Local Government Energy Audit:
Energy Audit Report

Adult Partial Care Program

South Jersey Behavioral Health Resources, Inc.

212 E Madison Ave

Magnolia, NJ 08049

10/5/2018

Final 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 saving 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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1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for the Adult Partial Care Program.

The goal of a LGEA 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 also sets you on the path to receive financial incentives from New Jersey's Clean Energy Program (NJCEP) for implementing the ECMs.

This study was conducted by TRC Energy Services (TRC), as part of a comprehensive effort to protect our environment by reducing energy usage and assist New Jersey local governments in controlling energy costs by offering a broad range of energy management options.

1.1 Facility Summary

Adult Partial Care Program is a 6,700 square foot facility, comprised a single-story building and an adjacent modular unit in Magnolia, NJ. The facility was built in 1980. It is open from 8:00 am to 5:00 pm, Monday through Friday, 52 weeks a year. The buildings contains mostly of office spaces and group meeting rooms.

Lighting is provided mostly by T8 linear tube ceiling fixtures which have already been upgraded from fluorescent to high efficiency LED "tubes". Lighting is controlled by manual switches. Heating is provided by a small hot air furnace and cooling is provided by two small split systems, plus a packaged terminal air conditioning (PTAC) in the conference room. Heating and cooling are controlled by programmable thermostats. A thorough description of the facility and our observations are located in Section 2.

1.2 Your Cost Reduction Opportunities

Energy Conservation Measures

TRC evaluated five potential measures, which if implemented together would help Adult Partial Care Program to reduce annual energy costs by $1071 and annual greenhouse gas emissions by 8,074 lbs CO_2e. We estimate that the measures would pay for themselves in 5.7 years. The breakdown of existing and potential utility costs is illustrated in Figure 1 and Figure 2, respectively. These measures represent an opportunity to reduce Adult Partial Care Program's annual energy usage by about 6.0%.

Figure 1 – Previous 12 Month Utility Costs

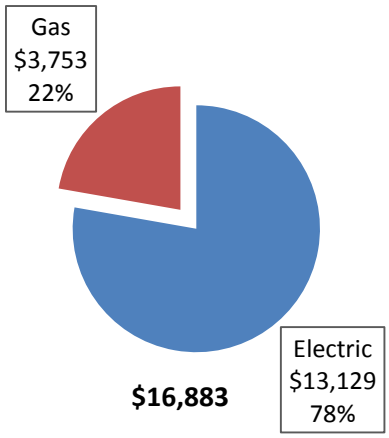
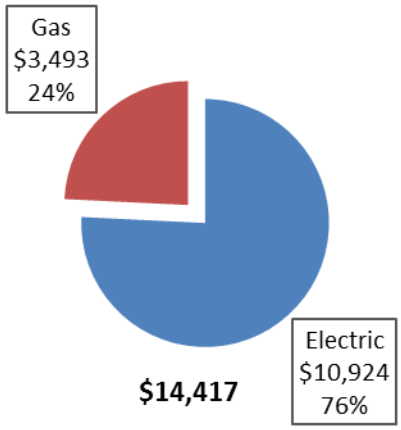


Figure 2 – Potential Post-Implementation Costs



A detailed description of Adult Partial Care Program's existing energy use can be found in Section 3

The evaluated measures have been listed and grouped into major categories as shown in Figure 3. A brief description of the categories can be found below and descriptions of the individual opportunities can be found in Section 4.

Figure 3 – 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_2e Emissions Reduction (lbs)
Lighting Upgrades			**641**	**0.2**	**0.0**	**$94.98**	**$83.43**	**$0.00**	**$83.43**	**0.88**	**645**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	641	0.2	0.0	$94.98	$83.43	$0.00	$83.43	0.88	645
Electric Unitary HVAC Measures			**2,873**	**1.7**	**0.0**	**$425.97**	**$5,586.23**	**$130.00**	**$5,456.23**	**12.81**	**2,893**
ECM 2	Install High Efficiency Electric AC	Yes	1,587	0.9	0.0	$235.34	$1,756.61	$0.00	$1,756.61	7.46	1,598
ECM 3	Install High Efficiency Packaged Terminal AC/HP	Yes	1,286	0.8	0.0	$190.63	$3,829.62	$130.00	$3,699.62	19.41	1,295
Domestic Water Heating Upgrade			**0**	**0.0**	**21.9**	**$260.45**	**$57.36**	**$0.00**	**$57.36**	**0.22**	**2,568**
ECM 4	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	21.9	$260.45	$57.36	$0.00	$57.36	0.22	2,568
Plug Load Equipment Control - Vending Machine			**1,954**	**0.0**	**0.0**	**$289.75**	**$549.00**	**$0.00**	**$549.00**	**1.89**	**1,968**
ECM 5	Vending Machine Control	Yes	1,954	0.0	0.0	$289.75	$549.00	$0.00	$549.00	1.89	1,968
TOTALS			**5,468**	**1.9**	**21.9**	**$1,071.15**	**$6,276.02**	**$130.00**	**$6,146.02**	**5.74**	**8,074**

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

Electric Unitary HVAC measures generally involve replacing old inefficient air conditioning systems with modern energy efficient systems. New air conditioning systems can provide cooling equivalent to older air condition systems, but use less energy. These measures save energy by reducing the power used by the air condition system due to improved electrical efficiency.

Domestic Water Heating upgrade measures generally involve replacing old inefficient domestic water heating systems with modern energy efficient systems. New domestic water heating systems can provide equivalent or greater capacity as older systems, but use less energy. These measures save energy by

reducing the fuel used by the domestic water heating systems due to improved efficiency or the removal of standby losses.

Plug Load Equipment control measures generally involve installing automation that limits the power use or operation of equipment plugged into an electrical receptacle based on occupancy.

Energy Efficient Practices

TRC also identified 7 low cost (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 at Adult Partial Care Program include:

- Reduce Air Leakage
- Perform Proper Water Heater Maintenance
- Install Plug Load Controls

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

On-Site Generation Measures

TRC evaluated the potential for installing On-Site Generation sources for Adult Partial Care Program. Based on the configuration of the site and its loads there is a low potential for installing any PV and combined heat and power self-generation measures.

Figure 4 - Photovoltaic Potential

Potential	None	
System Potential	16	kW DC STC
Electric Generation	12,039	kWh/yr
Displaced Cost	$1,050	/yr
Installed Cost	$41,600	

For details on our evaluation and the On-Site Generation potential, please refer to Section 6.

1.3 Implementation Planning

To realize the energy savings from the ECMs listed in this report, the equipment changes outlined for each ECM need to be selected and installed through project implementation. One of the first considerations is if there is capital available for project implementation. Another consideration is whether to pursue individual ECMs, a group of ECMs, or a comprehensive approach wherein all ECMs are pursued, potentially in conjunction with other facility projects or improvements.

Rebates, incentives, and financing are available from the NJBPU, NJCEP, as well as some of the state's investor-owned utilities, to help reduce the costs associated with the implementation of energy efficiency projects. Prior to implementing any project, please review the appropriate incentive program guidelines before proceeding. This is important because in most cases you will need to submit an application for the incentives before purchasing materials and beginning installation.

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

- SmartStart
- Direct Install

- Energy Savings Improvement Program (ESIP)

For facilities with capital available for implementation of selected individual measures or phasing 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 design the ECM(s), select the equipment and apply for the incentive(s). Program pre-approval is required for some SmartStart incentives, so only after receiving approval may the ECM(s) be installed. The incentive values listed above in Figure 3 represent the SmartStart program and will be explained further in Section 7, as well as the other programs as mentioned below.

This facility also qualifies for the Direct Install program which, through an authorized network of participating contractors, can assist with the implementation of a group of measures versus installing individual measures or phasing implementation. This program is designed to be turnkey and will provide an incentive up to 70% of the cost of the project identified by the designated contractor.

For facilities without capital available 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 external project development, design, and implementation services as well as financing for implementing ECMs. This LGEA report is the first step for participating in ESIP and should help you determine next steps. Refer to Section 7.3 for additional information on the ESIP Program

Additional descriptions of all relevant incentive programs are located in Section 7. or: www.NJCleanEnergy.com/CI.

To ensure projects are implemented such that maximum savings and incentives are achieved, bids and specifications should be reviewed by your procurement personnel and/or consultant(s) to ensure that selected equipment coincides with LGEA recommendations, as well as applicable incentive program guidelines and requirements.

2 FACILITY INFORMATION AND EXISTING CONDITIONS

2.1 Project Contacts

Figure 5 – Project Contacts

Name	Role	E-Mail	Phone #
Customer			
Anthony Alvarez	Quality Improvement Coordinator	aalvarez@sjbhr.org	(856) 361-1124
TRC Energy Services			
Iyunade Oduneye	Auditor	ioduneye@trcsolutions.com	(732) 855-0033

2.2 General Site Information

On June 07, 2016, TRC performed an energy audit at Adult Partial Care Program located in Magnolia, New Jersey. TRC's team met with SJBH staff to review the facility operations and focus the investigation on specific energy-using systems.

Adult Partial Care Program is a 6,700 square foot facility, comprised a single-story building and an adjacent modular unit. The facility was built in 1980. The buildings contain office spaces and group meeting rooms.

2.3 Building Occupancy

The facility is open weekdays from 8:00 am to 5:00 pm, Monday to Friday, 52 weeks a year.

Figure 6 - Building Schedule

Building Name	Weekday/Weekend	Operating Schedule
Adult Partial Care Program	Weekday	8AM - 5PM

2.4 Building Envelope

The building and modular unit appear to be fairly good condition overall. Window and door seals appeared adequate. Insulation levels could not be determined during our visit. No air leakage or occupant comfort issues were noted or raised by facility staff.

Image 1: Building Exterior

Image 2: Front Entrance

2.5 On-site Generation

Adult Partial Care Program does not have any on-site electric generation capacity.

2.6 Energy-Using Systems

Please refer to Appendix A: Equipment Inventory & Recommendations for an inventory of the building's equipment.

Lighting System

Most lighting fixtures at the facility have been upgraded to high efficiency LED lighting. The fixtures were originally linear fluorescent tubes, but the tubes have been replaced with LED lighting strips, providing equal or better lighting, while consuming only about half as many kilowatt-hours per fixture.

Image 3: Examples of Interior and Exterior Lighting Fixtures

Domestic Hot Water

The domestic hot water system is supplied by a single 38-gallon A.O. Smith Pro-Max® gas-fired hot water heater. The equipment is assumed to be about ten (10) years old. It appears to be well-maintained and operating efficiently.

Image 4: Domestic Hot Water Heater

Heating System

The building is heated by a single Laars *Pennant*™ hot water boiler. The boiler has a capacity of 830 MMBTU/hr. It is approximately seven years old and appears to be in good condition and well-maintained. It is of average efficiency (~85%). The hot water supply temperature was observed to be 145°F.

Heating and cooling is controlled by programmable thermostats. The space temperature during our visit was observed to 72°F.


Image 5: Heating System and Thermostat

Air Conditioning (DX)

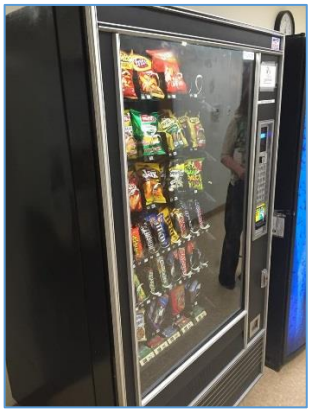
The building is cooled by one 30-ton Trane rooftop air conditioning (AC) unit and two 3.5-ton split systems. There are also two smaller split AC units to cool servers in the basement. The rooftop unit (RTU) is about six years old and appears to be in good condition. The 3.5-ton split systems are 10 and 13 years old respectively. The split systems are of average efficiency (SEERs = 10 and 12.5).


Image 6: Split System Air Conditioning Units

Plug load & Vending Machines

There are roughly 20 computer work stations throughout the facility. There are also two large refrigerators and one small refrigerator, a copy machine, microwave, and other typical office equipment. The facility also has one refrigerated beverage vending machines and one non-refrigerated snack vending machine.

Image 7: Refrigerators and Vending Machines



2.7 Water-Using Systems

There are four restrooms at this facility and total of eight restroom sinks. Faucets are rated for 1.5 gallons per minute (gpm). These could be reduced to 1.0 gpm, or even as low as 0.5 gpm, which is the current standard for new low-flow commercial fixtures in public restrooms. The toilets and urinals already meet low-flow standards. Inexpensive faucet aerators reduce the amount of water needed for handwashing, leading to energy savings due to less daily demand for hot water.

Image 8: Lavatory Sink

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/ft2 and energy use/ft2. These energy use indices are indicative of the relative energy effectiveness of this building. A number of factors could cause the energy use of this building to vary from the "typical" energy use for other facilities identified as: Hospital/Healthcare. Specific local climate conditions, daily occupancy hours of the facility, seasonal fluctuations in occupancy, daily operating hours of energy use systems, and the behavior of the occupants with regard to operating systems that impact energy use such as turning off appliances and leaving windows open. Please refer to Section 3.6.

3.1 Total Cost of Energy

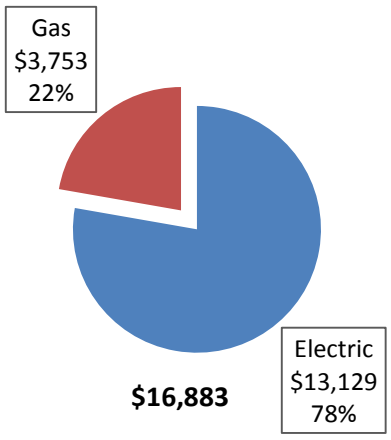
The following energy consumption and cost data is based on 12 months of utility usage data that was provided for each utility. The annual consumption and cost was developed from this information.

Figure 7 - Utility Summary

Utility Summary for Adult Partial Care Program		
Fuel	**Usage**	**Cost**
Electricity	78,092 kWh	$13,129
Natural Gas	3,160 Therms	$3,753
Total		**$16,883**

The current utility cost for this site is $16,883 per year as shown in the chart below.

Figure 8- Energy Cost Breakdown



3.2 Electricity Usage

Electricity is provided by PSE&G. The average rate paid for electricity at the facility is **$0.148/kWh**. This is a blended rate which includes all energy, demand, and other charges paid for electric service over a 12-month period. This rate is used throughout the report in all electric cost and savings calculations. The building's monthly electric usage and peak demand are shown in the chart and table below.

Figure 9 - Electric Usage and Demand

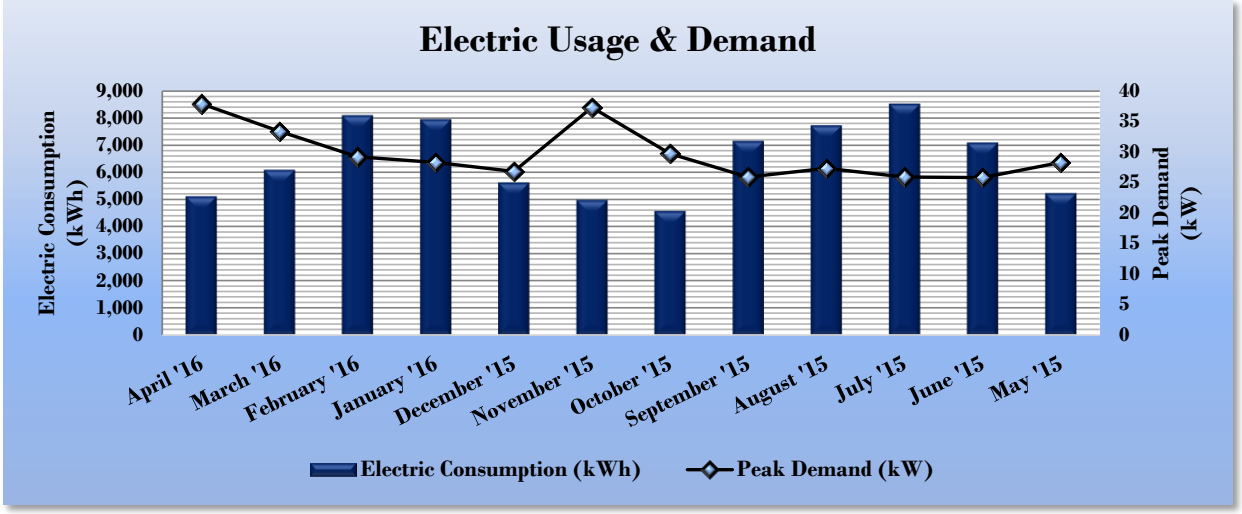


Figure 10 - Electric Usage and Demand

Electric Billing Data for Adult Partial Care Program					
Period Ending	Days in Period	Electric Usage (kWh)	Demand (kW)	Demand Cost	Total Electric Cost
4/20/16	30	5,107	38	$167	$915
3/21/16	31	6,086	33	$147	$973
2/19/16	29	8,091	29	$127	$1,111
1/21/16	34	7,952	28	$123	$1,096
12/18/15	31	5,614	27	$117	$877
11/17/15	29	4,981	37	$163	$872
10/19/15	31	4,568	30	$130	$802
9/18/15	30	7,148	26	$113	$1,302
8/19/15	29	7,721	27	$118	$1,431
7/21/15	32	8,517	26	$112	$1,509
6/19/15	31	7,085	26	$112	$1,341
5/19/15	28	5,222	28	$123	$900
Totals	**365**	**78,092**	**37.9**	**$1,551**	**$13,129**
Annual	**365**	**78,092**	**37.9**	**$1,551**	**$13,129**

3.3 Natural Gas Usage

Natural Gas is provided by South Jersey Gas. The average gas cost for 12 months is **$1.188/therm.** This is the blended rate used throughout the analyses in this report. The monthly gas consumption is represented graphically in the chart below.

Figure 11 - Natural Gas Usage

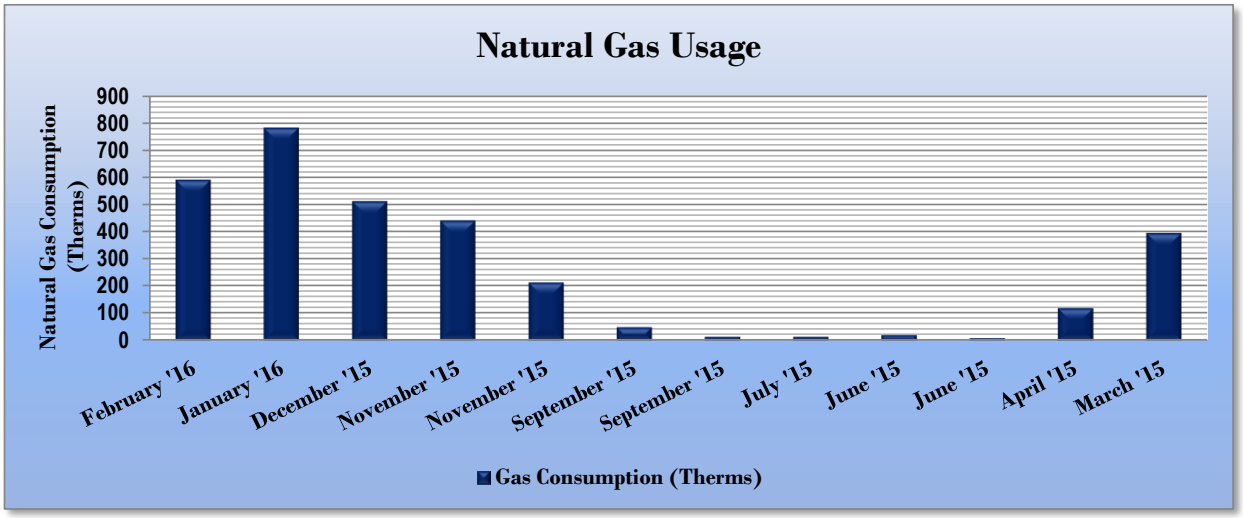


Figure 12 - Natural Gas Usage

Gas Billing Data for Adult Partial Care Program			
Period Ending	Days in Period	Natural Gas Usage (Therms)	Natural Gas Cost
3/15/16	32	591	$648
2/12/16	29	783	$845
1/14/16	31	512	$564
12/14/15	28	441	$487
11/16/15	32	213	$253
10/15/15	29	48	$82
9/16/15	33	13	$47
8/14/15	33	13	$47
7/12/15	25	19	$47
6/17/15	34	7	$42
5/14/15	29	119	$173
4/15/15	29	395	$510
Totals	**364**	**3,152**	**$3,743**
Annual	**365**	**3,160**	**$3,753**

3.4 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 13 - Energy Use Intensity Comparison – Existing Conditions

Energy Use Intensity Comparison - Existing Conditions		
	Adult Partial Care Program	National Median Building Type: Hospital/Healthcare
Source Energy Use Intensity (kBtu/ft^2)	174.4	389.8
Site Energy Use Intensity (kBtu/ft^2)	86.9	196.9

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

Figure 14 - Energy Use Intensity Comparison – Following Installation of Recommended Measures

Energy Use Intensity Comparison - Following Installation of Recommended Measures		
	Adult Partial Care Program	National Median Building Type: Hospital/Healthcare
Source Energy Use Intensity (kBtu/ft^2)	164.9	389.8
Site Energy Use Intensity (kBtu/ft^2)	81.7	196.9

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% of all similar buildings nationwide and may be eligible for ENERGY STAR® certification. This facility has a current score of 33.

A Portfolio Manager® Statement of Energy Performance (SEP) was generated for this facility, see Appendix B: EPA Statement of Energy Performance.

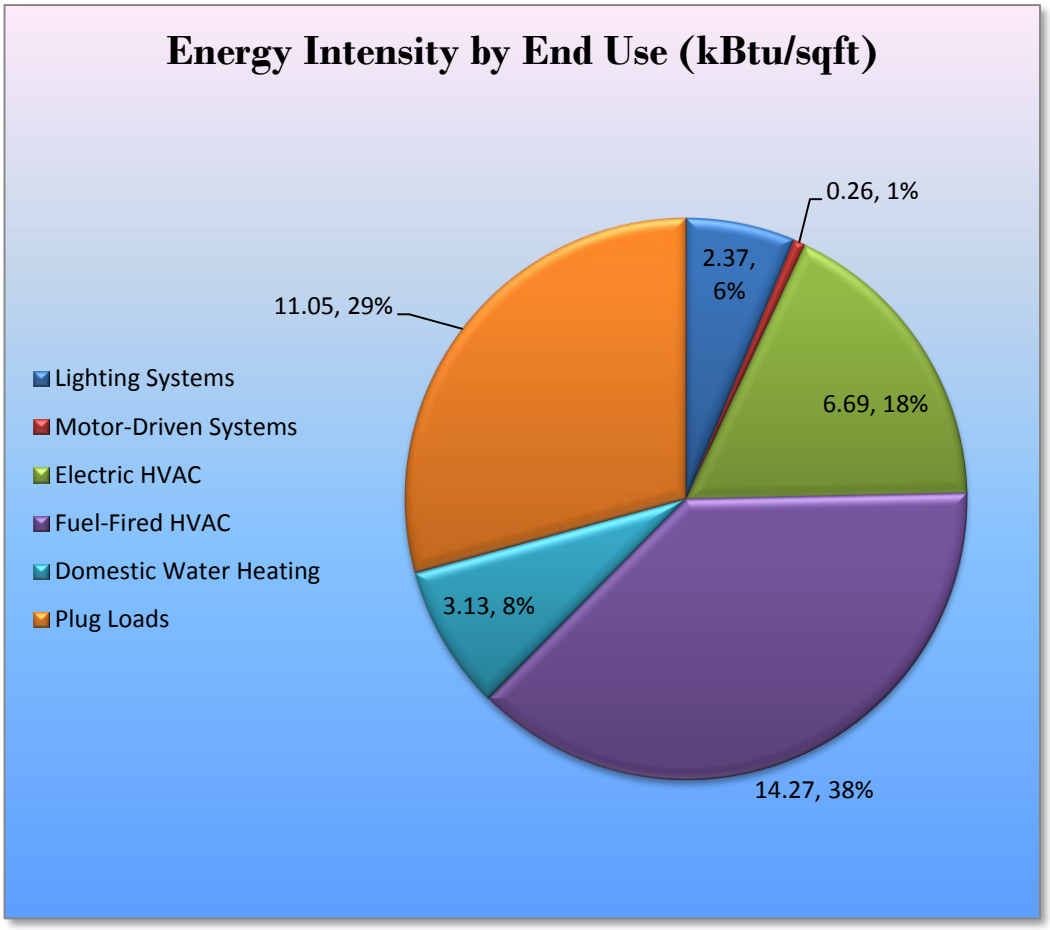
For more information on ENERGY STAR® certification go to: https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/earn-recognition/energy-star-certification/how-app-1

A Portfolio Manager® account has been created online for your facility and you will be provided with the login information for the account. We encourage you to update your utility information in Portfolio Manager® regularly, so that you can keep track of your building's performance. 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.

3.5 Energy End-Use Breakdown

An energy balance was performed for this facility in order to provide a more detailed overview of energy consumption across various building systems. 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 15 - Energy Balance (kBtu/SF and %)



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 Adult Partial Care Program 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 7.

The following sections describe the evaluated measures.

4.1 Recommended ECMs

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

Figure 16 – Summary of Recommended ECMs

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_2e Emissions Reduction (lbs)
Lighting Upgrades			**641**	**0.2**	**0.0**	**$94.98**	**$83.43**	**$0.00**	**$83.43**	**0.88**	**645**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	641	0.2	0.0	$94.98	$83.43	$0.00	$83.43	0.88	645
Electric Unitary HVAC Measures			**2,873**	**1.7**	**0.0**	**$425.97**	**$5,586.23**	**$130.00**	**$5,456.23**	**12.81**	**2,893**
ECM 2	Install High Efficiency Electric AC	Yes	1,587	0.9	0.0	$235.34	$1,756.61	$0.00	$1,756.61	7.46	1,598
ECM 3	Install High Efficiency Packaged Terminal AC/HP	Yes	1,286	0.8	0.0	$190.63	$3,829.62	$130.00	$3,699.62	19.41	1,295
Domestic Water Heating Upgrade			**0**	**0.0**	**21.9**	**$260.45**	**$57.36**	**$0.00**	**$57.36**	**0.22**	**2,568**
ECM 4	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	21.9	$260.45	$57.36	$0.00	$57.36	0.22	2,568
Plug Load Equipment Control - Vending Machine			**1,954**	**0.0**	**0.0**	**$289.75**	**$549.00**	**$0.00**	**$549.00**	**1.89**	**1,968**
ECM 5	Vending Machine Control	Yes	1,954	0.0	0.0	$289.75	$549.00	$0.00	$549.00	1.89	1,968
TOTALS			**5,468**	**1.9**	**21.9**	**$1,071.15**	**$6,276.02**	**$130.00**	**$6,146.02**	**5.74**	**8,074**

* - 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

Our recommendations for lighting upgrade are summarized in Figure 17 below

Figure 17 – Summary of Lighting Upgrade 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_2e Emissions Reduction (lbs)
Lighting Upgrades		**641**	**0.2**	**0.0**	**$94.98**	**$83.43**	**$0.00**	**$83.43**	**0.88**	**645**
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	641	0.2	0.0	$94.98	$83.43	$0.00	$83.43	0.88	645

During lighting upgrade planning and design, we recommend a comprehensive approach that considers both the efficiency of the lighting fixtures and how they are controlled

ECM 1: Retrofit Fluorescent Fixtures with LED Lamps and Drivers

Measure Description

Our energy auditors found only one inefficient lighting fixture remaining in the building, an older type T12 linear fluorescent fixture. This measure recommends replacing remaining linear fluorescent lamps and ballasts with LED tube lamps and drivers specifically designed for existing linear fluorescent fixtures. The retrofit would use the existing fixture housing but replace the rest of the components with high efficiency LEDs. This measure saves energy by installing LED lighting tubes or strips which use less power than other technologies with a comparable light output and efficiently projects the light into the space.

4.1.2 Electric HVAC Measures

Our recommendations for upgrades to Electric HVAC measures are summarized in **Error! Reference source not found.** below.

Figure 17 - Summary of Electric HVAC Measures

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_2e Emissions Reduction (lbs)
Electric Unitary HVAC Measures		**2,873**	**1.7**	**0.0**	**$425.97**	**$5,586.23**	**$130.00**	**$5,456.23**	**12.81**	**2,893**
ECM 2	Install High Efficiency Electric AC	1,587	0.9	0.0	$235.34	$1,756.61	$0.00	$1,756.61	7.46	1,598
ECM 3	Install High Efficiency Packaged Terminal AC/HP	1,286	0.8	0.0	$190.63	$3,829.62	$130.00	$3,699.62	19.41	1,295

ECM 2: Install High Efficiency Electric AC

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_2e Emissions Reduction (lbs)
754	0.4	0.0	$111.79	$1,756.61	$0.00	$1,756.61	15.71	759

Measure Description

We recommend replacing the two package air conditioners in the file with high efficiency package air conditioners. There have been significant improvements in both compressor and fan motor efficiencies in the past several years. Therefore, electricity savings can be achieved by replacing old units with new high efficiency units. A higher EER or SEER rating indicates a more efficient cooling system. The magnitude of energy savings for this measure depends on the relative efficiency of the old and new unit, the cooling load, and the annual operating hours.

ECM 3: Install High Efficiency PTAC

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_2e Emissions Reduction (lbs)
452	0.3	0.0	$67.07	$3,829.62	$130.00	$3,699.62	55.16	456

Measure Description

We recommend replacing the package terminal air conditioners (PTAC) in the conference room with a higher efficiency PTAC system. There have been significant improvements in both compressor and fan motor efficiencies in the past several years. Therefore, electricity savings can be achieved by replacing old units with new high efficiency units. A higher EER or SEER rating indicates a more efficient cooling system and a higher HPSF rating indicates more efficient heating mode for heat pumps. The magnitude of energy savings for this measure depends on the relative efficiency of the old and new unit, the conditioning loads, and the annual operating hours.

4.1.3 Domestic Hot Water Demand Reduction

Measures to reduce domestic hot water demand are outlined in Figure 18 below.

Figure 18 - Summary of Domestic Water Heating 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_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**21.9**	**$260.45**	**$57.36**	**$0.00**	**$57.36**	**0.22**	**2,568**
ECM 4	Install Low-Flow Domestic Hot Water Devices	0	0.0	21.9	$260.45	$57.36	$0.00	$57.36	0.22	2,568

ECM 4: Install Low-Flow DHW Devices

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_2e Emissions Reduction (lbs)
0	0.0	21.9	$260.45	$57.36	$0.00	$57.36	0.22	2,568

Measure Description

We recommend installing low-flow domestic hot water devices. Faucet aerators reduce overall water flow in general and hot water flow in particular. They reduce the water flow, relative to standard faucets, with no noticeable loss of function.

Low-flow devices reduce the amount of hot water consumed each day resulting in energy and water savings.

4.1.4 Plug Load Equipment Control - Vending Machine

ECM 5: Vending Machine Control

Summary of Measure Economics

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_2e Emissions Reduction (lbs)
Plug Load Equipment Control - Vending		**1,954**	**0.0**	**0.0**	**$289.75**	**$549.00**	**$0.00**	**$549.00**	**1.89**	**1,968**
ECM 5	Vending Machine Control	1,954	0.0	0.0	$289.75	$549.00	$0.00	$549.00	1.89	1,968

Measure Description

Vending machines operate continuously, even during non-business hours. It is recommended to install occupancy sensor-based controls to reduce the energy use. These controls power down the machine when the surrounding area is vacant, then monitor the surrounding temperature and power up the cooling system at regular intervals to keep the product cool. Savings are a function of the activity level around the vending machine.

5 ENERGY EFFICIENT PRACTICES

In addition to the quantifiable savings estimated in Section 4, a facility's energy performance can also be improved through 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. T his includes caulking or installing weather stripping around leaky doors and windows allowing for better control of indoor air quality through controlled ventilation.

Perform Water Heater Maintenance

At least once a year, drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Once a year check for any leaks or heavy corrosion on the pipes and valves. For gas water heaters, check the draft hood and make sure it is placed properly, with a few inches of air space between the tank and where it connects to the vent. Look for any corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional. For electric water heaters, look for any signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank. For water heaters over three to four years old have a technician inspect the sacrificial anode annually.

Plug Load Controls

There are a variety of ways to limit the energy use of plug loads including increasing occupant awareness, removing under-utilized equipment, installing hardware controls, and using software controls. Some control steps to take are to enable the most aggressive power settings on existing devices or install load sensing or occupancy sensing (advanced) power strips. For additional information refer to "Assessing and Reducing Plug and Process Loads in Office Buildings" http://www.nrel.gov/docs/fy13osti/54175.pdf, or "Plug Load Best Practices Guide" http://www.advancedbuildings.net/plug-load-best-practices-guide-offices

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.

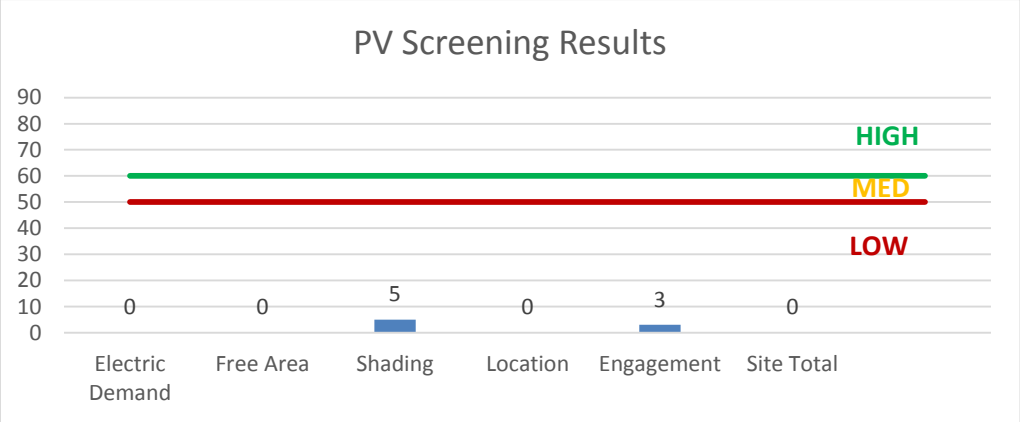
6.1 Photovoltaic

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 has a Low potential for installing a PV array.

In order to be cost-effective, a solar PV array needs certain minimum criteria, such as flat or south-facing rooftop or other unshaded space on which to place the PV panels. In our opinion, the facility does appear not meet these minimum criteria for cost-effective PV installation.

Figure 19 - Photovoltaic Screening



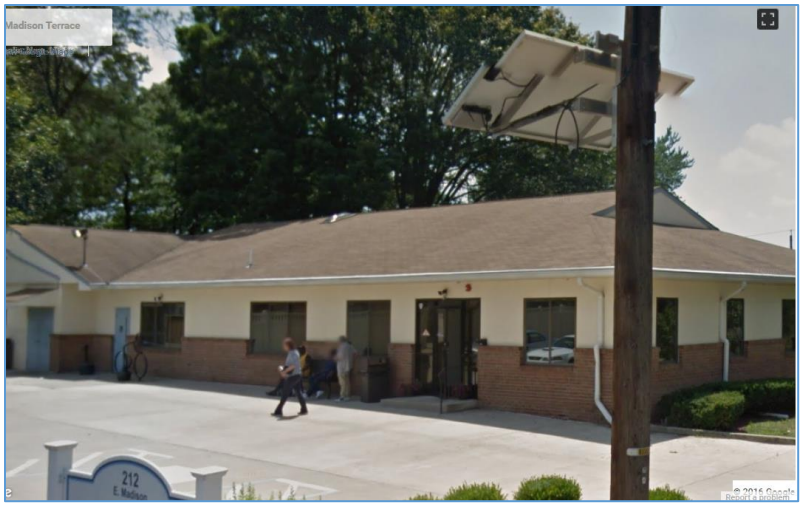


Image 9: View of Facility Showing Rooftop

The image above shows that site is not ideal for solar PV installation. It is not a large area and large trees behind the building likely cause significant shading of the rooftop during certain daytime hours. Also, ideally the roof should be either flat of south-facing to capture the most sunlight. The rooftop slopes east and west. Notice the orientation of the telephone pole mounted solar panel in the picture above. That is the southward orientation that a solar array would need.

It might be possible to install small array, since the roof is not steeply sloped, but it is not recommended. A qualified solar installer might be able to offer other options.

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-faqs
- **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

7 PROJECT FUNDING / INCENTIVES

The NJCEP is able to provide the incentive programs described below, and other benefits to ratepayers, because of the Societal Benefits Charge (SBC) Fund. The SBC was created by the State of New Jersey's Electricity Restructuring Law (1999), which requires all customers of investor-owned electric and gas utilities to pay a surcharge on their monthly energy bills. As a customer of a state-regulated electric or gas utility and therefore a contributor to the fund, your organization is eligible to participate in the LGEA program and also eligible to receive incentive payment for qualifying energy efficiency measures. Also available through the NJBPU are some alternative financing programs described later in this section. Please refer to **Error! Reference source not found.** for a list of the eligible programs identified for each recommended ECM.

Figure 20 - ECM Incentive Program Eligibility

Energy Conservation Measure		SmartStart Prescriptive	SmartStart Custom	Direct Install	Pay For Performance Existing Buildings
ECM 1	Retrofit Fluorescent Fixtures with LED Lamps and Drivers			X	
ECM 2	Install High Efficiency Electric AC	X		X	
ECM 3	Install High Efficiency Packaged Terminal AC/HP	X		X	
ECM 4	Install Low-Flow Domestic Hot Water Devices			X	
ECM 5	Vending Machine Control			X	

7.1 SmartStart

Overview

The SmartStart program offers incentives for installing prescriptive and custom energy efficiency measures at your facility. Routinely the program adds, removes or modifies incentives from year to year for various energy efficiency equipment based on market trends and new technologies.

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*

Most equipment sizes and types are served by this program. This program provides an effective mechanism for securing incentives for energy efficiency measures installed individually or as part of a package of energy upgrades

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

7.2 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 any of 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. Each entity is limited to incentives up to $250,000 per fiscal year.

How to Participate

To participate in Direct Install, you will need to contact the participating contractor assigned to the region of the state where your facility is located. A complete list of Direct Install program partners is provided on the Direct Install website linked below. The contractor will be paid the measure incentives directly by the program 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 and eligibility, while the remaining 30% of the cost is paid to the contractor by the customer.

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

7.3 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 descriptions and application can be 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 ENERGY PURCHASING AND PROCUREMENT STRATEGIES

8.1 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**.

8.2 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 online at: **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	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
Reception	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group Room	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group Room	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	8	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group Room	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Nurse's Office	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Office	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Office	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Main Entrance	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Office	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group Room (Dedication)	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group room (restroom)	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	None	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Staff Lounge	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Staff Lounge (restroom)	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	None	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Meeting Room	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Staff Offices	9	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	Fixture Replacement	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.20	641	0.0	$94.98	$83.43	$0.00	0.88
Staff offices (closet)	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	88	234	None	No	1	Linear Fluorescent - T12: 4' T12 (40W) - 2L	Wall Switch	88	234	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
HVAC Room	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Comfort Room	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Group Room	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Conference Room	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	3	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
File Room	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	None	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Hallway	20	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	None	No	20	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,340	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Exit signs	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	None	No	3	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.00	0	0.0	$0.00	$0.00	$0.00	0.00

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?	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
HVAC Room	Furnace	1	Supply Fan	0.2	60.0%	No	2,745	No	60.0%	No		0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Electric 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 (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
Closet	Building	2	Split-System AC	3.00		No							No	0.00	0	0.0	$0.00	$0.00	$0.00	0.00
Conference Room	Conference Room	1	Packaged Terminal AC	2.00		Yes	1	Packaged Terminal AC	2.00		12.00		No	0.27	452	0.0	$67.07	$3,829.62	$130.00	55.16
File Room	Server Room	2	Through-The-Wall AC	1.00		Yes	2	Through-The-Wall AC	1.00		12.00		No	0.45	754	0.0	$111.79	$1,756.61	$0.00	15.71

Fuel Heating Inventory & Recommendations

		Existing Conditions			Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Output Capacity per Unit (MBh)	Install High Efficiency System?	System Quantity	System Type	Output Capacity per Unit (MBh)	Heating Efficiency	Heating 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
HVAC Room	Building	1	Furnace	38.00	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

DHW Inventory & Recommendations

		Existing Conditions		Proposed Conditions						Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	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
Closet	Building	1	Storage Tank Water Heater (≤ 50 Gal)	No						0.00	0	0.0	$0.00	$0.00	$0.00	0.00

Low-Flow Device Recommendations

	Recommedation Inputs				Energy Impact & Financial Analysis						
Location	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	Total Installation Cost	Total Incentives	Simple Payback w/ Incentives in Years
1st floor Female Restroom	3	Faucet Aerator (Lavatory)	1.50	1.00	0.00	0	6.1	$72.35	$21.51	$0.00	0.30
1st floor Male Restroom	3	Faucet Aerator (Lavatory)	1.50	1.00	0.00	0	6.1	$72.35	$21.51	$0.00	0.30
Restroom	1	Faucet Aerator (Lavatory)	2.20	1.00	0.00	0	4.9	$57.88	$7.17	$0.00	0.12
Restroom	1	Faucet Aerator (Lavatory)	2.20	1.00	0.00	0	4.9	$57.88	$7.17	$0.00	0.12

Plug Load Inventory

	Existing Conditions			
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?
Staff Lounge	1	Large Fridge	225.0	No
Staff Lounge	1	Microwave	1,000.0	No
Nurses Office	1	Small Fridge	33.0	No
Group Room	1	Copier	500.0	Yes
Conference Room	1	Projector	250.0	No
Staff Lounge	1	Coffee Pot	1,500.0	No
Group Room	1	Large Fridge	225.0	Yes
Offices	20	Computers	120.0	No

Vending Machine Inventory & Recommendations

	Existing Conditions		Proposed Conditions	Energy Impact & Financial Analysis						
Location	Quantity	Vending Machine Type	Install Controls?	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
Building	1	Non-Refrigerated	Yes	0.00	343	0.0	$50.78	$718.80	$0.00	14.15
Building	1	Refrigerated	Yes	0.00	1,612	0.0	$238.97	$718.80	$0.00	3.01

Appendix B: EPA Statement of Energy Performance

ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

N/A

ENERGY STAR® Score[1]

Adult Partial Care Program

Primary Property Type: Outpatient Rehabilitation/Physical Therapy
Gross Floor Area (ft²): 6,700
Built: 1980

For Year Ending: February 29, 2016
Date Generated: June 28, 2016

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
Adult Partial Care Program 212 East Madison Avenue Magnolia, New Jersey 08049	_____ , (____)____-_____	____ _____ , (____)____-_____ _____

Property ID: 4995752

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
88.1 kBtu/ft²

Source EUI
172.9 kBtu/ft²

Annual Energy by Fuel	
Electric - Grid (kBtu)	257,738 (44%)
Natural Gas (kBtu)	332,374 (56%)

National Median Comparison	
National Median Site EUI (kBtu/ft²)	79.1
National Median Source EUI (kBtu/ft²)	155.2
% Diff from National Median Source EUI	11%
Annual Emissions	
Greenhouse Gas Emissions (Metric Tons CO2e/year)	18

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

____ _____
,
(____)____-_____
_____

Professional Engineer Stamp (if applicable)