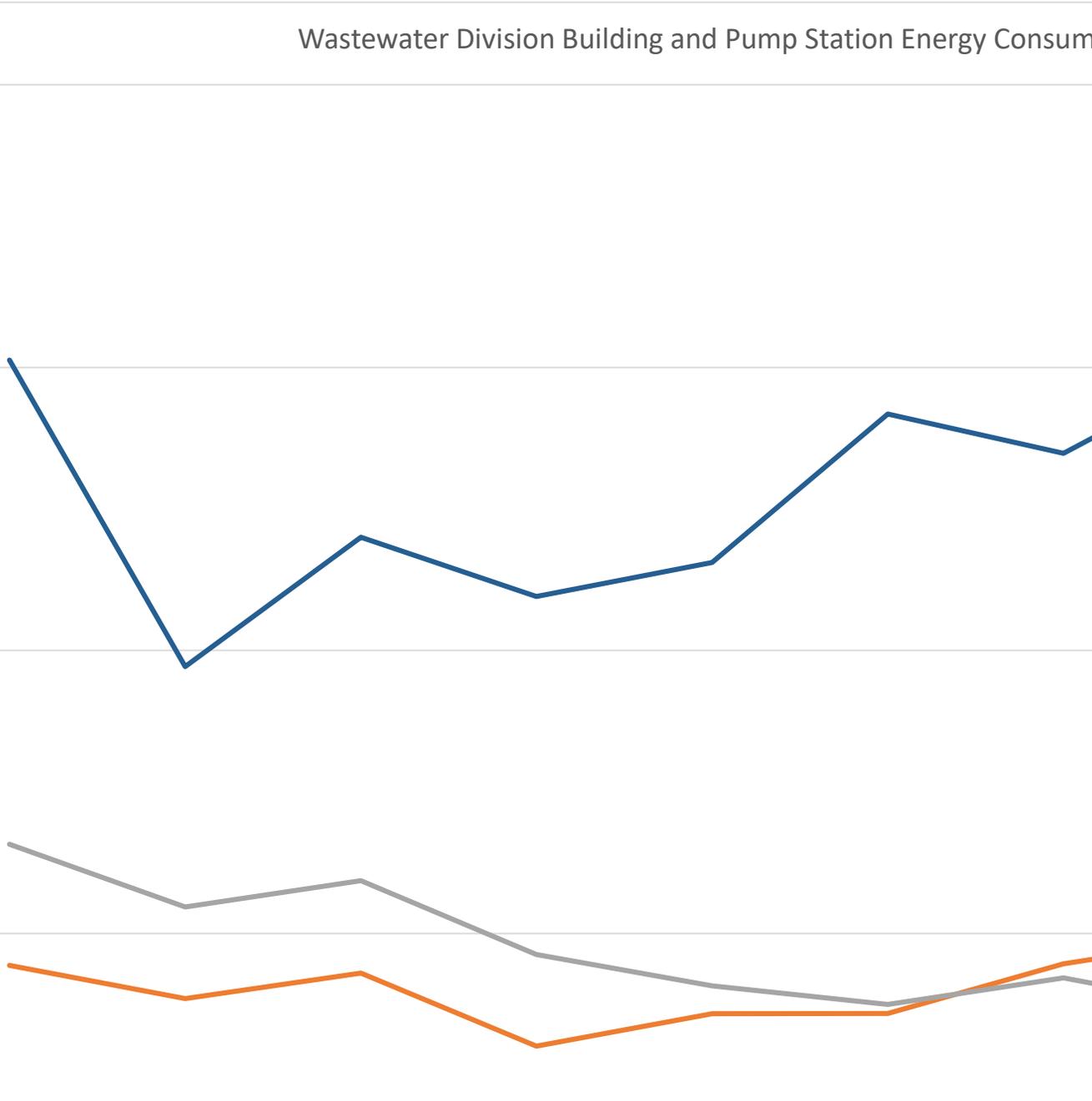
Wastewater Division Building and Pump Station Energy Consumption without Ma

22,500 kWh

17,500 kWh

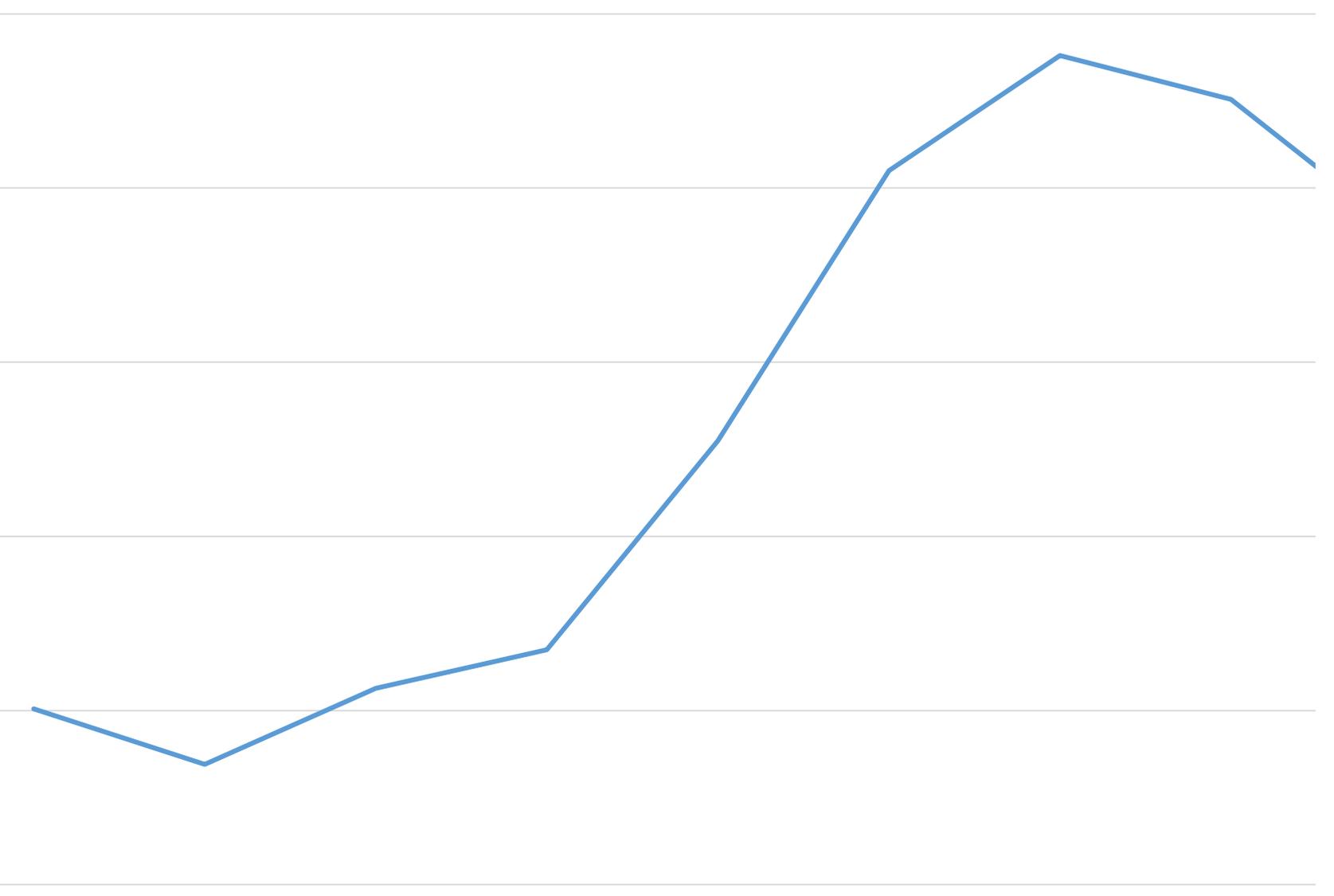
12,500 kWh

7,500 kWh



Wastewater Treatment Plant: Waste Water Treatment Plant - Hulls

80,000
70,000
60,000
50,000
40,000
30,000



APPENDIX C

EWEM CALCULATION WORKSHEETS

Building	Property Heat Type	Quantity	Average Input	Input Units	Efficiency	Efficiency Units	Heating Fuel	Mech. Heating Hrs*	Heating Energy Use	Units	Heating Energy (kBtu)	Emissions (MTCO2e)	Cost		
136 Ledgelawn	Electric Resistance	2	3.3	kW	1.00	COP	Electricity	1,568	10,350	kWh					
136 Ledgelawn	Heat Pump	1	3.8	kW	12.00	HSPF	Electricity	2,352	8,844	kWh					
136 Ledgelawn	Fuel Oil Boiler	1	790	Fuel Oil #2 kBtu/hr	95%	TE	Fuel Oil #2	1,045	5,966.20	Gallons	826,319	60.8	\$16,712.17		
136 Ledgelawn	Propane Furnace	1	29.2	Propane kBtu/hr	77%	TE	Propane	1,568	500.44	Gallons	45,790	2.88	\$900.29		
136 Ledgelawn	Propane Unit Heater	9	45	Propane kBtu/hr	77%	TE	Propane	1,045	4,627.37	Gallons	423,405	26.61	\$8,324.65		
57 DeGregoire Park	Propane Unit Heater	1	37	Propane kBtu/hr	77%	TE	Propane	1,045	421.61	Gallons	38,577	2.42	\$758.47		
99 Public Works Way	Propane Furnace	1	21	Propane kBtu/hr	77%	TE	Propane	1,568	354.77	Gallons	32,461	2.04	\$638.22		
99 Public Works Way	Electric Resistance	1	5	kW	1.00	COP	Electricity	1,568	7,841	kWh					
99 Public Works Way	Propane Unit Heater	1	37	Propane kBtu/hr	77%	TE	Propane	1,045	421.61	Gallons	38,577	2.42	\$758.47		
136 Ledgelawn	Electric Resistance	2	3.3	kW	1	New Efficiency	New Fuel	New Energy Consumption (kBtu)	New Energy Consumption (Gal)	New GHG Emissions	New Cost	Energy Savings (kBtu)	GHG Savings	Cost Savings	Energy Savings (Gallons Propane)
136 Ledgelawn	Heat Pump	1	3.759832849	kW	12										
136 Ledgelawn	Fuel Oil Boiler	1	790.4	Fuel Oil #2 kBtu/hr	0.95										
136 Ledgelawn	Propane Furnace	1	29.2	Propane kBtu/hr	0.772	97.0%	Propane	809,281	8,845	50.9	\$15,911.44	17,037	9.9	\$800.73	123.0
136 Ledgelawn	Propane Unit Heater	9	45	Propane kBtu/hr	0.772	97.2%		36,369	397	2.3	\$715.05	9,422	0.6	\$185.25	103.0
57 DeGregoire Park	Propane Unit Heater	1	36.9	Propane kBtu/hr	0.772	97.0%		336,105	3,673	21.1	\$6,608.22	87,300	5.5	\$1,716.42	954.1
99 Public Works Way	Propane Furnace	1	20.7	Propane kBtu/hr	0.772	97.0%		30,623	335	1.9	\$602.08	7,954	0.5	\$156.39	86.9
99 Public Works Way	Electric Resistance	1	5	kW	1	97.0%		25,835	282	1.6	\$507.95	6,626	0.4	\$130.28	72.4
99 Public Works Way	Propane Unit Heater	1	36.9	Propane kBtu/hr	0.772	97.0%									
						97.0%		30,623	335	1.9	\$602.08	7,954	0.5	\$156.39	86.9

Building	Property Cooling Type	Average Input (kW)	Input Units	Efficiency	Efficiency Units	Cooling Fuel	Mech. Cooling Hrs*	Cooling Energy Use	Units
136 Ledgelawn	Heat Pump	4.59	kW	20.00	SEER	Electricity	125	574	kWh

Low Flush Volume Toilets & Urinals

Replace 15 Existing Toilets and 3 Existing Urinals with WaterSense Labeled
Low Flow 0.6 GPF Single Flush Toilets and 0.125 GPF Urinals

Number of Toilets To Be Replaced	15.00	
Number of Urinals To Be Replaced	3	
Existing Gallons Per Flush Ratings For Toilets	1.28	
Existing Gallons Per Flush Ratings For Toilets	1.60	GPF
GPF of Proposed Low Flow Toilet	0.60	GPF
Existing Gallons Per Flush Ratings For Urinals	1.00	GPF
Existing Gallons Per Flush Ratings For Urinals	0.125	GPF
GPF of Proposed Low Flow Urinals	0.125	GPF

Water Saving Calculations

Water Savings 12,439 Gal

Cost Savings Calculations

Enter Water Tariff Rate (\$/1000Gal) \$12.10 \$\$

Annual Estimated Cost Savings From Water \$150 \$\$

Estimated Cost of Retrofit

Material and Labor Cost Per Toilet \$281.30 \$\$

Material and Labor Cost Per Urinal \$410.14 \$\$

Cost For Replacing Toilet with Low Flow Fixture \$4,220 \$\$

Cost For Replacing Urinals with Low Flow Fixture \$1,230

Total Cost For Replacing Toilets and Urinals \$5,450

Simple Pay Back Period 36.22 Yrs

Replace 1 - 95% (Derated) Efficient MBH Boiler with 1 - 96.5% Efficient 1,500 MBH Er
 Certified (if available) Boiler, Weil-McLain Model SVF 1500, or equivalent.

Quantity of Existing Boilers	1
Heating Hours	1045.4
Percent of Heating Hours that Boiler Runs	100.0%
Total Energy Consumption of Existing Boiler	5,966
Existing Boiler Capacity	1,500,000
Current Boiler Efficiency	94.6%
Actual Heat Produced with 94.6% Eff Boilers Gallons Fuel Oil	5,644
New Boiler Efficiency	96.5%
Gallons Propane Required to Produce Equivalent Heat with High Eff Boiler	8,853
Energy Savings with High Eff Boiler	16,269
Cost Per Gallon Propane	\$1.80
Cost Per Gallon Fuel Oil	\$2.80
Annual Cost Savings	\$785.62
Number of Boiler(s) to Replace with High Efficiency:	1
Capacity of Replacement High Efficiency Boiler(s):	1,500,000
Total Cost to Replace w/ 96.5% Efficient Boiler	\$45,129.00
Payback to Replace if Boilers are Relatively New	57.44
Payback to Replace Boilers at End of EUL	16.27
EUL of Existing Boilers = 25 years	
EUL of High Efficiency Boilers = 15 years	

Energy Star

Each

Hours

Gallons
BTUH

Gallons

Gallons
kBtu
\$\$\$Gal

Dollars

Dollars

Each

BTUH

Dollars

Years

Years

Replace two (2) Existing 37 kBTUH and nine (9) 45 kBTUH Standard Efficiency Propane Unit Heaters with Energy Star Certified High Efficiency Condensing Unit Heaters; or equivalent.

Quantity of Existing Furnaces	11	Each
Heating Hours	1,045	Hours
Hours Burner on Furnace Actually Runs	1,045	Hours
BTUH Input Rating of Existing Furnace	45,000	BTUH
Total Energy Consumption of Existing Furnace	5,471	Gallons
High Efficiency Furnace Replacements Capacity	45,000	BTUH
Existing Furnace Derated Efficiency	77%	
Actual Heat Produced with Existing Furnaces	4,212	Gallons
New Furnace Efficiency	97.2%	
Gallons Propane Necessary to Produce Equivalent Heat with High Eff Furnace	4,334	Gallons
Energy Savings with High Eff Furnace	1,136.9	Gallons
Cost Per Therm	\$1.80	\$\$\$ /Gallon
Cost Savings	\$2,045.00	Dollars
Approximate Cost for 97.2% Eff. Furnace	\$3,341	Dollars
Approximate Labor Cost to Install Furnace	\$591	Dollars
Total Cost to Replace Furnaces	\$43,255.96	Dollars
Simple Payback for Replacing Furnaces	21.15	Years
Manufacture Year of Existing Furnaces = 2013		
EUL of Existing Furnaces = 25 years		

Replace Two (2) Existing 29 & 21 kBTUH Standard Efficiency Gas Furnaces with Energy Star Certified High Efficiency Condensing Furnaces; or equivalent.

Quantity of Existing Furnaces	2	Each
Heating Hours	1,568	Hours
Hours Burner on Furnace Actually Runs	1568.165549	Hours
BTUH Input Rating of Existing Furnace	29,200	BTUH
Total Energy Consumption of Existing Furnace	855	Gallons
High Efficiency Furnace Replacements Capacity	29,200	BTUH
Existing Furnace Derated Efficiency	77.2%	
Actual Heat Produced with Existing Furnaces	660	Gallons
New Furnace Efficiency	97.2%	
Gallons Propane Necessary to Produce Equivalent Heat with High Eff Furnace	679	Gallons
Energy Savings with High Eff Furnace	176.0	Gallons
Cost Per Therm	\$1.80	\$\$\$ /Gallon
Cost Savings	\$316.00	Dollars
Approximate Cost for 97.2% Eff. Furnace	\$3,341	Dollars
Approximate Labor Cost to Install Furnace	\$591	Dollars
Total Cost to Replace Furnaces	\$7,864.72	Dollars
Simple Payback for Replacing Furnaces	24.89	Years
Manufacture Year of Existing Furnaces = 2014		
EUL of Existing Furnaces = 25 years		

Lighting Audit

Area of Building	Exitsting Fixture	Total # Fixures	Bulbs Per Fixture	Total # of Bulbs	LED Equivalent Wattage	Current kWh Usage	kWh Usage w/ LED	kWh Saved Per Year	Cost Per kWh	Current Annual Op Cost	Annual Cost Using LEDs	Savings	Cost to Install Lighting	Pay back
Interior Lights	1B 8W LED	8	1	8	0	186	0	0	0.15	\$28	\$0	\$0	\$0	-
Exterior Lights	1B 15W LED	4	1	4	0	404	0	0	0.15	\$61	\$0	\$0	\$0	-
Interior Lights	2B 32W 4' T8	3	2	6	11	399	137	262	0.15	\$60	\$21	\$39	\$52	1.3
Explosion Proof Lights	1B 70W Incandescent	1	1	1	11	146	23	123	0.15	\$22	\$3	\$18	\$14	0.7
Interior Lights	2B 100W 8' T12 Electronic	43	2	86	15	25112	3767	21345	0.15	\$3,771	\$566	\$3,205	\$10,342	3.2
Interior Lights	2B 32W 4' T8	54	2	108	11	10092	3469	6623	0.15	\$1,515	\$521	\$994	\$13,160	13.2
Exterior Lights	1B 60W Incandescent	16	1	16	10	6461	538	5922	0.15	\$970	\$81	\$889	\$1,975	2.2
Garage Lights	4B 16W LED	4	4	16	0	374	0	0	0.15	\$56	\$0	\$0	\$0	-
						60,070	9,837	48,058		\$ 9,020	\$ 1,477	\$ 7,216	\$ 25,786	3.57

**Replace 17 Existing Windows with Energy Star Certified Vinyl Framed Low-E
Double Pane Windows and 1 Patio Doors, U-factor ≤ 0.3**

Cost Savings Calculator for Windows

Electric Cost Per kWh	\$0.15	\$\$\$/kWh
Electric Cost Per kBtu	\$0.044008	\$\$\$/kBtu
Propane Cost Per Gal		\$\$\$/Gal
Propane Cost Per Btu	\$0.00	\$\$\$/Btu

Total Window and Patio Door Area	525	SF
Quantity of Patio Doors	1	Ea
Quantity of Windows	17	Ea

R-Value of Original Windows and Patio Doors	0.763
R-Value of Replacement Window	3.846
Delta R-Value Window	3.08

Annual Heating Degree Days - <i>HDD, Base 55</i>	4416.8
Annual Cooling Degree Days - CDD, Base 65	605.8

Heating Energy Savings Btu's x Correction Factor	58,434,264	Btu's
Cooling Energy Savings Btu's x Correction Factor	1,202,210	Btu's

Heating Energy Savings kWh	1,038	kWh
Cooling Energy Savings kWh	352	kWh
Heating Energy Savings Gal Propane	277	Gal
Heating Energy Savings Gal Fuel Oil #2	213	Gal
Heating Cost Savings	\$1,252	
Cooling Cost Savings	\$52	
Total Cost Savings	\$1,303	

Cost to Install Each Window (\$75-\$100)	100	Ea
Base Cost Per SF of Window (\$25-\$30)	30	Per SF
Cost to Install Each Patio Door	238	Ea
Base Cost of Vinyl Gliding Patio Door	775	Ea
Total Cost of Windows and Patio Doors	\$17,743	

Total Savings	\$1,303
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Payback	13.6	Years
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APPENDIX D

PROJECT TEAM



Joshua D. Martin

Senior Energy Engineer

EDUCATION

- Bachelor of Science in Mechanical Engineering with a Minor in Mathematical Sciences - Clemson University, 2009

CERTIFICATIONS

- Certified Energy Manager - Association of Energy Engineers, 2023
- Engineer In Training - South Carolina Board of Professional Engineers, 2009

SUMMARY OF PROFESSIONAL EXPERIENCE

Mr. Joshua D. Martin is a Senior Energy Engineer in the energy services division, distinguished as a Certified Energy Manager (C.E.M.) and Engineer in Training (E.I.T.). His robust background includes over 12 years of experience in energy efficiency engineering, project management, building commissioning, and sustainability consulting. Throughout his career, he has specialized in commercial building energy consulting, executing energy audits, conducting site visits, and identifying energy conservation measures (ECMs) across various sectors, including residential, commercial, multi-family, industrial, MUSH (Municipal, University, School, and Hospital), and agricultural.

Mr. Martin is passionate about helping clients accomplish their sustainability goals, qualify for green loan programs, and satisfy local building code requirements. More recently, Mr. Martin has worked with clients to help them achieve their greenhouse gas reduction goals through decarbonization and electrification studies.

PROJECT EXPERIENCE

Project experience for Mr. Martin includes:

- Project Management
- 50+ Multifamily Building Energy Efficiency Audits
- Fannie Mae and Freddy Mac Green Up program compliance
- Indoor Air Quality Measurement and Compliance for ASHRAE 62.1
- ASHRAE Level I & II Energy Audits for Commercial, Agricultural, and Industrial Facilities
- Building Commissioning and Retro-commissioning for Commercial and Industrial Facilities
- Energy Star Certifications for Residential and Commercial Facilities
- Measurement and Verification of Energy Efficiency Projects
- Energy Efficiency and Sustainability Consulting
- Greenhouse Gas Reduction Studies
- Energy Modeling
- Data Analysis

Mr. Martin has worked in the energy efficiency and sustainability services field since 2011. He is committed to advancing products, services, and ideas that reduce environmental impact and promote sustainability. He believes in contributing to a greener future without compromising resources for future generations.



Thomas LaPoint, M.S.

National Client Manager, Energy Services

EDUCATION

- MS - Environmental Management and Sustainability, St. Edward's University
- BA - Liberal Arts and Engineering Studies, Environmental Studies Minor, Cal Poly - San Luis Obispo

CERTIFICATIONS

- LEED Accredited Professional - Operations + Maintenance
- Building Performance Institute - Multifamily Building Analyst
- Certified Energy Manager - Association of Energy Engineers
- Certified Green Point Rater - Build It Green

SUMMARY OF PROFESSIONAL EXPERIENCE

Mr. LaPoint is a National Client Manager in the energy services industry. His experience includes over 10 years in energy efficiency/sustainability project management and four years in the construction industry.

PROJECT EXPERIENCE

Project experience for Mr. LaPoint includes:

- 300+ Multifamily Building Energy Efficiency Audits
- Fannie Mae and Freddy Mac Green Up program compliance
- More than 6 years of experience in multifamily assessments including numerous assignments for Freddie Mac, HUD, and Fannie Mae execution
- Energy Star Portfolio Manager Certifications and Benchmarking
- NY Local Law 97 Compliance
- Fannie Mae Solar PV Module
- HUD Utility Allowance Calculations
- Phase I Environmental Site Assessments

Mr. LaPoint has worked in the energy services field since 2013.