Local Government Energy Audit Report

Cape May Pump Stations

Coral Ave., Madison Ave., and Claghorn Pl. Pump Station

June 3, 2022

Prepared for:

Cape May County MUA

Various Locations

Cape May County, New Jersey

Prepared by:

TRC

317 George Street

New Brunswick, New Jersey 08901

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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Energy Efficiency Incentive & Rebate Transition

For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the Clean Energy Act. The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

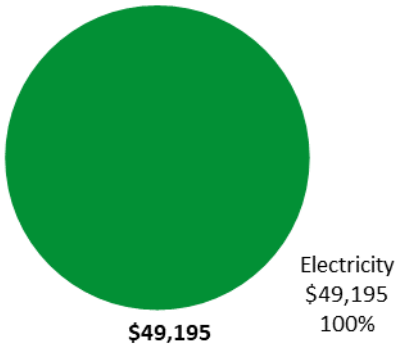
These "next generation" energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website.

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Cape May Pump Stations. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $49,195 Electricity: 319,500 kWh	
ENERGY STAR® Benchmarking Score	N/A *(1-100 scale)*	A standard energy use benchmark is not available for this facility type. This report contains suggestions about how to improve building performance and reduce energy costs.

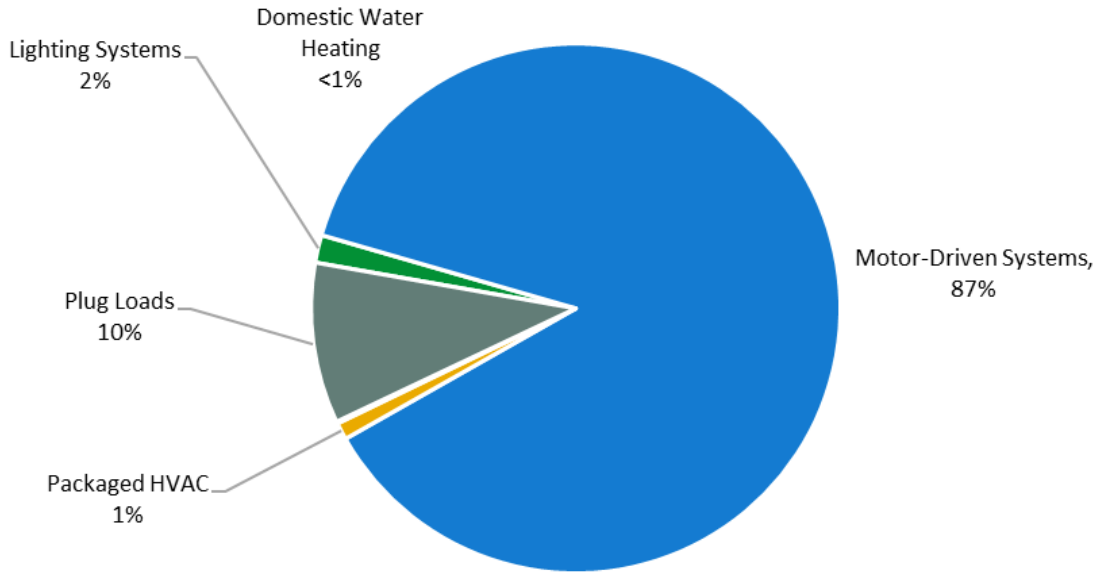


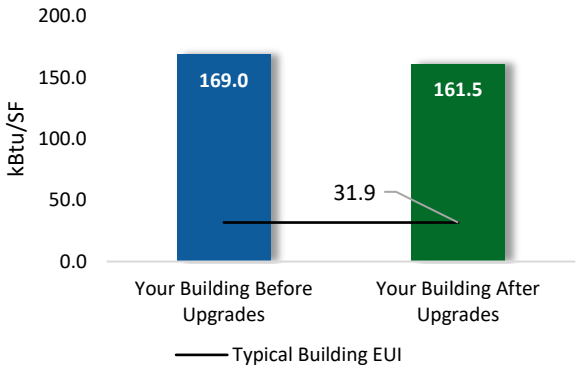
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

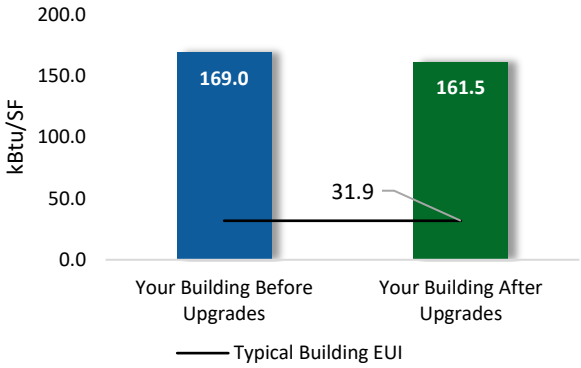
Scenario 1: Full Package (all evaluated measures)

Installation Cost	$13,867
Potential Rebates & Incentives[1]	$259
Annual Cost Savings	$2,184
Annual Energy Savings	Electricity: 14,186 kWh
Greenhouse Gas Emission Savings	7 Tons
Simple Payback	6.2 Years
Site Energy Savings (all utilities)	4%



Scenario 2: Cost Effective Package[2]

Installation Cost	$13,867
Potential Rebates & Incentives	$259
Annual Cost Savings	$2,184
Annual Energy Savings	Electricity: 14,186 kWh
Greenhouse Gas Emission Savings	7 Tons
Simple Payback	6.2 Years
Site Energy Savings (all utilities)	4%



On-site Generation Potential

Photovoltaic	None
Combined Heat and Power	None

[1] Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**2,597**	**0.6**	**0**	**$400**	**$1,434**	**$251**	**$1,183**	**3.0**	**2,615**
ECM 1	Install LED Fixtures	Yes	465	0.0	0	$72	$225	$5	$220	3.1	469
ECM 2	Retrofit Fixtures with LED Lamps	Yes	2,132	0.6	0	$328	$1,209	$246	$963	2.9	2,147
Motor Upgrades			**6,648**	**2.4**	**0**	**$1,024**	**$11,699**	**$0**	**$11,699**	**11.4**	**6,694**
ECM 3	Premium Efficiency Motors	Yes	6,648	2.4	0	$1,024	$11,699	$0	$11,699	11.4	6,694
Domestic Water Heating Upgrade			**49**	**0.0**	**0**	**$8**	**$14**	**$8**	**$6**	**0.8**	**49**
ECM 4	Install Low-Flow DHW Devices	Yes	49	0.0	0	$8	$14	$8	$6	0.8	49
Custom Measures			**4,892**	**0.0**	**0**	**$753**	**$720**	**$0**	**$720**	**1.0**	**4,926**
ECM 5	Generator Block Heater Thermostat	Yes	4,892	0.0	0	$753	$720	$0	$720	1.0	4,926
TOTALS (COST EFFECTIVE MEASURES)			**14,186**	**3.0**	**0**	**$2,184**	**$13,867**	**$259**	**$13,608**	**6.2**	**14,285**
TOTALS (ALL MEASURES)			**14,186**	**3.0**	**0**	**$2,184**	**$13,867**	**$259**	**$13,608**	**6.2**	**14,285**

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a breakout of cost-effective improvements, see **Section 4: Energy Conservation Measures**.

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

Utility run energy efficiency programs and New Jersey's Clean Energy Programs give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives before purchasing materials or starting installation.

For details on these programs please visit New Jersey's Clean Energy Program website or contact your utility provider.

Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat & Power (CHP)

The CHP program provides incentives for combined heat and power (aka cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce electric demand during times of peak demand, the grid is made more reliable and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Cape May Pump Stations. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On May 13, 2021, TRC performed an energy audit at three pump stations located in Cape May Point, New Jersey. TRC met with Kyle Davis to review the facility operations and help focus our investigation on specific energy-using systems.

Built in 1986, this group of pump stations consists of three, one-story buildings totaling 6,450 square feet. These include Madison Avenue Pump Station, Coral Avenue Pump Station, and Claghorn Place Pump Station. Spaces include mechanical spaces, dry wells, and generator rooms.

2.2 Building Occupancy

These facilities are occupied intermittently during the work week and only when service is required on the weekends.

Building Name	Weekday/Weekend	Operating Schedule
Madison Avenue Pump Station	Weekday	Intermittent
	Weekend	Unoccupied
Coral Avenue Pump Station	Weekday	Intermittent
	Weekend	Unoccupied
Claghorn Place Pumping Station	Weekday	Intermittent
	Weekend	Unoccupied

Figure 3 - Building Occupancy Schedule

2.3 Building Envelope

The walls are made of concrete masonry units (CMUs) with a brick veneer and a painted CMU interior finish. Claghorn Place and Madison Ave. pump stations have pitched roofs clad with asphalt three-tab shingles. The Coral Ave. station has a flat roof with a Mansard style façade clad in three-tab shingle.

Coral Ave. Pump Station has no windows but has a double-wide hinged steel door assembly that serves the main personnel entry way as well as access moving for large equipment. Madison Ave. and Claghorn Place each have three double-hung, metal framed windows original to the buildings and two metal entry doors and insulated overhead doors. The windows are in good condition.

Coral Ave. Pump Station

Madison Ave. Pump Station

Madison Ave. Pump Station

2.4 Lighting Systems

The primary interior lighting system uses 32-Watt linear fluorescent T8 lamps with electronic ballasts. Most of the linear fluorescent fixtures are in fair good condition. The Madison Ave. and Claghorn wet well spaces have LED vapor tight ceiling fixtures. All interior fixtures are manually controlled with wall switches.

Claghorn Place T8 Fluorescent Fixture

Madison Ave. LED Fixture

Exterior fixtures include wall packs with high intensity discharge (HID), halogen Incandescent, or LED lamps. The Claghorn and Madison Ave. exterior fixtures are controlled with timeclocks. The Coral Ave. fixtures are controlled with a photosensor.

Madison Ave. Pump Station Wall Pack

Coral Ave. Pump Station Wall Pack

Coral Ave. Pump Station Halogen Lamp

2.5 Air Handling Systems

Unitary Heating Equipment

All three pump stations utilize electric resistance heater to satisfy wintertime heating load, utilizing both electric baseboard heaters and electric fan coils. These vary in capacity between 3.4 (1 kW) and 17.07 MBh (5 kW) output. The units are in good condition. Equipment is controlled by manual dial thermostats, which were set between 48°F and 60°F at the time of the audit.

Coral Ave. Thermostat

Exhaust Fans

Exhaust fans serve restrooms, dry wells, wet wells, pump motor rooms, and other spaces with sizes ranging from 1/3-hp to 3-hp. All are manually controlled.

A continuously running 2 hp process blower serves the scrubber at the Madison Ave. Pump Station. A 5-hp fan serves the radiator for the generator and the Claghorn Place Pump Station.

2.6 Domestic Hot Water

Claghorn Place and Madison Ave. pump stations have 3.5 kW instantaneous water heaters serving the restrooms. The domestic hot water pipes are not insulated.

Claghorn Place Domestic Water Heater (DHW)

2.7 Water-Using Systems

Claghorn Place and Madison Ave. pump stations have with toilets and lavatories, urinals, and sinks. Faucet flow rate at Claghorn Place was at 2.5 gallons per minute (gpm) or higher. Faucet flow rate at Madison Ave. was less than 1 gallon per minute.

Madison Ave. Pump Station

Claghorn Place Pump Station

2.8 Process Equipment

Claghorn Place Pump Station

In the Claghorn Place pump station dry well, there are two 75-hp and one 50-hp variable frequency drive (VFD) controlled vertical turbine type pumps serving a production well. These pumps operate on demand. The controls for these pumps are set to automatic and equipped with alarms in case there is low flow, pump failure, leakage, high temperature, or motor overload. Two fractional hp sump pumps operate on demand, mainly during wet conditions.

Two fractional hp air compressors are used for a bubbler level control system. This pump station also has a 3-hp grinder for breaking down solids in the waste stream. A 2-hp motor powers the scrubber blower system. In case of power loss, a diesel-powered backup generator provides automatic emergency power. For the purposes of our audit, we did not include the back-up generator with the diesel engine in our analysis. However, the generator engine block heater was included in our analysis.

50 hp Process Pump

75 hp Process Pump

Madison Ave. Pump Station

In the Madison Ave. pump station dry well, there are two 125-hp and one 100-hp VFD controlled vertical turbine type pumps serving a production well. These pumps operate on demand. The controls for these pumps are set to automatic and equipped with alarms in case there is low flow, pump failure, leakage, high temperature, or motor overload. Two fractional hp sump pumps operate on demand, mainly during wet conditions.

Two fractional hp air compressors are used for a bubbler level control system. This pump station also has a 3-hp grinder for breaking down solids in the waste stream. A 3-hp motor powers the wet well blower. A 1-hp exhaust fan served the drywell. Fractional HP exhaust fans serve the generator room and motor room. A 2-hp motor powers the scrubber blower system. In case of power loss, a diesel-powered backup generator provides automatic emergency power. For the purposes of our audit, we did not include the back-up generator with the diesel engine in our analysis. However, the generator engine block heater was included in our analysis.

100-hp Process Pump

Bubbler System Air Compressor

Coral Ave. Pump Station

In the Coral Ave. pump station dry well, there are two 15-hp pumps serving a production well. These pumps cycle on and off based on the wet well fluid level. The controls for these pumps are set to automatic and equipped with alarms in case there is low flow, pump failure, leakage, high temperature, or motor overload.

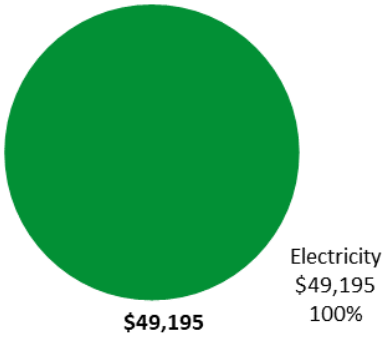
Two fractional hp air compressors are used for a bubbler level control system. A ½-hp exhaust fan serves the motor room. In case of power loss, a diesel-powered backup generator provides automatic emergency power. For the purposes of our audit, we did not include the back-up generator with the diesel engine in our analysis. However, the generator engine block heater was included in our analysis.

Bubbler System Air Compressor

3 Energy Use and Costs

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	319,500 kWh	$49,195
Total		**$49,195**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

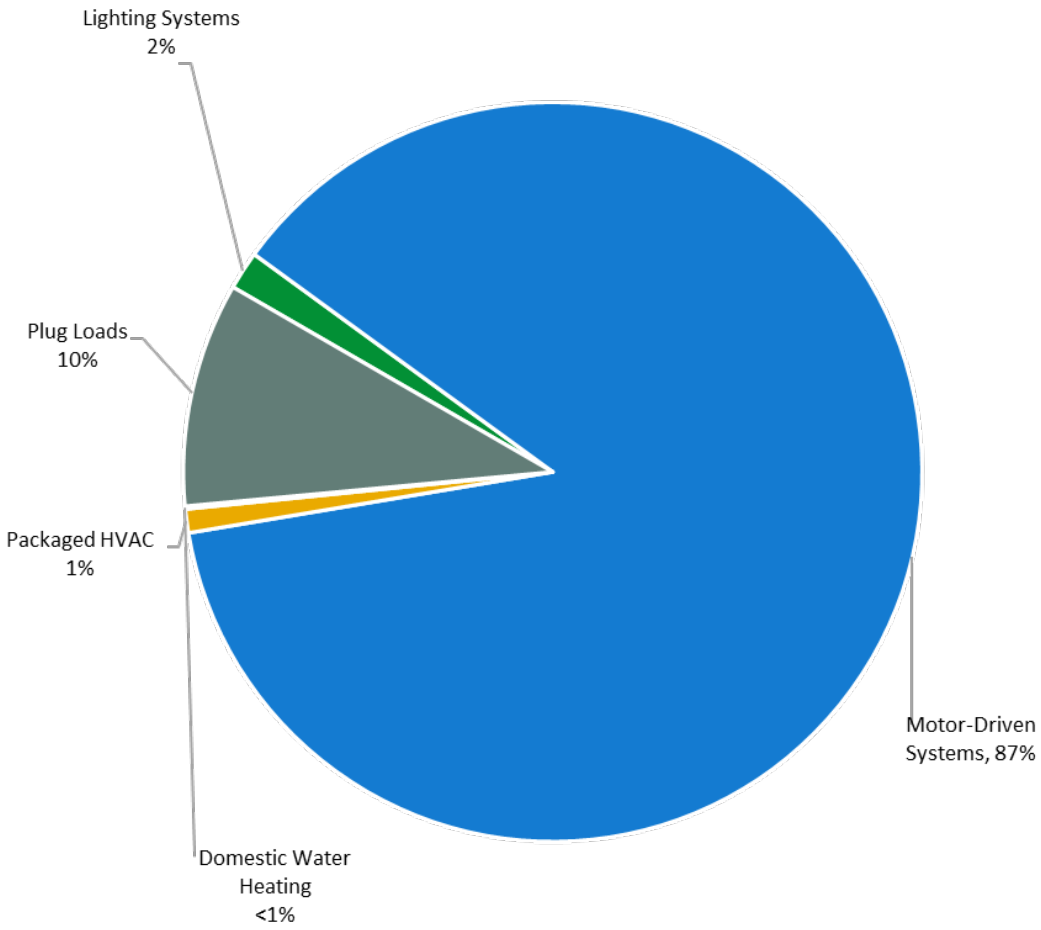
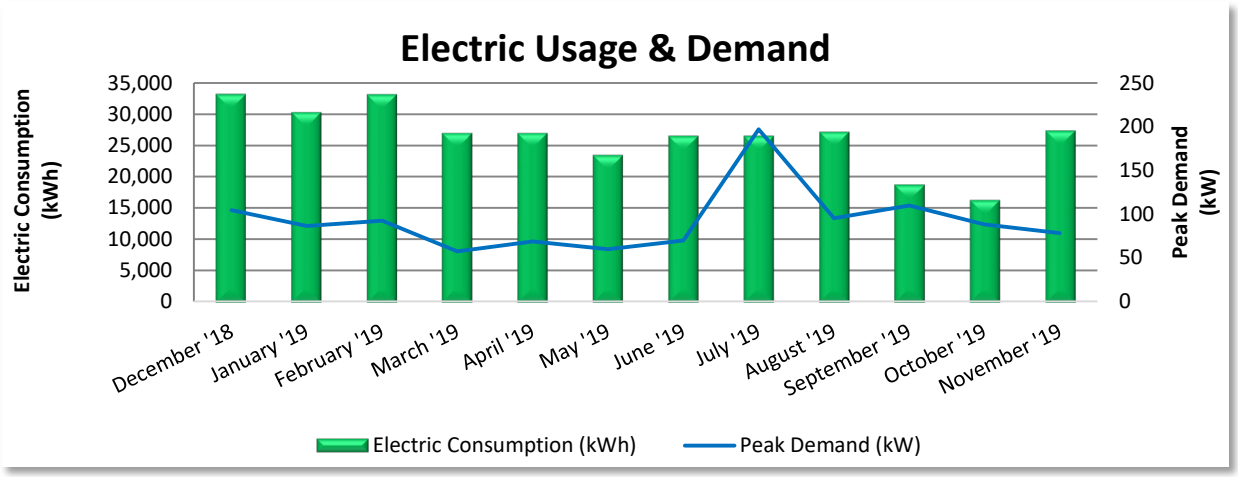


Figure 4 - Energy Balance

3.1 Electricity

Atlantic City Electric delivers electricity under rate class General Service Secondary, with electric production provided by Ambit Northeast, a third-party supplier. The following graph and chart depict the total electricity usage for the combined sites.

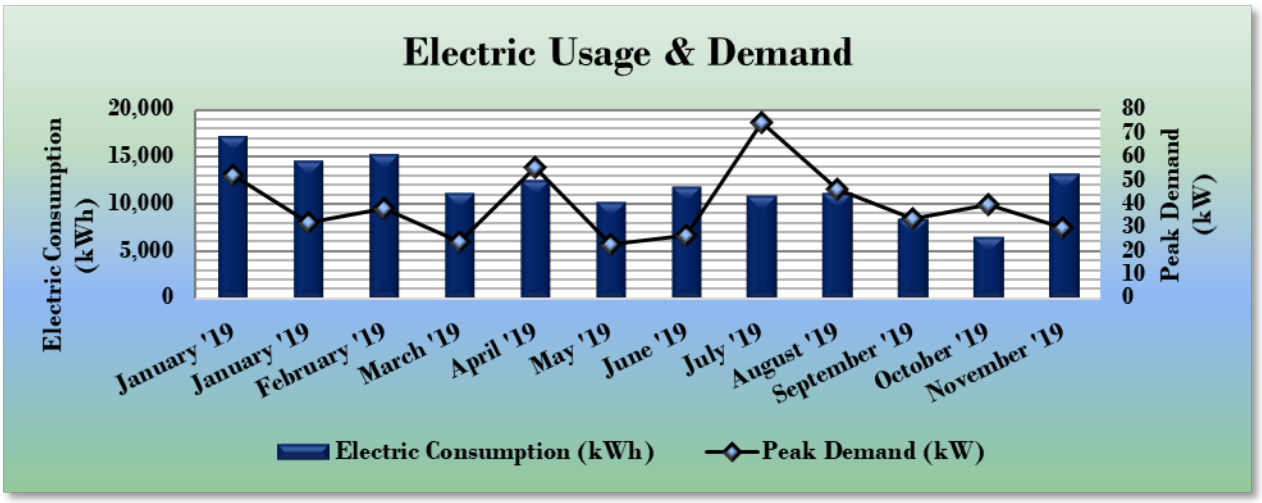


Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
1/12/19	31	33,263	105	182	5,001
2/12/19	31	30,398	86	140	4,300
3/12/19	28	33,208	92	150	4,611
4/10/19	29	27,082	57	101	3,812
5/13/19	33	27,050	69	175	4,105
6/12/19	30	23,554	60	143	3,666
7/12/19	30	26,622	70	189	4,289
8/12/19	31	26,621	197	532	4,630
9/13/19	32	27,296	95	273	4,478
10/10/19	27	18,828	110	256	3,126
11/9/19	30	16,374	88	190	2,630
12/10/19	31	27,453	78	180	4,277
Totals	**363**	**317,749**	**197**	**$2,510**	**$48,926**
Annual	**365**	**319,500**	**197**	**$2,523**	**$49,195**

Notes:

- Peak demand of 197 kW occurred in July '19.
- Average demand over the past 12 months was 92 kW.
- The average electric cost over the past 12 months was $0.154/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.

Claghorn Place Pump Station

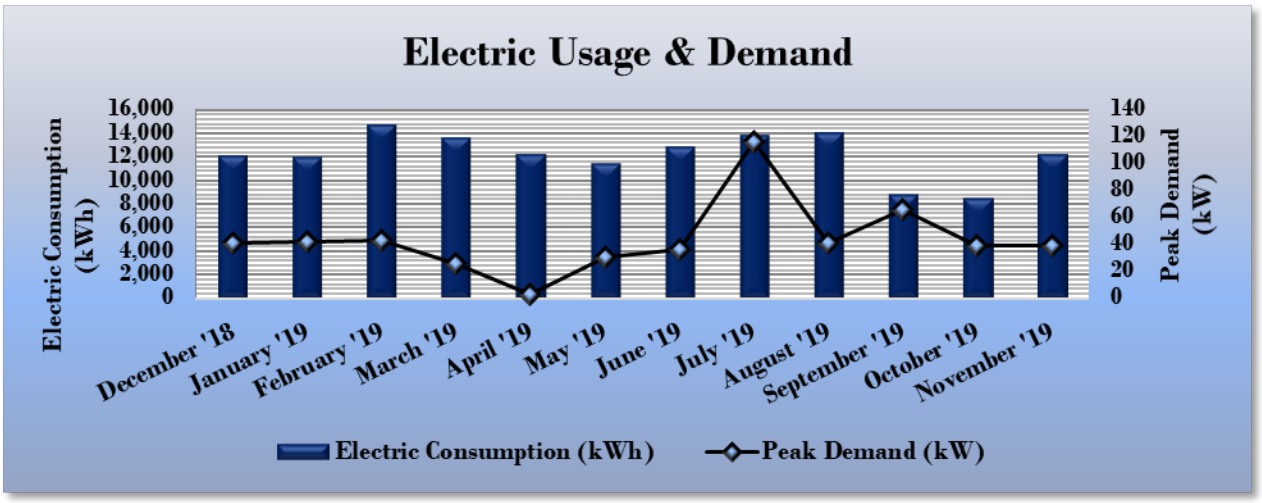


Electric Billing Data for Claghorn Place Pump Station					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
1/16/19	32	17,080	52	$97	$2,733
2/13/19	28	14,520	32	$51	$1,998
3/14/19	29	15,160	38	$62	$2,095
4/10/19	27	11,120	24	$41	$1,563
5/15/19	35	12,400	56	$143	$1,940
6/14/19	30	10,200	23	$55	$1,581
7/15/19	31	11,760	27	$74	$1,882
8/13/19	29	10,880	75	$194	$1,866
9/14/19	32	11,040	46	$133	$1,831
10/14/19	30	8,440	34	$84	$1,365
11/11/19	28	6,440	40	$81	$1,045
12/12/19	31	13,160	30	$68	$2,027
Totals	**362**	**142,200**	**74.8**	**$1,083**	**$21,925**
Annual	**365**	**143,378**	**74.8**	**$1,092**	**$22,107**

Notes:

- Data shown for Account number 55005264654, Meter number 99G007369757
- Peak demand of 75 kW occurred in August 2019.
- Average demand over the 12 months shown was 74.8 kW.
- The average electric cost over the past 12 months for this account was $0.154/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges.

Madison Ave. Pump Station

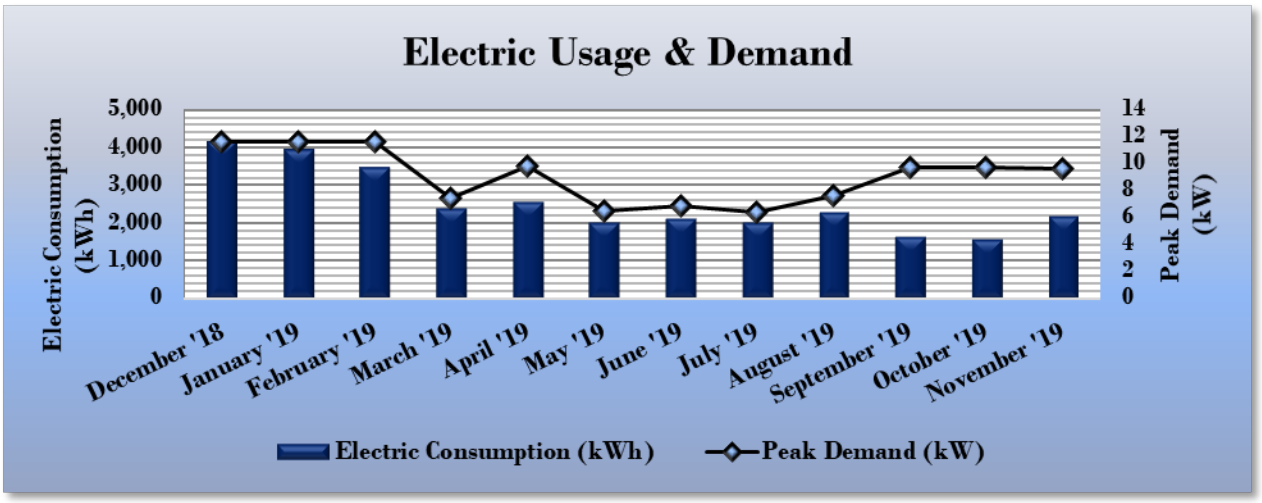


Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
1/12/19	31	12,040	41	$65	$1,686
2/12/19	31	11,960	42	$69	$1,675
3/12/19	28	14,600	43	$68	$2,026
4/10/19	29	13,600	26	$47	$1,905
5/13/19	33	12,120	3	$8	$1,764
6/12/19	30	11,360	30	$73	$1,765
7/12/19	30	12,760	36	$96	$2,056
8/12/19	31	13,760	116	$321	$2,434
9/13/19	32	14,000	41	$118	$2,268
10/10/19	27	8,760	66	$149	$1,481
11/9/19	30	8,400	39	$85	$1,339
12/10/19	31	12,120	39	$88	$1,893
Totals	**363**	**145,480**	**116**	**$1,187**	**$22,291**
Annual	**365**	**146,282**	**116**	**$1,193**	**$22,414**

Notes:

- Data shown for Account number 5501001605, Meter number X8D382450378
- Peak demand of 116 kW occurred in August of 2019.
- Average demand over the 12 months shown was 116 kW.
- The average electric cost over the past 12 months was $0.153/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges.

Coral Ave. Pump Station



Electric Billing Data for Coral Ave. Pump Station					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
1/11/19	30	4,143	11.6	$20	$582
2/8/19	28	3,918	11.6	$20	$627
3/11/19	31	3,448	11.6	$20	$491
4/9/19	29	2,362	7.4	$13	$344
5/13/19	34	2,530	9.8	$24	$401
6/11/19	29	1,994	6.5	$15	$321
7/11/19	30	2,102	6.9	$18	$351
8/9/19	29	1,981	6.4	$17	$330
9/11/19	33	2,256	7.6	$22	$380
10/10/19	29	1,628	9.7	$24	$281
11/8/19	29	1,534	9.7	$24	$245
12/11/19	33	2,173	9.6	$23	$357
Totals	**364**	**30,069**	**11.6**	**$240**	**$4,709**
Annual	**365**	**30,152**	**11.6**	**$241**	**$4,722**

Notes:

- Data shown for Account number 55004484147 Meter number 99A092858398
- Peak demand of 12 kW occurred in January, February and March of 2019.
- Average demand over the 12 months shown was 11.6 kW.
- The average electric cost over the past 12 months was $0.157/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges.

3.2 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR® benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	**N/A**

Due to its unique characteristics, this building type is not able to receive a benchmarking score. This report contains suggestions about how to improve building performance and reduce energy costs.

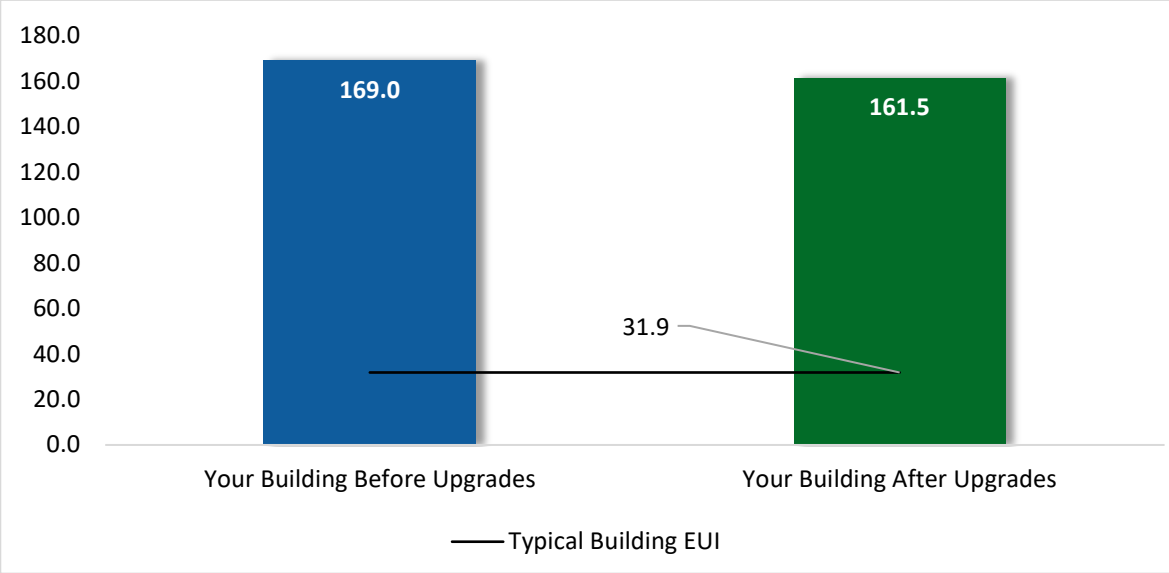


Figure 5 - Energy Use Intensity Comparison[3]

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from the "typical" energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

Keeping track of your energy use monthly is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager® regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager® account for your facility and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR® Portfolio Manager® to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR® and Portfolio Manager®, visit their website[4].

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website. Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**2,597**	**0.6**	**0**	**$400**	**$1,434**	**$251**	**$1,183**	**3.0**	**2,615**
ECM 1	Install LED Fixtures	Yes	465	0.0	0	$72	$225	$5	$220	3.1	469
ECM 2	Retrofit Fixtures with LED Lamps	Yes	2,132	0.6	0	$328	$1,209	$246	$963	2.9	2,147
Motor Upgrades			**6,648**	**2.4**	**0**	**$1,024**	**$11,699**	**$0**	**$11,699**	**11.4**	**6,694**
ECM 3	Premium Efficiency Motors	Yes	6,648	2.4	0	$1,024	$11,699	$0	$11,699	11.4	6,694
Domestic Water Heating Upgrade			**49**	**0.0**	**0**	**$8**	**$14**	**$8**	**$6**	**0.8**	**49**
ECM 4	Install Low-Flow DHW Devices	Yes	49	0.0	0	$8	$14	$8	$6	0.8	49
Custom Measures			**4,892**	**0.0**	**0**	**$753**	**$720**	**$0**	**$720**	**1.0**	**4,926**
ECM 5	Generator Block Heater Thermostat	Yes	4,892	0.0	0	$753	$720	$0	$720	1.0	4,926
TOTALS			**14,186**	**3.0**	**0**	**$2,184**	**$13,867**	**$259**	**$13,608**	**6.2**	**14,285**

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**2,597**	**0.6**	**0**	**$400**	**$1,434**	**$251**	**$1,183**	**3.0**	**2,615**
ECM 1	Install LED Fixtures	465	0.0	0	$72	$225	$5	$220	3.1	469
ECM 2	Retrofit Fixtures with LED Lamps	2,132	0.6	0	$328	$1,209	$246	$963	2.9	2,147
Motor Upgrades		**6,648**	**2.4**	**0**	**$1,024**	**$11,699**	**$0**	**$11,699**	**11.4**	**6,694**
ECM 3	Premium Efficiency Motors	6,648	2.4	0	$1,024	$11,699	$0	$11,699	11.4	6,694
Domestic Water Heating Upgrade		**49**	**0.0**	**0**	**$8**	**$14**	**$8**	**$6**	**0.8**	**49**
ECM 4	Install Low-Flow DHW Devices	49	0.0	0	$8	$14	$8	$6	0.8	49
Custom Measures		**4,892**	**0.0**	**0**	**$753**	**$720**	**$0**	**$720**	**1.0**	**4,926**
ECM 5	Generator Block Heater Thermostat	4,892	0.0	0	$753	$720	$0	$720	1.0	4,926
TOTALS		**14,186**	**3.0**	**0**	**$2,184**	**$13,867**	**$259**	**$13,608**	**6.2**	**14,285**

* - All incentives presented in this table are included as placeholders and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 7 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**2,597**	**0.6**	**0**	**$400**	**$1,434**	**$251**	**$1,183**	**3.0**	**2,615**
ECM 1	Install LED Fixtures	465	0.0	0	$72	$225	$5	$220	3.1	469
ECM 2	Retrofit Fixtures with LED Lamps	2,132	0.6	0	$328	$1,209	$246	$963	2.9	2,147

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversions to LED light sources are proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

Replace existing fixtures containing incandescent (halogen) lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: Coral Ave. Pump Station exterior halogen lamp.

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent, HID, and incandescent lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture electronic ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. There are lamp replacement options available for HID and incandescent fixtures as well.

This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected building areas: all areas with fluorescent fixtures with T8 tubes and the Claghorn and Madison Ave. exterior wall packs.

4.2 Motors

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Motor Upgrades		**6,648**	**2.4**	**0**	**$1,024**	**$11,699**	**$0**	**$11,699**	**11.4**	**6,694**
ECM 3	Premium Efficiency Motors	6,648	2.4	0	$1,024	$11,699	$0	$11,699	11.4	6,694

ECM 3: Premium Efficiency Motors

Replace standard efficiency motors with IHP 2014 efficiency motors. This evaluation assumes that existing motors will be replaced with motors of equivalent size and type. In some cases, additional savings may be possible by downsizing motors to better meet the motor's current load requirements.

Affected motors:

Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Additional Motor Description
Claghorn Pump Station	Pump Motors 1 and 3	2	Process Pump	75.0	Drywell
Madison Ave pump station	Process Blower Wet well blower	1	Exhaust Fan	3.0	Wet Well

Savings are based on the difference between baseline and proposed efficiencies and the assumed annual operating hours. The base case motor energy consumption is estimated using the efficiencies found on nameplates or estimated based on the age of the motor and our best estimates of motor run hours. Efficiencies of proposed motor upgrades are obtained from the current *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*.

4.3 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**49**	**0.0**	**0**	**$8**	**$14**	**$8**	**$6**	**0.8**	**49**
ECM 4	Install Low-Flow DHW Devices	49	0.0	0	$8	$14	$8	$6	0.8	49

ECM 4: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing.

Additional cost savings may result from reduced water usage.

4.4 Custom Measures

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Custom Measures		**4,892**	**0.0**	**0**	**$753**	**$720**	**$0**	**$720**	**1.0**	**4,926**
ECM 5	Generator Block Heater Thermostat	4,892	0.0	0	$753	$720	$0	$720	1.0	4,926

ECM 5: Generator Block Heater Thermostat

The pump station emergency generators have engine block heaters that keep the diesel generator engines warm and thus easier to start. This is a useful tool for cold weather starting but they are necessary in the summer months. This measure sets up a line voltage thermostat to control the heater, shutting it down when the ambient is above about 70°F.

Pump Stations	Heater Wattage (kW)
1005 Michigan (Madison)	1.50
Coral and Yale	1.50
Claghorn Place (Cape Hart Pl.)	1.50

5 Energy Efficient Best Practices

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save between 5 to 20 percent of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, planned capital upgrades, and incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and will outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things— see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR® Portfolio Manager®

You've heard it before - you can't manage what you don't measure. ENERGY STAR® Portfolio Manager® is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions[5] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Lighting Maintenance

Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

Motor Controls

Electric motors often run unnecessarily, and this is an overlooked opportunity to save energy. These motors should be identified and turned off when appropriate. For example, exhaust fans often run unnecessarily when ventilation requirements are already met. Whenever possible, use automatic devices such as twist timers or occupancy sensors to turn off motors when they are not needed.

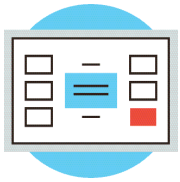
Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include

[5] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Thermostat Schedules and Temperature Resets



Use thermostat setback temperatures and schedules to reduce heating and cooling energy use during periods of low or no occupancy. Thermostats should be programmed for a setback of 5-10°F during low occupancy hours (reduce heating setpoints and increase cooling setpoints). Cooling load can be reduced by increasing the facility's occupied setpoint temperature. In general, during the cooling season, thermostats should be set as high as possible without sacrificing occupant comfort.

Water Conservation

Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense® ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense® website[6] or download a copy of EPA's "WaterSense® at Work: Best Management Practices for Commercial and Institutional Facilities"[7] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR® or WaterSense® products where available.

[6] https://www.epa.gov/watersense.

[7] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening based on the facility's electric demand, size and location of free area, and shading elements shows that the facility has no potential for installing a PV array.

This facility does not appear to meet the minimum criteria for a cost-effective solar PV installation. To be cost-effective, a solar PV array needs certain minimum criteria, such as sufficient and sustained electric demand and sufficient flat or south-facing rooftop or other unshaded space on which to place the PV panels.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

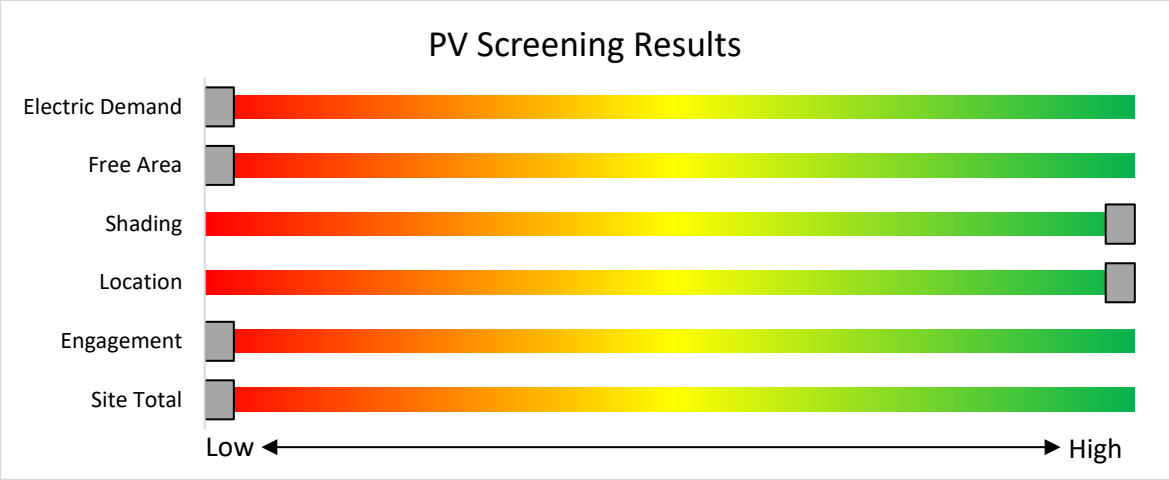


Figure 8 - Photovoltaic Screening

Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

- **Successor Solar Incentive Program (SuSI):** https://www.njcleanenergy.com/renewable-energy/programs/susi-program
- **Basic Info on Solar PV in New Jersey**: www.njcleanenergy.com/whysolar
- **New Jersey Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs.
- **Approved Solar Installers in the New Jersey Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

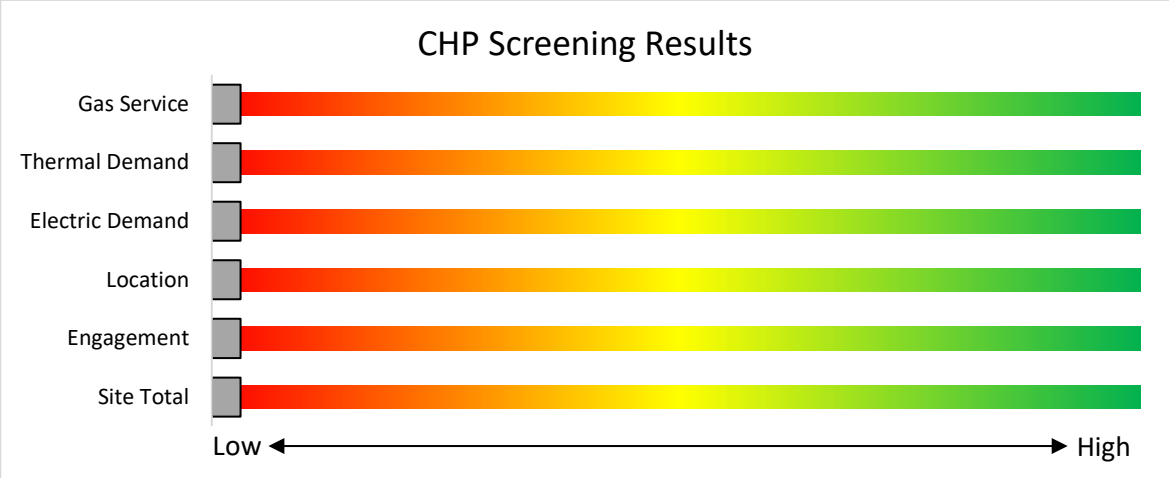


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? Your utility provider may be able to help.

7.1 Utility Energy Efficiency Programs

New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website.

8 New Jersey's Clean Energy Programs

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.

8.1 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at www.njcleanenergy.com/CHP.

8.2 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities and other public and state entities enter into contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the ECMs, ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan (ESP) can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value ($/SREC II)	Public Entities Incentive Value - $20 Adder ($/SRECII)
Net Metered Residential	All types and sizes	$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	$100	$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	$90	$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	$85	$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	$80	$100
LMI Community Solar	Up to 5 MW	$90	N/A
Non-LMI Community Solar	Up to 5 MW	$70	N/A
Interim Subsection (t)	All types and sizes	$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a New Jersey Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the Solar Proceedings page on the New Jersey's Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: https://njcleanenergy.com/renewable-energy/programs/susi-program.

9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site and their energy and economic analyses are provided within this LGEA report. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning includes the review of multiple bids for project work, incorporate potential operational & maintenance (O&M) cost savings and maximize your incentive potential.

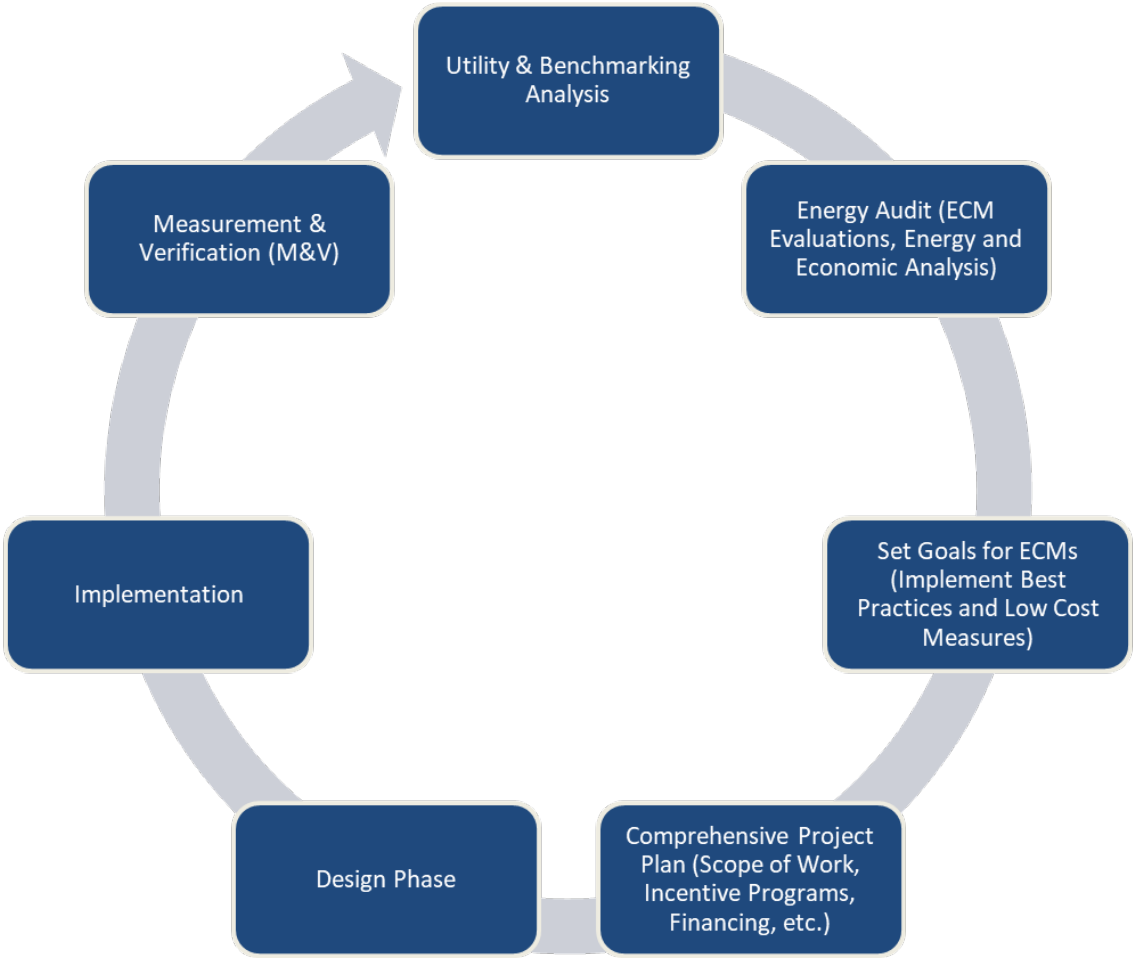


Figure 30 – Project Development Cycle

10 Energy Purchasing and Procurement Strategies

10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. So, though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[8].

10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market-based and that fluctuate monthly. The utility provides basic gas supply service (BGSS) to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[9].

[8] www.state.nj.us/bpu/commercial/shopping.html.

[9] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Claghorn Dry Well	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	6	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.1	117	0	$18	$110	$30	4.4
Claghorn Dry Well	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,500	2	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,500	0.1	110	0	$17	$110	$30	4.7
Claghorn Exterior	1	High-Pressure Sodium: (1) 100W Lamp	Timeclock		138	3,650	2	Relamp	No	1	LED Lamps: LED Retrofit	Timeclock	30	3,650	0.0	394	0	$61	$100	$0	1.6
Claghorn Exterior	1	LED - Fixtures: 35W LED Wall Pack	Timeclock		35	3,650		None	No	1	LED - Fixtures: 35W LED Wall Pack	Timeclock	35	3,650	0.0	0	0	$0	$0	$0	0.0
Claghorn Generator room	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.0	78	0	$12	$73	$20	4.4
Claghorn Motor Room	1	Exit Signs: LED - 6 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 6 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Claghorn Motor Room	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	6	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.1	117	0	$18	$110	$30	4.4
Claghorn Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	1,500	2	Relamp	No	1	LED - Linear Tubes: (1) 2' Lamp	Wall Switch	9	1,500	0.0	15	0	$2	$16	$3	5.7
Claghorn Wet Well	1	LED - Fixtures: LED-EP-100W-1L-VT-SM	Wall Switch	S	100	1,500		None	No	1	LED - Fixtures: LED-EP-100W-1L-VT-SM	Wall Switch	100	1,500	0.0	0	0	$0	$0	$0	0.0
Claghorn Wet Well	1	LED - Fixtures: LED-EP-25W-1L-VT-WM	Wall Switch	S	25	1,500		None	No	1	LED - Fixtures: LED-EP-25W-1L-VT-WM	Wall Switch	25	1,500	0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station Dry Well	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.1	97	0	$15	$91	$25	4.4
Madison Ave pump station Dry Well	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	1,500	2	Relamp	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	1,500	0.1	110	0	$17	$110	$30	4.7
Madison Ave pump station Exterior	2	High-Pressure Sodium: (1) 100W Lamp	Timeclock		138	3,650	2	Relamp	No	2	LED Lamps: LED Retrofit	Timeclock	30	3,650	0.0	788	0	$121	$200	$0	1.6
Madison Ave pump station Exterior	1	LED - Fixtures: 40W LED Wall Pack	Timeclock		40	3,650		None	No	1	LED - Fixtures: 40W LED Wall Pack	Timeclock	40	3,650	0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station Generator room	4	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	4	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.0	78	0	$12	$73	$20	4.4
Madison Ave pump station Motor room	1	Exit Signs: LED - 6 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 6 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station Motor room	5	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	5	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.1	97	0	$15	$91	$25	4.4
Madison Ave pump station Restroom	1	Linear Fluorescent - T8: 2' T8 (17W) - 1L	Wall Switch	S	22	1,500	2	Relamp	No	1	LED - Linear Tubes: (1) 2' Lamp	Wall Switch	9	1,500	0.0	15	0	$2	$16	$3	5.7
Madison Ave pump station Wet Well	2	LED - Fixtures: LED-EP-100W-1L-VT	Wall Switch	S	100	1,500		None	No	2	LED - Fixtures: LED-EP-100W-1L-VT	Wall Switch	100	1,500	0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station Wet Well	1	LED - Fixtures: LED-EP-25W-1L-VT	Wall Switch	S	25	1,500		None	No	1	LED - Fixtures: LED-EP-25W-1L-VT	Wall Switch	25	1,500	0.0	0	0	$0	$0	$0	0.0
Coral Ave Exterior	1	Halogen Incandescent: Halogen-PAR46-150W	Photocell		150	3,650	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Porch Wall Mount	Photocell	23	3,650	0.0	465	0	$72	$225	$5	3.1
Coral Ave Exterior	1	LED - Fixtures: LED-Wall Pack-30W	Photocell		30	3,650		None	No	1	LED - Fixtures: LED-Wall Pack-30W	Photocell	30	3,650	0.0	0	0	$0	$0	$0	0.0
Coral Ave Generator room	6	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	1,500	2	Relamp	No	6	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	1,500	0.1	117	0	$18	$110	$30	4.4

Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Claghorn Pump Station	Pump Motors 1 and 3	2	Process Pump	75.0	91.7%	Yes			W	1,860	3	Yes	95.0%	No		2.4	5,913	0	$910	$10,894	$0	12.0
Claghorn Pump Station	Pump Motor 2	1	Process Pump	50.0	94.5%	Yes			W	4,070		No	94.5%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Scrubber Blower Motor	1	Process Pump	2.0	84.0%	No			W	7,440		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Grinder Motor	1	Process Pump	3.0	83.5%	No			W	7,440		No	83.5%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Wet Well Blower	1	Exhaust Fan	3.0	89.5%	No			W	7,440		No	89.5%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Bubbler Air Compressors	2	Air Compressor	0.3	65.0%	No			W	2,790		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Motor Room Exhaust Fan Motor	1	Exhaust Fan	3.0	83.5%	No			W	150		No	83.5%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Generator Exhaust Fan Motor	1	Exhaust Fan	5.0	87.5%	No			W	500		No	87.5%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Dry Well Exhaust Fan	1	Exhaust Fan	0.3	65.0%	No			W	3,720		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Claghorn Pump Station	Electric Room Heaters	3	Supply Fan	0.3	65.0%	No			W	150		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Air Compressor Bubbler level system	2	Air Compressor	0.3	65.0%	No			W	2,850		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Exhaust Fan	1	Exhaust Fan	1.0	82.5%	No			W	150		No	82.5%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Exhaust Fan	1	Exhaust Fan	0.5	65.0%	No			W	150		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Exhaust Fan Motor room	1	Exhaust Fan	0.3	65.0%	No			W	150		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Other Crane	1	Other	2.0	84.0%	No			W	6		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Other Grinder	1	Process Pump	3.0	84.0%	No			W	5,980		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Process Blower Scrubber fan	1	Exhaust Fan	2.0	84.0%	No			W	5,980		No	84.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Process Blower Wet well blower	1	Exhaust Fan	3.0	84.0%	No			W	5,980	3	Yes	89.5%	No		0.1	734	0	$113	$805	$0	7.1
Madison Ave pump station	Process Pump	1	Process Pump	0.5	65.0%	No			W	150		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Madison Ave pump station	Process Pump Pump 2	1	Process Pump	100.0	95.4%	Yes			W	4,160		No	95.4%	No		0.0	0	0	$0	$0	$0	0.0

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Madison Ave pump station	Process Pump Pumps 1 & 3	2	Process Pump	125.0	93.6%	Yes			W	1,425		No	93.6%	No		0.0	0	0	$0	$0	$0	0.0
Coral Pump Station	Pump Motors	2	Process Pump	15.0	91.0%	No			W	1,100		No	91.0%	No		0.0	0	0	$0	$0	$0	0.0
Coral Pump Station	Motor Room Exhaust Fan Motor	1	Exhaust Fan	0.5	65.0%	No			W	75		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Coral Pump Station	Electric Room Heaters	2	Supply Fan	0.3	65.0%	No			W	150		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0
Coral Pump Station	Bubbler Air Compressors	2	Air Compressor	0.3	65.0%	No			W	2,500		No	65.0%	No		0.0	0	0	$0	$0	$0	0.0

Packaged HVAC Inventory & Recommendations

		Existing Conditions									Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/ EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/ EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Claghorn Generator room	Claghorn Generator room	1	Electric Resistance Heat		5.12		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Claghorn Restroom	Claghorn Restroom	1	Electric Resistance Heat		3.41		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Claghorn Generator room	Claghorn Generator room	1	Fan Coil		17.07		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Claghorn Motor Room	Claghorn Motor Room	2	Fan Coil		17.07		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Madison Ave. Generator room	Madison Ave. Generator room	1	Electric Resistance Heat		3.41		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Madison Ave. Restroom	Madison Ave. Restroom	1	Electric Resistance Heat		3.41		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Madison Ave. Generator room	Madison Ave. Generator room	1	Fan Coil		17.07		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Madison Ave. Motor room	Madison Ave. Motor room	2	Fan Coil		17.07		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Coral Ave.	Generator room	1	Electric Resistance Heat		15.36		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0
Coral Ave.	Generator room	2	Fan Coil		17.07		1 COP			W		No							0.0	0	0	$0	$0	$0	0.0

DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Claghorn	Rest Room	1	Tankless Water Heater	Eemax	SR36	W		No						0.0	0	0	$0	$0	$0	0.0
Madison Ave	Rest Room	1	Tankless Water Heater	Eemax	SR36	W		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommendation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Claghorn	4	1	Faucet Aerator (Lavatory)	2.50	0.50	0.0	49	0	$8	$7	$4	0.4
Madison Ave	4	1	Faucet Aerator (Lavatory)	0.50	0.50	0.0	0	0	$0	$7	$4	0.0

Plug Load Inventory

	Existing Conditions					
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?	Manufacturer	Model
Claghorn	1	Generator Block Heater	1,500	No	Hot Shot	TPS15
Madison Ave	1	Generator Block Heater	1,500	No	Hot Shot	TPS15
Coral Ave	1	Generator Block Heater	1,500	No	Hot Start	CL

APPENDIX B: ENERGY STAR® STATEMENT OF ENERGY PERFORMANCE

EUI is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

N/A

ENERGY STAR® Score[1]

Clanghorn Pl Pumping Station

Primary Property Type: Other - Utility
Gross Floor Area (ft²): 3,000
Built: 1986

For Year Ending: November 30, 2019
Date Generated: July 06, 2021

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Clanghorn Pl Pumping Station 234 Capehart Lane Cape May, New Jersey 08204	Cape May County MUA 1523 Route 9 North Swainton, NJ 08210 609-465-9026	Joseph Rizzuto 1523 Route 9 North Swainton, NJ 08210 609-465-9026 rizzutojr@cmcmua.com

Property ID: 14365365

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
164.4 kBtu/ft²

Source EUI
460.3 kBtu/ft²

Annual Energy by Fuel

Electric - Grid (kBtu)	493,166 (100%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	31.9
National Median Source EUI (kBtu/ft²)	89.3
% Diff from National Median Source EUI	416%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	47

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____
,
(___)___-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

N/A

ENERGY STAR® Score[1]

Madison Avenue Pump Station

Primary Property Type: Other - Utility
Gross Floor Area (ft²): 3,000
Built: 1986

For Year Ending: November 30, 2019
Date Generated: July 06, 2021

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Madison Avenue Pump Station 1005 Michigan Ave. Cape May, New Jersey 08204	Cape May County MUA 1523 Route 9 North Swainton, NJ 08210 609-465-9026	Joseph Rizzuto 1523 Route 9 North Swainton, NJ 08210 609-465-9026 rizzutojr@cmcmua.com

Property ID: 14365485

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
166.1 kBtu/ft²

Source EUI
464.9 kBtu/ft²

Annual Energy by Fuel		
Electric - Grid (kBtu)	498,156	(100%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	31.9
National Median Source EUI (kBtu/ft²)	89.3
% Diff from National Median Source EUI	421%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	48

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____
.
(___)___-_____
_____

ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

Coral Avenue Pump Station

N/A

ENERGY STAR® Score[1]

Primary Property Type: Other - Utility
Gross Floor Area (ft²): 450
Built: 1986

For Year Ending: November 30, 2019
Date Generated: July 06, 2021

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Coral Avenue Pump Station Coral Avenue Cape May Point, New Jersey 08212	Cape May County MUA 1523 Route 9 North Swainton, NJ 08210 609-465-9026	Joseph Rizzuto 1523 Route 9 North Swainton, NJ 08210 609-465-9026 rizzutojr@cmcmua.com

Property ID: 14365375

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
232.6 kBtu/ft²

Source EUI
651.3 kBtu/ft²

Annual Energy by Fuel		
Electric - Grid (kBtu)	104,677 (100%)	

National Median Comparison	
National Median Site EUI (kBtu/ft²)	31.9
National Median Source EUI (kBtu/ft²)	89.3
% Diff from National Median Source EUI	630%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	10

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____
.
(___)___-_____
_____

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR®	ENERGY STAR® is the government-backed symbol for energy efficiency. The ENERGY STAR® program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MH	*Metal halide*: a type of HID lamp
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR® Portfolio Manager®.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense®	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.