

New Jersey's Clean Energy Program

LGEA Exit Meeting for:
James J. Howard Marine Sciences Lab
NOAA

TRC Energy Services

February 7, 2019

Introductions



James J. Howard Marine Sciences Lab

- Jack Emberg – Chief, Facilities Operations & Safety Branch
- Amanda Plantamura – Administrative Specialist, Ecosystems and Processes Division
- Dr. Beth Phelan – Chief, Fisheries Habitat Branch
- Matthew Erwin – General Engineer
- Ron Guilmette – Facility Operations and Safety
- Rob McWilliams – Senior Construction Manager

NJ Clean Energy Program

- Brian DeLuca, CEM – TRC Program Manager
- Vish Nimbalkar, PE – TRC Lead Auditor
- Elizabeth Ebinger – TRC Account Manager
- Tony O'Donnell – TRC Outreach Account Manager
- Arif Welcher – BPU Ombudsman

Agenda



- The audit process overview
- Energy use & existing conditions
- Review of **E**nergy **C**onservation **M**easures (ECMs) identified
- Questions or concerns regarding the draft audit report
- Overview of NJCEP equipment incentives
- Next steps for James J. Howard Marine Sciences Lab

LGEA Process



- Application Approval
- Scheduling Call
- Audit
- Benchmarking & Analysis
- Draft Report
- Exit Meeting Presentation
- Final Report

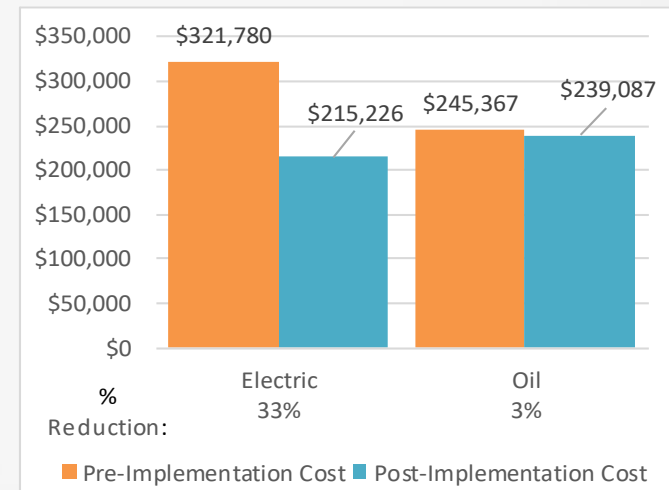
Overview of Systems, Baseline & Existing Conditions:

- Building Envelope
- Lighting System
- HVAC and Mechanical Systems
- Plug Load Equipment

Utility Consumption:

- Electric Consumption and Costs
- Oil Consumption and Costs

Utility Cost Savings



Benchmarking



ENERGY STAR® Statement of Energy Performance

LEARN MORE AT energystar.gov

N/A

James J Howard Marine Sciences Lab

Primary Property Type: Laboratory
 Gross Floor Area (ft²): 40,638
 Built: 1994

For Year Ending: May 31, 2018
 Date Generated: November 30, 2018

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 James J Howard Marine Sciences Lab 74-A Magruder Road Highlands, New Jersey 07732-0428	Property Owner _____ ()-____	Primary Contact _____ ()-____
Property ID: 6629714		

Energy Consumption and Energy Use Intensity (EUI)			
Site EUI 411.5 kBtu/ft²	Annual Energy by Fuel		National Median Comparison
	Electric - Grid (kBtu)	8,785,998 (52%)	National Median Site EUI (kBtu/ft²) 163.1
	Fuel Oil (No. 2) (kBtu)	7,935,138 (48%)	National Median Source EUI (kBtu/ft²) 318.2
		% Diff from National Median Source EUI	152%
Source EUI 802.6 kBtu/ft²			Annual Emissions Greenhouse Gas Emissions (Metric Tons CO2e/year) 1,479

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)

James J. Howard Marine Sciences Lab



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			229,869	73.5	0.0	\$27,994.11	\$139,487.70	\$14,995.00	\$124,492.70	4.4	231,477
ECM 1	Install LED Fixtures	Yes	24,732	4.1	0.0	\$3,011.95	\$29,390.08	\$1,100.00	\$28,290.08	9.4	24,905
ECM 2	Retrofit Fluorescent Fixtures with LED Lamps and Drivers	Yes	168,465	58.8	0.0	\$20,516.09	\$84,448.74	\$12,715.00	\$71,733.74	3.5	169,643
ECM 3	Retrofit Fixtures with LED Lamps	Yes	34,515	10.4	0.0	\$4,203.27	\$24,417.82	\$1,180.00	\$23,237.82	5.5	34,756
ECM 4	Install LED Exit Signs	Yes	2,158	0.2	0.0	\$262.80	\$1,231.06	\$0.00	\$1,231.06	4.7	2,173
Lighting Control Measures			14,889	4.1	0.0	\$1,813.23	\$18,900.00	\$2,450.00	\$16,450.00	9.1	14,993
ECM 5	Install Occupancy Sensor Lighting Controls	Yes	14,889	4.1	0.0	\$1,813.23	\$18,900.00	\$2,450.00	\$16,450.00	9.1	14,993
Motor Upgrades			35,344	5.9	0.0	\$4,304.29	\$60,280.94	\$0.00	\$60,280.94	14.0	35,591
	Premium Efficiency Motors	No	35,344	5.9	0.0	\$4,304.29	\$60,280.94	\$0.00	\$60,280.94	14.0	35,591
Variable Frequency Drive (VFD) Measures			370,722	40.5	0.0	\$45,147.48	\$122,799.03	\$15,180.00	\$107,619.03	2.4	373,314
ECM 6	Install VFDs on Constant Volume (CV) HVAC	Yes	167,498	24.2	0.0	\$20,398.36	\$64,113.73	\$8,580.00	\$55,533.73	2.7	168,669
ECM 7	Install VFDs on Chilled Water Pumps	Yes	132,229	12.7	0.0	\$16,103.23	\$37,907.50	\$4,800.00	\$33,107.50	2.1	133,154
ECM 8	Install VFDs on Hot Water Pumps	Yes	35,497	3.6	0.0	\$4,322.94	\$10,388.90	\$0.00	\$10,388.90	2.4	35,745
ECM 9	Install VFDs on Cooling Tower Fans	Yes	35,497	0.0	0.0	\$4,322.94	\$10,388.90	\$1,800.00	\$8,588.90	2.0	35,745
Electric Chiller Replacement			259,469	52.1	0.0	\$31,598.84	\$325,874.60	\$16,535.00	\$309,339.60	9.8	261,283
ECM 10	Install High Efficiency Chillers	Yes	259,469	52.1	0.0	\$31,598.84	\$325,874.60	\$16,535.00	\$309,339.60	9.8	261,283
Gas Heating (HVAC/Process) Replacement			0	0.0	396.1	\$6,013.85	\$59,624.10	\$5,010.00	\$54,614.10	9.1	64,801
ECM 11	Install High Efficiency Hot Water Boilers	Yes	0	0.0	396.1	\$6,013.85	\$59,624.10	\$5,010.00	\$54,614.10	9.1	64,801
Domestic Water Heating Upgrade			0	0.0	17.5	\$266.36	\$86.04	\$0.00	\$86.04	0.3	2,870
ECM 12	Install Low-Flow Domestic Hot Water Devices	Yes	0	0.0	17.5	\$266.36	\$86.04	\$0.00	\$86.04	0.3	2,870
TOTALS FOR HIGH PRIORITY MEASURES			874,949	170.3	413.6	\$112,833.87	\$666,771.48	\$54,170.00	\$612,601.48	5.4	948,738
TOTALS FOR ALL EVALUATED MEASURES			910,293	176.2	413.6	\$117,138.16	\$727,052.42	\$54,170.00	\$672,882.42	5.7	984,329

* - 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).

Solar Energy Generation Potential



	J.J. Howard Marine Sciences Lab
<i>Potential:</i>	HIGH
<i>System Potential: (kW)</i>	268
<i>Electric Generation: (kWh per year)</i>	319,287
<i>Displaced Cost: (per year)</i>	\$27,780

For more information on the SREC Registration Program (SRP) please visit:

<http://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy>

Energy Efficient Best Practices



- Reduce Air Leakage
- Close Doors and Windows
- Develop a Lighting Maintenance Schedule
- Ensure Lighting Controls Are Operating Properly
- Use Fans to Reduce Cooling Load
- Use Window Treatments/Coverings
- Clean and/or Replace HVAC filters
- Check and Seal Duct Leakage
- Perform Proper Boiler Maintenance
- Perform Proper Water Heater Maintenance
- Plug Load Controls
- Water Conservation

See individual reports for specific EE practices by building

Clean Energy Program Portfolio



ELIGIBLE SECTORS

Commercial, Industrial, Government, Non-Profit, Institutional and Multifamily

INCENTIVE PROGRAMS

Equipment Rebates:

- SmartStart
- CTEEP
(Customer Tailored Energy Efficiency Pilot)
- Direct Install
- Large Energy Users

Whole Buildings:

- Pay for Performance

Energy Generation:

- Combined Heat and Power (CHP)

OTHER PROGRAMS

Renewable Energy Generation:

- SREC Registration Program (SRP)

* eligible programs are highlighted in yellow

Pay for Performance: Overview



- Comprehensive, whole-building approach to saving energy in existing or new facilities
- Qualification based on energy consumption, energy savings and measure types
- Customer chooses from network of pre-approved ***Participating Partners***
- Incentives paid in three installments at milestones
 - Incentives up to \$2MM per project (\$4MM entity cap/year)
 - \$1 million for electric measures
 - \$1 million for gas measures
 - Incentives up to 50% of total project cost

www.NJCleanEnergy/P4P

Pay for Performance: Process



Submittal and Approval of Application

Development and Approval of Energy Reduction Plan (ERP)

Installation of Recommended Measures

Submittal and Approval of As-Built ERP and Cx Report

Post Construction Verification of Savings

Incentive #1
fixed between \$3,750-\$25,000

Incentive #2
up to 25% project cost

Incentive #3
up to 25% project cost

1 year

Pay for Performance: Details



Incentive #1: Energy Reduction Plan			
Incentive Amount:		\$0.15	per sq ft
Minimum Incentive:		\$3,750	
Maximum Incentive:		\$25,000	or 50% of facility annual energy cost
Incentive #2: Installation of Recommended Measures			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15 % savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost
Incentive #3: Post-Construction Benchmarking Report			
Minimum Performance Target:		15%	
Electric Incentives	Base Incentive based on 15% savings:	\$0.09	per projected kWh saved
	For each % over 15% add:	\$0.005	
	Maximum Incentive:	\$0.11	
Gas Incentives	Base Incentive based on 15% savings:	\$0.90	per projected Therm saved
	For each % over 15% add:	\$0.05	
	Maximum Incentive:	\$1.25	
Incentive Cap:		25%	of total project cost

SmartStart: Overview



- Two types of incentives for high efficiency equipment installation:
 - Prescriptive
 - Custom
- Project Categories:
 - New Construction
 - Renovation
 - Remodeling
 - Equipment Replacement
- Project pre-approval required for lighting and custom measures
- Incentives up to \$500,000 per electric account & \$500,000 per natural gas account
- Specific incentives and individual applications for Lighting, HVAC, VFDs, Refrigeration, Controls and more!

www.NJCleanEnergy/SSB

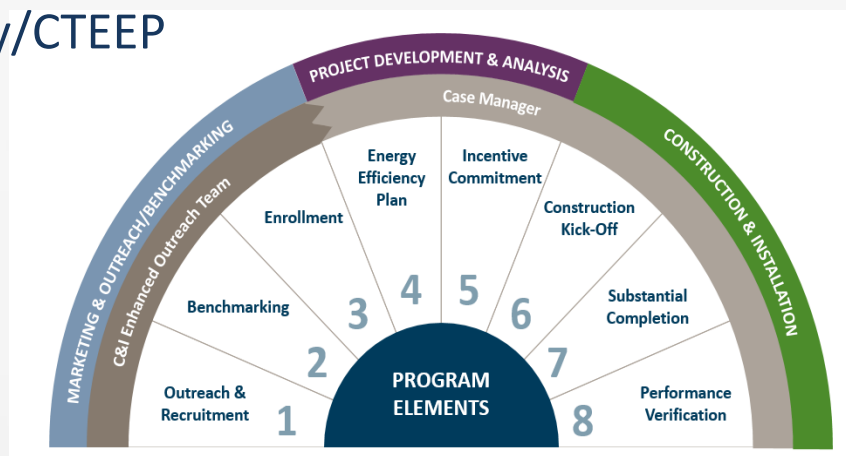
CTEEP: Overview



Customer Tailored Energy Efficiency Pilot (CTEEP)

- Provide customers with **on-site assistance** to discuss project opportunities and program incentives.
- A **single application** submission streamlines multiple prescriptive and custom measures.
- Provide **technical assistance incentives** to help offset soft costs associated with developing and planning an energy efficiency project.
- Incentives up to \$250,000 entity cap.

www.NJCleanEnergy.com/CTEEP



Recommended NJCEP Incentives per Building



	<i>Pay For Performance</i>	<i>SmartStart</i>	<i>CTEEP</i>
James J. Howard Marine Sciences Lab	X	X	X

Energy Savings Improvement Program (ESIP)

- Provides alternative financing for energy savings projects at public institutions. Value of energy savings leveraged to pay for cost of EE projects over a 15 year contract. Does not count as debt/require voter approval.
- Requires an audit as 1st step (LGEA satisfies requirement)
- ESIP participation question on LGEA application
- Program administered directly by BPU

ESIP Process

New Jersey's Clean Energy Program Interaction

Initial Energy Audit completed
for entity building(s)

Local Government Energy Audit
(LGEA) may be used to meet
this requirement

Entity issues ESIP RFP (previously
approved by BPU) and selects ESCO
or DIY approach

Investment Grade Energy Audit completed
and Energy Savings Plan (ESP)
developed

P4P Energy Reduction Plan (ERP),
Direct Install, or SmartStart application
recommended submittal time frame

Third party review of ESP

Review and approval of ESP
by Board of Public Utilities (BPU)

Entity adopts ESP,
determines guarantee



FOR MORE INFORMATION

ESIP

Mike Thulen

ESIP Coordinator

Office: 609-777-3338

Cell: 732-330-2419

ESIP@bpu.nj.gov

Questions



?



FOR MORE INFORMATION

Visit NJCleanEnergy.com

Call (866) NJSMART

Tony O'Donnell

Regional Outreach Manager

732.259.4938

aodonnell@trcsolutions.com