



Local Government Energy Audit: Energy Audit Report



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Robert C. Wood Early Childhood Center

Little Egg Harbor School District
950 County Road 539
Little Egg Harbor, NJ 08087

September 21, 2017

Report by:
TRC Energy Services

Disclaimer

The intent of this energy analysis report is to identify energy savings opportunities and recommend upgrades to the facility's energy using equipment and systems. Approximate savings are included in this report to help make decisions about reducing energy use at the facility. This report, however, is not intended to serve as a detailed engineering design document. Further design and analysis may be necessary in order to implement some of the measures recommended in this report.

The energy conservation measures and estimates of energy savings have been reviewed for technical accuracy. However, estimates of final energy savings are not guaranteed, because final savings may depend on behavioral factors and other uncontrollable variables. TRC Energy Services (TRC) and New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

Estimated installation costs are based on TRC's experience at similar facilities, pricing from local contractors and vendors, and/or cost estimates from *RS Means*. The owner of the facility is encouraged to independently confirm these cost estimates and to obtain multiple estimates when considering measure installations. Since actual installed costs can vary widely for certain measures and conditions, TRC and NJBPU do not guarantee installed cost estimates and shall in no event be held liable should actual installed costs vary from estimates.

New Jersey's Clean Energy Program (NJCEP) incentive values provided in this report are estimates based on program information available at the time of the report. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. The owner of the facility should review available program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

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I EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Robert C. Wood Early Childhood Center.

The goal of an LGEA Report is to provide you with information on how your facility uses energy, identify energy conservation measures (ECMs) that can reduce your energy use, and put you in a position to implement the ECMs. The LGEA program also provides customers with valuable information on how to receive financial incentives for implementing the ECMs from New Jersey's Clean Energy Programs (NJCEP).

This study was conducted by TRC Energy Services (TRC), as part of a comprehensive effort to assist New Jersey public schools (and other public facilities) in controlling energy costs and protecting our environment by offering information and assistance for a wide range of energy management options.

I.1 Facility Summary

Robert C. Wood Early Childhood Center is a 23,500 square foot facility. The facility is comprised of about 16 classrooms for preschool children, plus administrative offices. It is occupied weekdays from 9:30 am to 3:30 pm by approximately 155 students and 35 full-time staff.

The main building is a single-story, slab on grade rectangular building of modular construction. It was built in 2012. It has a sloped shingled roof and vinyl siding. There are also two small trailer-sized modular buildings that have been added to the site to provide an additional 3,000 sq. ft. of classroom space. It is adjacent to George J. Mitchell Elementary School and is connected by a covered walkway. There is a 60-space parking lot in front of the main entrance.

Robert C. Wood Early Childhood does not consume any natural gas or other fossil fuels. Heating and cooling is all electric and provided by multiple heat pumps, roughly one (1) per classroom controlled by individually programmable thermostats.

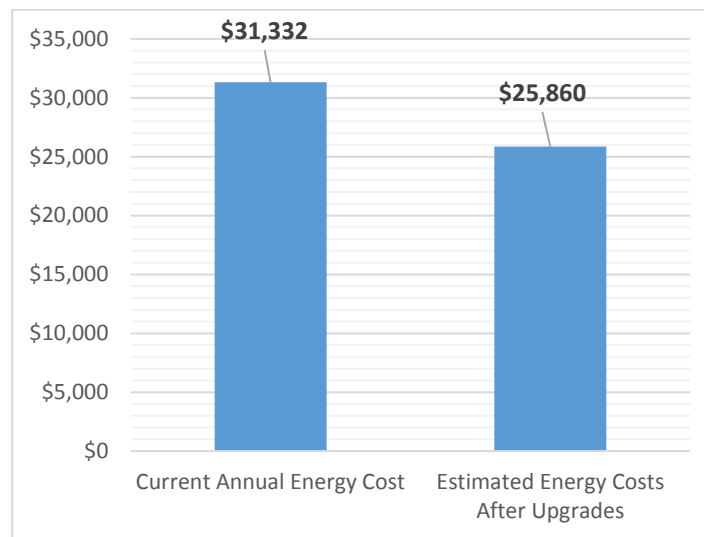
The school is already fairly efficient in its use of energy. Most classrooms have occupancy sensors to turn off lights when unoccupied. Most restrooms have tankless on-demand water heaters, rather than less efficient storage tank units, and the HVAC units are all fairly new units with controls. A thorough description of the facility and our observations are located in Section 2.

I.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC Energy Services recommends four (4) ECMs which together represent an opportunity for Robert C. Wood Early Childhood Center to reduce its energy costs by roughly \$5,472 per year and annual greenhouse gas emissions by 27,174 lbs CO₂e. We estimate that the recommended measures would pay for themselves in energy savings in roughly 5.2 years. A summary of existing and potential future utility costs is shown in Figure 1. We estimate that these measures together would reduce Robert C. Wood Early Childhood Center's annual energy usage by 17.5%.

Figure 1 – Current Annual Energy Cost versus Estimated Energy Costs after Upgrades



A detailed description of Robert C. Wood Early Childhood Center’s existing energy use can be found in Section 3.

The recommended measures are shown in Figure 2. Brief descriptions of the categories can be found below and descriptions of the individual opportunities can be found in Section 4.

Figure 2 – Summary of Energy Reduction Opportunities

Energy Conservation Measure		Recommend?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades			25,244	9.7	0.0	\$5,118.63	\$31,468.62	\$4,900.00	\$26,568.62	5.19	25,421
ECM 1	Install LED Fixtures	Yes	3,113	0.8	0.0	\$631.18	\$1,413.64	\$400.00	\$1,013.64	1.61	3,135
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	19,787	8.2	0.0	\$4,012.00	\$29,621.18	\$4,200.00	\$25,421.18	6.34	19,925
ECM 3	Retrofit Fixtures with LED Lamps	Yes	2,345	0.6	0.0	\$475.46	\$433.80	\$300.00	\$133.80	0.28	2,361
Lighting Control Measures			1,741	0.6	0.0	\$352.99	\$2,200.00	\$310.00	\$1,890.00	5.35	1,753
ECM 4	Install Occupancy Sensor Lighting Controls	Yes	1,741	0.6	0.0	\$352.99	\$2,200.00	\$310.00	\$1,890.00	5.35	1,753
TOTALS			26,985	10.2	0.0	\$5,471.62	\$33,668.62	\$5,210.00	\$28,458.62	5.20	27,174

* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

Lighting Upgrades involve the replacement of existing lighting components such as lamps and ballasts (or the entire fixture) with higher efficiency lighting components. These measures save energy by reducing the power used by the lighting components due to improved electrical efficiency.

Lighting Controls measures involve the installation of automated controls to turn off lights or reduce light output when conditions allow. Automated control reduces reliance on occupant behavior for adjusting lights. These measures save energy by reducing the amount of time lights are on.

Energy Efficient Practices

TRC also identified low (or no) cost energy efficient practices. A facility’s energy performance can be significantly improved by employing certain behavioral and operational adjustments, as well as performing routine maintenance, on building systems. Through these practices, equipment lifetime can

be extended; occupant comfort, health, and safety can be improved; and annual energy, operation, and maintenance costs can be reduced. Opportunities identified for the Robert C. Wood Early Childhood Center include:

- Reduce Air Leakage
- Close Doors and Windows
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Practice Proper Use of Thermostat Schedules and Temperature Resets

For details on these Energy Efficient Practices, please refer to section 5.

On-Site Generation Measures

TRC evaluated the potential for installing self-generation sources for Robert C. Wood Early Childhood Center. The adjacent school, George Mitchell Elementary, has a photovoltaic (PV) array on its rooftop. The roof of the Robert C. Wood Early Childhood Center is not ideal for solar development, because it slopes east and west. Ideally, solar arrays should be placed south-facing or flat rooftops (or else in a large unshaded field). Although, there are no obstructions shading of the rooftop area, so there might be some potential for solar development there, if a cost effective racking system were found to orient the panels in southward direction.

However, since there is already a solar array at the school next and that school appears to have some additional potential to expand its array, expansion of that array to increase solar power generation at the site might be more cost-effective.

If the school district is interested in increasing its solar generation for the site, such a project might yield significant savings over the project lifetime. If the George Mitchell School solar array were to be expanded, some panels might be placed on the roof of the Robert Wood Preschool too., to be cost effective. However, the feasibility of solar development for rooftop at Robert Wood Schools should be determined by a qualified solar installer.

If Robert C. Wood Early Childhood Center is interested in pursuing the installation of PV, we recommended a full feasibility study be conducted that includes all options expand the current array at the George Mitchell School, as well as a study of the rooftop area at Robert Wood School to see if solar panels development might be feasible on that roof as well.

For more details on our evaluation and the self-generation potential, please refer to Section 6.

1.3 Implementation Planning

To realize the energy savings from the ECMs listed in this report, a project implementation plan should be developed. Available capital should be considered and decisions will need to be made whether it is best to pursue individual ECMs separately, groups of ECMs together, or a more comprehensive approach where all ECMs are implemented at the same time, possibly in conjunction with other facility upgrades or combined with upgrades to other buildings. Rebates, incentives, and financing are available from NJCEP, as well as other sources, to help reduce the costs associated with the implementation of energy efficiency projects. Prior to implementing any measure, please review the relevant incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives prior to purchasing materials or commencing with installation.

The ECMs outlined in this report may qualify under the following program(s):

- SmartStart
- Direct Install
- Energy Savings Improvement Program (ESIP)

For facilities wanting to pursue only selected individual measures (or planning to phase implementation of selected measures over multiple years), incentives are available through the SmartStart program. To participate in this program you may utilize internal resources, or an outside firm or contractor, to do the final design of the ECM(s) and do the installation. Program pre-approval is required for some SmartStart incentives, so only after receiving pre-approval should you proceed with ECM installation. The incentive estimates listed above in Figure 2 are based on the SmartStart program. More details on this program and others are available in Section 8.

This facility may also qualify for the Direct Install program which, through an authorized network of participating contractors, can assist with the implementation of the identified ECMs. The Direct Install program is a turnkey program which, if eligible, will provide up to 70% of the cost of the project identified by the designated contractor.

For facilities with limited capital availability to implement ECMs, project financing may be available through the Energy Savings Improvement Program (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. An LGEA report (or other approved energy audit) is required for participation in ESIP. Please refer to Section 8.4 for additional information on the ESIP Program.

Additional descriptions of all relevant incentive programs are located in Section 8 or www.njcleanenergy.com/ci.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 3 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Katrina M. Reigelman	Energy Manager	treigelman@lehsd.k12.nj.us	(609) 709-8316
TRC Energy Services			
Tom Page	Auditor	TPage@TRCsolutions.com	(732) 855-0033

2.2 General Site Information

On September 29, 2016, TRC performed an energy audit at Robert C. Wood Early Childhood Center located in Little Egg Harbor Township, New Jersey. TRCs’ team met with Trina Reigelman, Steve Hillman, and Seth Cole to review the operations of the buildings included in this audit project and focus the investigation on specific energy-using systems.

Robert C. Wood Early Childhood Center is a 23,500 square foot facility. The facility is comprised of 16 classrooms for preschool children, plus administrative offices. The main building is a single-story, slab on grade, long rectangular building of modular construction. It has a sloped shingled roof and vinyl siding. There are also two (2) small trailer-sized modular buildings that have been added to the site to provide an additional 3,000 sq. ft. of classroom space. It is adjacent to George J. Mitchell Elementary School and is connected by a covered walkway. There is a 60-space parking lot in front of the building main entrance.

Robert C. Wood Early Childhood does not consume any natural gas or other fossil fuels. Heating and cooling is all electric and provided by multiple heat pumps, roughly one per classroom controlled by individually programmable thermostats.

The building was constructed in 2012. The school is already fairly efficient in its use of energy. Most classrooms have occupancy sensors to turn off lights when unoccupied. Most restrooms have tankless on-demand water heaters, rather than less efficient storage tank units, and the HVAC units are all fairly new units with controls.

2.3 Building Occupancy

The building is typically open Monday through Friday, with classes for preschoolers from 9:30 AM to 3:30 PM. The facility is typically occupied by about 155 students and 35 full-time staff. Two modular trailer units provide additional classroom space. The facility is operated throughout the school year from September through June with some limited use during the summer months as well.

Figure 4 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Robert C. Wood Early Childhood Center	Weekday	9:30 AM - 3:30 PM
Robert C. Wood Early Childhood Center	Weekend	NONE

2.4 Building Envelope

The building is a single story modular pre-fabricated building. It is only a few years old, so it was designed to meet modern building codes and standards. Windows are all thermal double-paned with aluminum frames. All door or window seals appeared to be tight. No air infiltration was observed near any entrances and no comfort issues were noted by any of the building occupants that we interviewed.

Rear Facade of Building Showing Vinyl Siding, Windows, and Roof



2.5 On-site Generation

Robert C. Wood Early Childhood Center has no on-site generation. However, the adjacent school, George Mitchell Elementary, has a 28-kW solar PV array and may have other rooftop areas available for expansion.

Box-Type Mercury Vapor Pole Lighting in Parking Lot

2.6 Energy-Using Systems

Please refer to Appendix A: Equipment Inventory & Recommendations for an inventory of your equipment.

Lighting System

Lighting at the facility is provided predominately by linear 4-foot 32-Watt fluorescent T8 fixtures with electronic ballasts as well as compact fluorescent lamps (CFL). Exterior lighting is provided by compact fluorescent and mercury vapor pole lighting in the parking area. All of these fixtures have a reasonably high energy efficiency compared to incandescent or most other lighting technology often found in older schools. However, new LED lighting technology now makes it possible to cost-effectively retrofit all of the school's lighting fixtures with LED tubes and bulbs designed to fit in existing fixtures.



Lighting control in most classrooms is provided by occupancy sensors. The building is only a few years old, so it is not surprising to see that most of the lighting features high-efficiency fixtures with modern occupancy controls. However, we found a few areas without occupancy sensors, presenting an opportunity to cost-effectively add sensors to turn off lights when not in use and increase energy savings.

Electric Air Conditioning and Heating

Both the main building and the two additional trailer units use electric heat pumps to heat and cool the space. Each classroom has a dedicated Marvair Modpac II heat pump supplying it with hot or cold air directly. Each of the units is individually controlled by programmable thermostats, set by room occupants.

The units are fairly efficient (SEER = 9.1). There are more efficient heat pump units on the market, but none of the units are old enough to be considered for replacement. The space temperatures in some of the classrooms were set a bit high (~74°F), but temperatures are setback during unoccupied hours. Because the programmable thermostats provide individual temperature control for each space, overall usage of energy for heating and cooling is kept to a minimum. The existing HVAC system is fairly efficient. No upgrades are proposed.

Classroom Electric Heat Pumps and Thermostats



Domestic Hot Water

The domestic hot water system for the facility consists of one 40-gal electric Whirlpool® hot water heater, which is an Energy Star® rated model. Each of the preschool's classrooms has a small restroom. Hot water is provided to each of these by small electric on-demand (a.k.a. tankless) hot water heaters. The units are all very efficient. No domestic hot water measures are recommended.

Refrigeration

The school has no kitchen. Only two refrigerators were found. A small unit (~10 cu. ft.) in an office and a medium-sized unit (~25 cu. ft.) in the nurses' office. No refrigeration upgrades are recommended.

Plug load & Vending Machines

The school has a relatively small amount of plug load equipment. They only have office equipment in administration areas, a few computer workstations and copy machines/printers. Nothing significant and no upgrades to recommend.

2.7 Water-Using Systems

There are 13 restrooms at this facility. A sampling of restroom water fixtures found that all of the faucets and toilets meet commercial low-flow water conservation standards.

40-Gallon Hot Water Heater



Large Copier in Main Office



3 SITE ENERGY USE AND COSTS

Utility data for electricity and natural gas was analyzed to identify opportunities for savings. In addition, data for electricity and natural gas was evaluated to determine the annual energy performance metrics for the building in energy cost per square foot and energy usage per square foot. These metrics are an estimate of the relative energy efficiency of this building. There are a number of factors that could cause the energy use of this building to vary from the “typical” energy usage profile for facilities with similar characteristics. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and energy efficient behavior of occupants all contribute to benchmarking scores. Please refer to the Benchmarking section within Section 3.3 for additional information.

3.1 Total Cost of Energy

The following energy consumption and cost data are based on the last 12-month period of utility usage data that was provided for each utility. The annual consumption and cost were developed from this information.

Figure 5 - Utility Summary

Utility Summary for Robert C. Wood Early Childhood Center		
Fuel	Usage	Cost
Electricity	154,523 kWh	\$31,332
Total		\$31,332

3.2 Electricity Usage

Electricity is provided by Atlantic City Electric. The average electric cost (combined for commodity, transmission, and distribution) for the past 12 months is 20.3 cents per kWh, which is a blended rate, which includes both electric usage (kWh) and customer demand charges (i.e. cost per kW) used throughout the analyses in this report. The energy-only cost per kilowatt-hour (i.e. without any transmission, distribution, or other customer charges) is about 13.7 cents/kWh. The monthly electricity consumption and peak demand are represented graphically in the chart below.

Figure 6 - Electric Usage & Demand

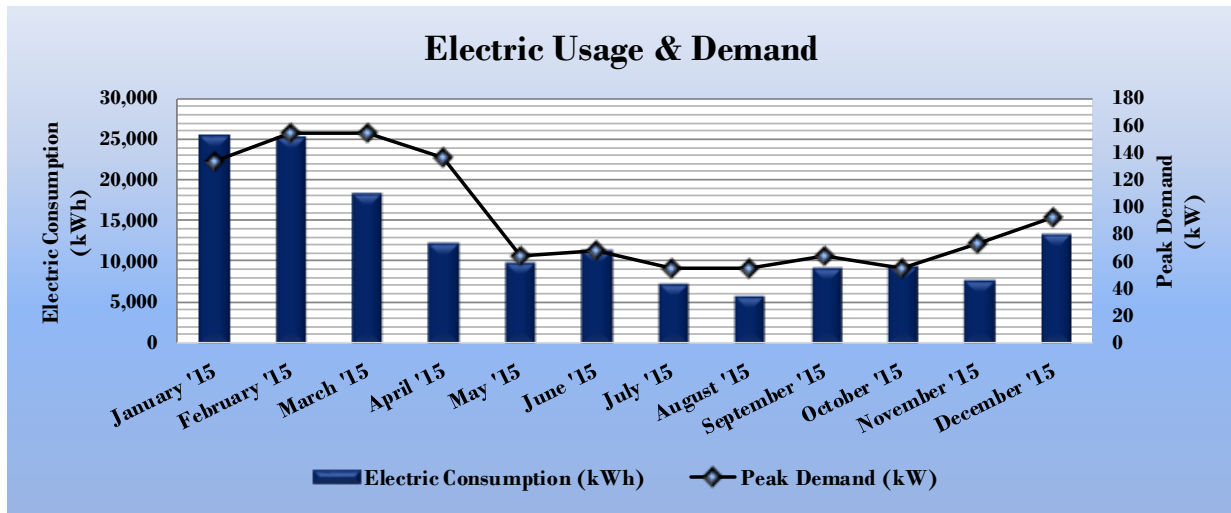


Figure 7 - Electric Usage & Demand

Electric Billing Data for Robert C. Wood Early Childhood Center				
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Total Electric Cost
1/23/15	38	25,440	134	\$4,802
2/24/15	32	25,360	154	\$4,721
3/24/15	28	18,400	154	\$3,693
4/23/15	30	12,320	137	\$2,926
5/21/15	28	10,000	63	\$1,869
6/24/15	34	11,600	68	\$2,338
7/27/15	33	7,440	54	\$1,673
8/26/15	30	5,920	54	\$1,415
9/24/15	29	9,280	63	\$1,897
10/26/15	32	9,520	54	\$1,896
11/20/15	25	7,920	73	\$1,698
12/23/15	31	13,440	93	\$2,833
Totals	370	156,640	154.4	\$31,761
Annual	365	154,523	154.4	\$31,332

The building has no natural gas or other fossil fuel usage. Electric power is the only energy source used onsite.

3.3 Benchmarking

This facility was benchmarked using Portfolio Manager, an online tool created and managed by the United States Environmental Protection Agency (EPA) through the ENERGY STAR® program. Portfolio Manager analyzes your building’s consumption data, cost information, and operational use details and then compares its performance against a national median for similar buildings of its type. Metrics provided by this analysis are Energy Use Intensity (EUI) and an ENERGY STAR® Score for select building types.

The EUI is a measure of a facility’s energy consumption per square foot, and it is the standard metric for comparing buildings’ energy performance. Comparing the EUI of a building with the national median EUI for that building type illustrates whether that building uses more or less energy than similar buildings of its type on a square foot basis. 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.

Figure 8 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Robert C. Wood Early Childhood Center	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	70.4	141.4
Site Energy Use Intensity (kBtu/ft ²)	22.4	58.2

Implementation of all recommended measures in this report would improve the building’s estimated EUI significantly, as shown in the Table below:

Figure 9 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

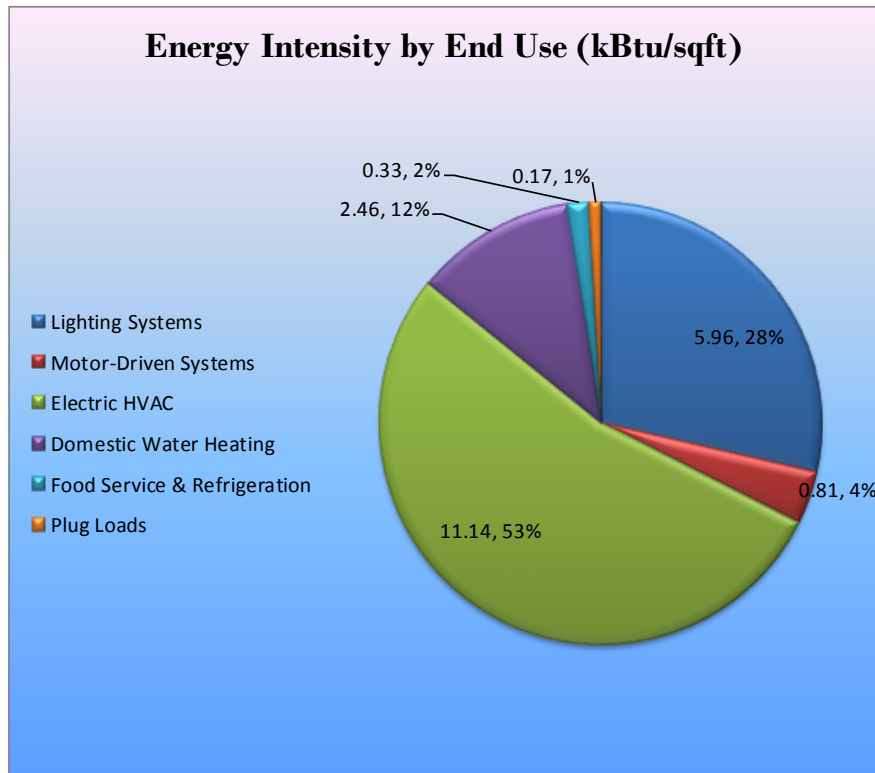
Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Robert C. Wood Early Childhood Center	National Median Building Type: School (K-12)
Source Energy Use Intensity (kBtu/ft ²)	58.1	141.4
Site Energy Use Intensity (kBtu/ft ²)	18.5	58.2

Many types of commercial buildings are also eligible to receive an ENERGY STAR™ score. This score is a percentile ranking from 1 to 100. It compares your building’s energy performance to similar buildings nationwide. A score of 50 represents median energy performance, while a score of 75 means your building performs better than 75 percent of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. Your building is not is one of the building categories that are currently eligible to receive an Energy Star score. However, a Portfolio Manager “Statement of Energy Performance” was developed for this site and can be found in Appendix B: ENERGY STAR® Statement of Energy Performance.

3.4 Energy End-Use Breakdown

In order to provide a complete overview of energy consumption across building systems, an energy balance was performed at this facility. An energy balance utilizes standard practice engineering methods to evaluate all components of the various electric and fuel-fired systems found in a building and determine their proportional contribution to overall building energy usage. This visual representation of energy end uses highlights systems that may benefit most from energy efficiency projects.

Figure 10 - Energy Balance (% and kBtu/SF)



4 ENERGY CONSERVATION MEASURES

Level of Analysis

The goal of this audit report is to identify potential energy efficiency opportunities, help prioritize specific measures for implementation, and provide information to the Robert C. Wood Early Childhood Center regarding financial incentives for which they may qualify to implement the recommended measures. For this audit report, most measures have received only a preliminary analysis of feasibility which identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to demonstrate project cost-effectiveness and help prioritize energy measures. Savings are based on the New Jersey Clean Energy Program Protocols to Measure Resource Savings dated June 29, 2016, approved by the New Jersey Board of Public Utilities. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances. A higher level of investigation may be necessary to support any custom SmartStart or Pay for Performance, or Direct Install incentive applications. Financial incentives for the ECMs identified in this report have been calculated based the NJCEP prescriptive SmartStart program. Some measures and proposed upgrade projects may be eligible for higher incentives than those shown below through other NJCEP programs as described in Section 8. The following sections describe the recommended measures.

4.1 Recommended ECMs

The facility has no natural gas or oil usage. It is a fairly new building, so no building envelope or HVAC replacement measures are recommended. The only measure category where we believe there is additional opportunities for savings is in lighting.

Though the building is already fairly efficient in lighting, with newer vintage T8 fluorescent fixtures and occupancy controls in most classrooms, advances in new LED technology now provide cost-effective replacement options for most fluorescent fixtures. This will greatly reduce the wattage of each fixture while providing equivalent lighting output. We also recommend adding additional lighting controls to some areas that do not already have occupancy sensors.

The measures below have been evaluated by the auditor and are recommended for implementation at the facility.

Figure 11 – Summary of Recommended ECMs

Energy Conservation Measure		Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)*	Estimated Net Cost (\$)	Simple Payback Period (yrs)**	CO ₂ e Emissions Reduction (lbs)
Lighting Upgrades		25,244	9.7	0.0	\$5,118.63	\$31,468.62	\$4,900.00	\$26,568.62	5.19	25,421
ECM 1	Install LED Fixtures	3,113	0.8	0.0	\$631.18	\$1,413.64	\$400.00	\$1,013.64	1.61	3,135
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	19,787	8.2	0.0	\$4,012.00	\$29,621.18	\$4,200.00	\$25,421.18	6.34	19,925
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ECM 4	Install Occupancy Sensor Lighting Controls	1,741	0.6	0.0	\$352.99	\$2,200.00	\$310.00	\$1,890.00	5.35	1,753
TOTALS		26,985	10.2	0.0	\$5,471.62	\$33,668.62	\$5,210.00	\$28,458.62	5.20	27,174

* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.

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

4.1.1 Lighting Upgrades

The recommended lighting measures are grouped into three (3) categories. ECM-1 is for LED upgrades where we recommend replacing the entire fixture. ECM-2 and 3 are for upgrades where we recommend retrofitting the existing fixtures with LED tubes or bulbs. ECM-4 is for the addition of new lighting controls to turn off unneeded light. A description of each measure category is provided below.

ECM 1: Install LED Fixtures

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.00	0
Exterior	3,113	0.8	0.0	\$631.18	\$1,413.64	\$400.00	\$1,013.64	1.61	3,135

Measure Description

We recommend replacing the exterior pole lighting in the parking lot with LED fixtures. The box type pole mounted lights may be directly replaced with new fixtures or (if it is less expensive) retrofitted with new LED bulb kits designed to fit in existing fixtures in place of the mercury vapor bulbs there currently. LED use only about the power of other lighting technologies and provide comparable or better light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of fluorescent tubes and more than ten times longer than many incandescent lamps.

ECM 2: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	19,787	8.2	0.0	\$4,012.00	\$29,621.18	\$4,200.00	\$25,421.18	6.34	19,925
Exterior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.00	0

Measure Description

We recommend retrofitting existing fluorescent fixtures by removing fluorescent tubes and ballasts and replacing them with LEDs (and LED drivers, if necessary), which are designed to be used in fluorescent fixtures. The measure uses the existing fixture housing but replaces the rest of the components with more efficient lighting technology. This measure saves energy by installing LEDs which use less power than other lighting technologies yet provide equivalent lighting output for the space.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of fluorescent tubes and more than ten times longer than many incandescent lamps.

ECM 3: Retrofit Fixtures with LED Lamps

Summary of Measure Economics

Interior/ Exterior	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
Interior	0	0.0	0.0	\$0.00	\$0.00	\$0.00	\$0.00	0.00	0
Exterior	2,345	0.6	0.0	\$475.46	\$433.80	\$300.00	\$133.80	0.28	2,361

Measure Description

We recommend retrofitting the exterior walkway lights between the two schools with LED retrofit kits. Other exterior lighting around the perimeter of the building can also be cost-effectively upgraded with LED bulbs (or replaced with LED exterior fixtures, if less expensive). This measure saves energy by installing LED sources which use less power than other technologies with a comparable light output.

Additional savings from lighting maintenance can be anticipated since LEDs have lifetimes which are more than twice that of fluorescent tubes and more than ten times longer than many incandescent lamps.

4.1.2 Lighting Control Measures

Recommended lighting control measures are summarized in the table below.

ECM 4: Install Occupancy Sensor Lighting Controls

Summary of Measure Economics

Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings (\$)	Estimated Install Cost (\$)	Estimated Incentive (\$)	Estimated Net Cost (\$)	Simple Payback Period (yrs)	CO ₂ e Emissions Reduction (lbs)
1,741	0.6	0.0	\$352.99	\$2,200.00	\$310.00	\$1,890.00	5.35	1,753

Measure Description

This measure evaluates installing occupancy sensors to control light fixtures that are currently manually controlled in classrooms, storage rooms, restrooms, office areas. Most of the classrooms at the facility already use occupancy sensors to turn off lights when rooms are unoccupied. However, a few rooms remain – e.g. restrooms, offices, and classrooms in the trailer units, where occupancy sensors could be added to provide additional savings.

Sensors detect occupancy using ultrasonic and/or infrared wave technologies. Lighting systems are enabled when an occupant is detected. Fixtures are automatically turned off after an area has been vacant for a preset period. Occupants will also be able to manually turn off fixtures. Energy savings result from only operating lighting systems when they are required.

Occupancy sensors may be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. Ceiling-mounted or remote-mounted sensors require the use of low voltage switching relays or a wireless signal to the switch. In general, use wall switch replacement sensors for single occupant offices and other small rooms. Install ceiling-mounted or remote mounted sensors in locations without local switching, in situations where the existing wall switches are not in the line-of-sight of the main work area, and in large spaces. We recommend a holistic design approach that considers both the technology of the lighting sources and how they are controlled.

5 ENERGY EFFICIENT PRACTICES

In addition to the quantifiable savings estimated in Section 4, a facility's energy performance can also be improved through the application of low or no-cost efficiency strategies. By employing certain behavioral and operational adjustments as well as performing routine maintenance on building systems, equipment lifetime can be extended; occupant comfort, health, and safety can be improved; and annual energy, operation, and maintenance costs can be reduced. The recommendations below are provided as a framework for developing a whole building maintenance plan that is customized to your facility. Consult with qualified equipment specialists for details on proper maintenance and system operation.

Reduce Air Leakage

Air leakage, or infiltration, occurs when outside air enters a building uncontrollably through cracks and openings. Properly sealing such cracks and openings can significantly reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. This includes caulking or installing weather stripping around leaky doors and windows allowing for better control of indoor air quality through controlled ventilation.

Close Doors and Windows

Ensure doors and windows are closed in conditioned spaces. Leaving doors and windows open leads to a significant increase in heat transfer between conditioned spaces and the outside air. Reducing a facility's air changes per hour (ACH) can lead to increased occupant comfort as well as significant heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

Ensure Lighting Controls Are Operating Properly

Lighting controls are very cost effective energy efficient devices, when installed and operating correctly. As part of a lighting maintenance schedule, lighting controls should be tested annually to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight sensors, maintenance involves cleaning of sensor lenses and confirming setpoints and sensitivity are appropriately configured.

Use Fans to Reduce Cooling Load

Utilizing ceiling fans to supplement cooling is a low-cost strategy to reduce cooling load considerably. Thermostat settings can be increased by 4°F with no change in overall occupant comfort when the wind chill effect of moving air is employed for cooling.

Practice Proper Use of Thermostat Schedules and Temperature Resets

Ensure thermostats are correctly set back. By employing proper setback temperatures and schedules, facility heating and cooling costs can be reduced dramatically during periods of low or no occupancy. As such, thermostats should be programmed for a setback of 5-10°F during low occupancy hours (reduce heating setpoints and increase cooling setpoints). The cooling load can be reduced further 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.

6 ON-SITE GENERATION MEASURES

On-site generation measure options include both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) on-site technologies that generate power to meet all or a portion of the electric energy needs of a facility, often repurposing any waste heat where applicable. Also referred to as distributed generation, these systems contribute to Greenhouse Gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, resulting in the electric system reliability through improved transmission and distribution system utilization.

The State of New Jersey's Energy Master Plan (EMP) encourages new distributed generation of all forms and specifically focuses on expanding use of combined heat and power (CHP) by reducing financial, regulatory and technical barriers and identifying opportunities for new entries. The EMP also outlines a goal of 70% of the State's electrical needs to be met by renewable sources by 2050.

Preliminary screenings were performed to determine the potential that a generation project could provide a cost-effective solution for your facility. Before making a decision to implement, a feasibility study should be conducted that would take a detailed look at 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 Photovoltaic

Sunlight can be converted into electricity using photovoltaics (PV) modules. Modules are racked together into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is interconnected to the facility's electrical distribution system. The amount of unobstructed area available determines how large of a solar array can be installed. The size of the array combined with the orientation, tilt, and shading elements determines the energy produced.

A preliminary screening based on the facility's electric demand, size and location of free area, and shading elements shows that the facility's potential for installing cost-effective PV solar array is questionable.

The roof of the Robert C. Wood Early Childhood Center is not ideal for solar development because it slopes east and west. Ideally, solar arrays should be placed south-facing or flat rooftops (or else in a large unshaded field). On the other hand, there are no obstructions shading of the rooftop area, so there might be some potential for solar development there, if a cost effective racking system could be designed for the rooftop that would orient the panels in southward direction.

If a solar installation on the rooftop were deemed to be technically feasible, then we estimate that solar generation for the site might yield significant energy cost savings over the project lifetime. However, this needs to be confirmed by a qualified solar installer.

The School District might consider having a solar feasibility study done for the rooftop Robert C. Wood Early Childhood Center, as part of a wider study of options for expanding the solar array on the George Mitchell School next door. Because that school already has a PV array, expansion of that system might be the most cost effective option.

Aerial View of the Rooftop at Robert C. Wood Preschool



The roof of the preschool school building appears to have up to 20,000 square of potentially usable space for solar electric generation. However, additional racking would be needed to offset the east-west slope and orient the rows of panels southward.

Our preliminary analysis shows that that rooftop area could possibly accommodate over of 260 kW of installed solar generating capacity. We estimate that a 92 KW array would likely offset over 70% of the school’s typical annual energy usage, or about 86% of the school’s estimated annual electric usage after the proposed ECMs are implemented).

System Capacity	92	kW _{DC}
Electric Generation	109,606	kWh/year
Displaced Cost	\$22,220	per year
Installed Cost	\$239,200	

We estimate that such an array would cost about \$239,200, but that subsidies in the form of SREC income for the project and low-interest loans could make the project more cost effective. Owners of solar projects should register their projects in the SREC Registration Program prior to the start of construction in order to establish the project’s eligibility to earn SRECs. Registration of the intent to participate in New Jersey’s solar marketplace provides market participants with information about the pipeline of anticipated new solar capacity and insight into future SREC pricing. Refer to Section 8.3 for additional information.

For more information on solar PV technology and commercial solar markets in New Jersey, or to find a qualified solar installer, who can provide a more detailed assessment of the specific costs and benefits of solar develop of the site, please visit the following links below:

- **Basic Info on Solar PV in NJ:** <http://www.njcleanenergy.com/whysolar>
- **NJ Solar Market FAQs:** <http://www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-fags>
- **Approved Solar Installers in the NJ Market:** http://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) is the on-site generation of electricity and recovery of heat which is put to beneficial use. CHP systems are typically used to produce a portion of the electricity needed by a facility, with the balance of electric needs satisfied by purchase from the grid. The heat is used to supplement (or supplant) existing boilers for the purpose of space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for the purpose of space cooling. The key criteria used for screening, however, is the amount of time the system operates at full load and the facility's ability to use the recovered heat. Facilities with continuous use 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 a low potential for installing a cost-effective CHP system. The facility has no hydronic heating system and does not have sufficient year-round thermal demand to make CHP feasible.

7 DEMAND RESPONSE

Demand Response (DR) is a program designed to reduce consumer electric load when electric wholesale prices are high or when the reliability of the electric grid is threatened due to peak demand. DR service providers (a.k.a. Curtailment Service Providers) are registered with PJM, the independent system operator (ISO) for mid-Atlantic state region that is charged with maintaining electric grid reliability locally.

By enabling grid operators to call upon Curtailment Service Providers and energy consumers to reduce electric usage 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 DR programs. Program participation is voluntary and participants will receive payments whether or not their facility is called upon to curtail their load.

Typically an electric customer needs to be capable of reducing their electric demand, within minutes, by at least 100 kW or more in order to participate in a DR program. Customers with a greater capability to quickly curtail their demand during peak hours will receive higher payments. Customers with back-up generators onsite may also receive additional DR payments for their generating capacity if they agree to run the generators for grid support when called upon. Eligible customers who have chosen to participate in a DR program often find it to be a valuable source of revenue for their facilities because the payments can significantly offset annual utility costs.

Participating customers can often quickly reduce their peak load through simple measures, such as temporarily raising temperature set points on thermostats so that air conditioning units run less frequently or agreeing to dim or shut off less critical lighting. This usually requires some level of building automation and controls capability to ensure rapid load reduction during a DR event cycle. DR program participants often have to install smart meters and may need to also sub-meter larger energy-using equipment, such as chillers, in order to demonstrate compliance with DR program requirements.

DR does not include the reduction of electricity consumption based on normal operating practice or behavior. For example, if a company's normal schedule is to close for a holiday, the reduction of electricity due to this closure or scaled-back operation is not considered a demand response activity in most situations.

Based on our analysis, Robert C. Wood Early Childhood Center appears to have insufficient electric load to participate in a demand response program.

8 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and others, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey’s 1999 Electricity Restructuring Law which requires all customers of investor-owned electric and gas utilities to pay this charge on their monthly energy bills. As a contributor to the fund you were able to participate in the LGEA program and are also eligible to utilize the equipment incentive programs. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to Figure 12 for a list of the eligible programs identified for each recommended ECM.

Figure 12 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings
ECM 1	Install LED Fixtures	X		X	
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	X		X	
ECM 3	Retrofit Fixtures with LED Lamps	X		X	
ECM 4	Install Occupancy Sensor Lighting Controls	X		X	

SmartStart is generally well suited for implementation of individual or small sets of measures, with the flexibility to install projects at your own pace using in-house staff or a preferred contractor. Direct Install caters to small to mid-size facilities to bundle measures and simplify participation, but requires the use of pre-approved contractors. The Pay for Performance (P4P) program is a “whole-building” energy improvement program designed for larger facilities and requires implementation of multiple measures meeting minimum savings thresholds, as well as use of pre-approved consultants. The Large Energy Users Program (LEUP) is available to New Jersey’s largest energy users giving them the flexibility to install as little or as many measures, in a single facility or several facilities, with incentives capped based on the entity’s annual energy consumption; applicants can use in-house staff or preferred contractor.

Generally, the incentive values provided throughout the report assume the SmartStart program is utilized because it provides a consistent comparison of available incentives.

Brief descriptions of all relevant alternative financing and incentive programs are located in the sections below or www.njcleanenergy.com/ci.

8.1 SmartStart

Overview

The SmartStart program is comprised of new construction and retrofit components that offer incentives for installing prescriptive and custom energy efficiency measures at your facility. Routinely the program adds, removes or modifies incentives for various energy efficiency equipment based on national/market trends, new technologies or changes in efficiency baselines.

Prescriptive Equipment Incentives Available:

Electric Chillers
Electric Unitary HVAC
Gas Cooling
Gas Heating
Gas Water Heating
Ground Source Heat Pumps

Lighting
Lighting Controls
Refrigeration Doors
Refrigeration Controls
Refrigerator/Freezer Motors
Food Service Equipment
Variable Frequency Drives

All customer sizes and types may be served by this program. This program provides an effective mechanism for securing incentives for individual projects that may be completed at once or over several years.

Incentives

The prescriptive path provides fixed incentives for specific energy efficiency measures whereas the custom measure path provides incentives for unique or specialized technologies that are not addressed through prescriptive offerings.

Since your facility is an existing building, only the retrofit incentives have been applied in this report. Custom measure incentives are calculated at \$0.16/kWh and \$1.60/therm based on estimated annual savings, capped at the lesser of 50% of the total installed incremental project cost, or a buy down to a one year payback. Program incentives are capped at \$500,000 per electric account and \$500,000 per natural gas account, per fiscal year.

How to Participate

To participate in the SmartStart program you will need to submit an application for the specific equipment to be installed. Many applications are designed as rebates, although others require application approval prior to installation. Applicants may work with a contractor of their choosing and can also utilize internal personnel, which provides added flexibility to the program. Using internal personnel also helps improve the economics of the ECM by reducing the labor cost that is included in the tables in this report.

Detailed program descriptions, instructions for applying and applications can be found at: www.njcleanenergy.com/SSB.

8.2 Direct Install

Overview

Direct Install is a turnkey program available to existing small to mid-sized facilities with a peak electric demand that did not exceed 200 kW in the preceding 12 months. You will work directly with a pre-approved contractor who will perform a free energy assessment at your facility, identify specific eligible measures, and install those measures. Energy efficiency measures may include lighting and lighting controls, refrigeration, HVAC, motors, variable speed drives and controls.

Incentives

The program pays up to 70% of the total installed cost of eligible measures, up to \$125,000 per project. Direct Install participants will also be held to a fiscal year cap of \$250,000 per entity.

How to Participate

To participate in the Direct Install program you will need to contact the participating contractor assigned to the county where your facility is located; a complete list is provided on the Direct Install website identified below. The contractor will be paid the program incentive directly which will pass on to you in the form of reduced material and implementation costs. This means up to 70% of eligible costs are covered by the program, subject to program caps mentioned above, and the remaining 30% of the cost is your responsibility to the contractor.

Since Direct Install offers a free assessment, LGEA applicants that do not meet the audit program eligibility requirements, but do meet the Direct Install requirements, may be moved directly into this program.

Detailed program descriptions and applications can be found at: www.njcleanenergy.com/DI.

8.3 SREC Registration Program

The SREC Registration Program (SRP) is used to register the intent to install solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects MUST register their projects in the SRP prior to the start of construction in order to establish the project's eligibility to earn SRECs. Registration of the intent to participate in New Jersey's solar marketplace provides market participants with information about the pipeline of anticipated new solar capacity and insight into future SREC pricing.

After the registration is accepted, construction is complete, and final paperwork has been submitted and is deemed complete, the project is issued a New Jersey certification number which enables it to generate New Jersey SRECs. SREC's are generated once the solar project has been authorized to be energized by the Electric Distribution Company (EDC).

Each time a solar installation generates 1,000 kilowatt-hours (kWh) of electricity, an SREC is earned. Solar project owners report the energy production to the SREC Tracking System. This reporting allows SREC's to be placed in the customer's electronic account. SRECs can then be sold on the SREC Tracking System, providing revenue for the first 15 years of the project's life.

Electricity suppliers, the primary purchasers of SRECs, are required to pay a Solar Alternative Compliance Payment (SACP) if they do not meet the requirements of New Jersey's Solar RPS. One way they can meet the RPS requirements is by purchasing SRECs. As SRECs are traded in a competitive market, the price may vary significantly. The actual price of an SREC during a trading period can and will fluctuate depending on supply and demand.

Information about the SRP is found at: www.njcleanenergy.com/srec.

8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) is an alternate method for New Jersey's government agencies to finance the implementation of energy conservation measures. 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. This is done in a manner that ensures that annual payments are lower than the savings projected from the ECMs, ensuring that ESIP projects are cash flow positive in year one, and every year thereafter. 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 can be leveraged to help further reduce the total project cost of eligible measures.

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 utilized 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. Entities should carefully consider all alternatives to develop an approach that best meets their needs. A detailed program description and application are found at: www.njcleanenergy.com/ESIP

Please note that ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you may utilize the incentive programs to help further reduce costs when compiling the ESP. You should refer to the ESIP guidelines at the link above for further information and guidance on next steps.

8.5 Demand Response Energy Aggregator

The first step toward participation in a Demand Response (DR) program is to contact a Curtailment Service Provider. A list of these providers is available on PJM's website and it includes contact information for each company, as well as the states where they have active business. PJM also posts training materials that are developed for program members interested in specific rules and requirements regarding DR activity (along with a variety of other program information).

Curtailment Service Providers typically offer free assessments to determine a facility's eligibility to participate in a DR program. They will provide details regarding the program rules and requirements for metering and controls, a facility's ability to temporarily reduce electric load, as well as the payments involved in participating in the program. Also, these providers usually offer multiple options for DR to larger facilities and may also install controls or remote monitoring equipment to help ensure compliance of all terms and conditions of a DR contract.

9 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

9.1 Retail Electric Supply Options

In 1999, New Jersey State Legislature passed the Electric Discount & Energy Competition Act (EDECA) to restructure the electric power industry in New Jersey. This law deregulated the retail electric markets, allowing all consumers to shop for service from competitive electric suppliers. The intent was to create a more competitive market for electric power supply in New Jersey. As a result, utilities were allowed to charge Cost of Service and customers were given the ability to choose a third party (i.e. non-utility) energy supplier.

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 is purchasing electricity from a third party supplier, review and compare prices at the end of the current contract or every couple years.

A list of third-party electric suppliers, who are licensed by the state to provide service in New Jersey, can be found online at: www.state.nj.us/bpu/commercial/shopping.html.

9.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey has also been deregulated. Most customers that remain with the utility for natural gas service pay rates that are market-based and that fluctuate on a monthly basis. 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 is typically dependent upon whether a customer seeks 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 is not purchasing natural gas from a third-party supplier, consider shopping for a reduced rate from third party natural gas suppliers. If your facility is purchasing natural gas from a third-party supplier, review and compare prices at the end of the current contract or every couple years.

A list of third-party natural gas suppliers, who are licensed by the state to provide service in New Jersey, can be found at: www.state.nj.us/bpu/commercial/shopping.html.

Appendix A: Equipment Inventory & Recommendations

Lighting Inventory & Recommendations

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Classroom 101	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 101	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 102	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,800	LED Retrofit	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.43	1,367	0.0	\$277.27	\$1,360.34	\$200.00	4.18
Restroom - Rm 102	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	400	LED Retrofit	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.04	29	0.0	\$5.83	\$220.35	\$35.00	31.77
Classroom 103	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 103	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 104	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 104	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	400	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	400	0.03	23	0.0	\$4.62	\$104.35	\$15.00	19.35
Classroom 105	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 105	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 106	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Wall Switch	114	1,800	LED Retrofit	Yes	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.43	1,367	0.0	\$277.27	\$1,360.34	\$200.00	4.18
Restroom - Rm 106	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	400	LED Retrofit	Yes	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.04	29	0.0	\$5.83	\$220.35	\$35.00	31.77
Corridor 1	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Corridor 1	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	None	93	1,800	LED Retrofit	No	2	LED - Linear Tubes: (3) 4' Lamps	None	44	1,800	0.49	1,553	0.0	\$314.79	\$208.70	\$30.00	0.57
Corridor 2	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Corridor 2	9	Linear Fluorescent - T8: 4' T8 (32W) - 3L	None	93	1,800	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	None	58	1,800	0.21	652	0.0	\$132.21	\$939.15	\$180.00	5.74
Main Office	4	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	4	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.15	325	0.0	\$65.81	\$553.04	\$80.00	7.19
Office 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	2	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.07	162	0.0	\$32.91	\$276.52	\$40.00	7.19
Office 2	5	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	5	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.18	406	0.0	\$82.27	\$691.30	\$100.00	7.19
Nurse	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	93	1,800	LED Retrofit	Yes	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.03	108	0.0	\$21.99	\$220.35	\$40.00	8.20
Nurse Office Restroom	8	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	8	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.29	649	0.0	\$131.62	\$1,106.08	\$160.00	7.19
Back Foyer	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	None	93	1,800	LED Retrofit	No	3	LED - Linear Tubes: (4) 4' Lamps	None	58	1,800	0.07	217	0.0	\$44.07	\$414.78	\$60.00	8.05
SGI Rm 112	6	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	6	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.22	487	0.0	\$98.72	\$829.56	\$120.00	7.19
Men's Rm	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.04	81	0.0	\$16.45	\$138.26	\$20.00	7.19
Women's Rm	1	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	1	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.04	81	0.0	\$16.45	\$138.26	\$20.00	7.19

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Covered Connecting Walkway	7	Compact Fluorescent: 2 x 19W CFLs per Fixture	None	38	1,800	LED Retrofit	No	7	LED Screw-In Lamps: LED Screw-In Bulb	None	18	1,800	0.09	290	0.0	\$58.76	\$144.20	\$140.00	0.07
Classroom 114	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 114	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 116	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 116	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 117	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 117	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 118	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 118	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 119	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 119	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 119	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 119	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 120	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 120	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Classroom 121	9	Linear Fluorescent - T8: 4' T8 (32W) - 4L	Occupancy Sensor	114	1,260	LED Retrofit	No	9	LED - Linear Tubes: (4) 4' Lamps	Occupancy Sensor	58	1,260	0.33	730	0.0	\$148.08	\$1,244.34	\$180.00	7.19
Restroom - Rm 121	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Occupancy Sensor	93	280	LED Retrofit	No	1	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	280	0.03	16	0.0	\$3.23	\$104.35	\$15.00	27.65
Storage Rm	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	None	62	200	LED Retrofit	No	6	LED - Linear Tubes: (2) 4' Lamps	None	29	200	0.13	46	0.0	\$9.23	\$500.58	\$60.00	47.71
Exterior	8	Incandescent (1) 60W Screw-In Bulb	None	60	2,190	LED Retrofit	No	8	LED Screw-In Lamps: LED Screw-In Bulb	None	9	2,190	0.27	1,028	0.0	\$208.35	\$144.80	\$80.00	0.31
Trailer #1 (Right)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Trailer #1 (Right)	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.38	1,208	0.0	\$245.03	\$1,438.02	\$175.00	5.15
Trailer #1 (Left)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Trailer #1 (Left)	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.38	1,208	0.0	\$245.03	\$1,438.02	\$175.00	5.15
Foyer	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.03	86	0.0	\$17.50	\$353.43	\$45.00	17.62

Location	Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Exterior	8	Incandescent (1) 60W Screw-In Bulb	None	60	2,190	LED Retrofit	No	8	LED Screw-In Lamps: LED Screw-In Bulb	None	9	2,190	0.27	1,028	0.0	\$208.35	\$144.80	\$80.00	0.31
Trailer #2 (Right)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Trailer #2 (Right)	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.38	1,208	0.0	\$245.03	\$1,438.02	\$175.00	5.15
Trailer #2 (Left)	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Trailer #2 (Left)	14	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	14	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.38	1,208	0.0	\$245.03	\$1,438.02	\$175.00	5.15
Foyer	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Foyer	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	62	1,800	LED Retrofit	Yes	1	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,260	0.03	86	0.0	\$17.50	\$353.43	\$45.00	17.62
Parking Lot	4	Mercury Vapor: (1) 400W Lamp	None	455	2,190	LED Retrofit	No	4	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	None	146	2,190	0.81	3,113	0.0	\$631.18	\$1,413.64	\$400.00	1.61

Motor Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions						Proposed Conditions				Energy Impact & Financial Analysis						
		Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Annual Operating Hours	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Nurse Office Bathroom	Nurse Office Bathroom	1	Exhaust Fan	0.3	82.5%	No	200	No	82.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Marvair AC Units	Classes and Offices	32	Supply Fan	0.2	82.5%	No	1,278	No	82.5%	No		0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Electric HVAC Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions				Proposed Conditions							Energy Impact & Financial Analysis							
		System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (kBtu/hr)	Cooling Mode Efficiency (SEER/EER)	Heating Mode Efficiency (COP)	Install Dual Enthalpy Economizer?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Various	Classrooms & Offices	16	Through-The-Wall HP	2.00	24.00	No							No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

DHW Inventory & Recommendations

Location	Area(s)/System(s) Served	Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
		System Quantity	System Type	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Classrooms	Classroom Small Restrooms	13	Tankless Water Heater	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Storage Room	Various	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00


Commercial Refrigerator/Freezer Inventory & Recommendations

Location	Existing Conditions			Proposed Condi	Energy Impact & Financial Analysis						
	Quantity	Refrigerator/ Freezer Type	ENERGY STAR Qualified?	Install ENERGY STAR Equipment?	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
Small Office 2	1	Stand-Up Refrigerator, Solid Door (≤ 15 cu. ft.)	No	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00
Nurse's Office	1	Stand-Up Refrigerator, Solid Door (16 - 30 cu. ft.)	Yes	No	0.00	0	0.0	\$0.00	\$0.00	\$0.00	0.00

Plug Load Inventory

Location	Existing Conditions			
	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Main Office	4	Computer Work Stations	137.0	Yes
Main Office	1	Large Copy Machine	494.0	Yes
Main Office	1	Small Printer	192.0	No
Small Office 2	1	Small Microwave	800.0	No

Appendix B: ENERGY STAR® Statement of Energy Performance



ENERGY STAR® Statement of Energy Performance

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N/A

Robert C. Wood Early Childhood Center

Primary Property Type: Pre-school/Daycare
 Gross Floor Area (ft²): 23,500
 Built: 2012

For Year Ending: December 31, 2015
 Date Generated: January 06, 2017

ENERGY STAR® Score¹

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	
Robert C. Wood Early Childhood Center 950 County Road 539 Little Egg Harbor, New Jersey 08087	Little Egg Harbor School District 305 Frog Pond Rd Little Egg Harbor, NJ 08087 () -	Katrina Reigelman 305 Frog Pond Rd Little Egg Harbor, NJ 08087 609-296-1719 ext.1010 treigelman@lehsd.k12.nj.us	
Property ID: 5718440			
Energy Consumption and Energy Use Intensity (EUI)			
Site EUI	Annual Energy by Fuel	National Median Comparison	
22.7 kBtu/ft ²	Electric - Grid (kBtu) 534,456 (100%)	National Median Site EUI (kBtu/ft ²)	46.4
		National Median Source EUI (kBtu/ft ²)	145.7
		% Diff from National Median Source EUI	-51%
Source EUI		Annual Emissions	
71.4 kBtu/ft ²		Greenhouse Gas Emissions (Metric Tons CO ₂ e/year)	61

Signature & Stamp of Verifying Professional

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

Signature: _____ Date: _____

Licensed Professional

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**Professional Engineer Stamp
(if applicable)**