Town Of Truro – Central School

Climate Leader Communities

Decarbonization Roadmap Report

317 RT 6, Truro MA

Prepared on November 8th, 2024

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Executive Summary

Overview

Cape Light Compact has retained RISE to evaluate the energy consumption and a potential decarbonization pathway that includes standard efficiency, load reduction, and electrification measures for multiple buildings owned and operated by the Town of Truro, MA. The intent of this review is to summarize and benchmark the site's existing energy consumption with respect to the policies set forth by the Massachusetts Department of Energy Resources (DOER) and to create a Municipal Decarbonization Roadmap to meet 2030 and 2050 net-zero goals. These measures will help offset the site's reliance on fossil fuels, improve efficiency levels, and move toward the town's overall decarbonization goals. All costs, savings, and incentives[1] are representative of findings observed on site.

The efficiency measures listed within this report as energy conservation measures (ECMs) will decrease the site's energy consumption and support the decarbonization pathway. Further measures such as load reduction, renewables, and electrification, will also support the reduction of on-site fossil fuels and grid-based energy consumption. Incentives and tax credits may be available to help defer the cost of implementation. These tax credits and incentives are subject to change based on programs sponsored by the government, the utilities, or other parties involved in determining eligibility. The energy savings and project costs presented below are based on preliminary data and are subject to change pending confirmation of existing conditions and formal proposals being developed for the identified energy efficiency measures. The building management team is interested in pursuing electrification measures to reduce emissions and operating costs while maintaining or increasing occupant comfort within the space(s).

This report details potential decarbonization measures found at the Central School in Truro, Massachusetts.

Summary of Findings

Year	EUI (kBtu/sf/yr)	CEI (MTCO2e/sf/yr)
2022	69.1	0.0032
Current (2023 Usage)	67.3	0.0031
2030 Target	51.8	0.0021
2030 Projected	14.6	0.0000

Table 1: EUI & CEI Summary (Target Values Based on a 25% EUI and 35% CEI Reduction from 2022 Consumption Values)

[1] Further site review may be necessary to develop final incentive approval.

Measure Type	Estimated Electric Savings (kWh)	Estimate Propane Savings (Gallons)	Savings ($)	Incentive ($)	Net Cost ($)
Retro-Commissioning	9,054	923	$5,224	-	$56,986
Windows	150	748	$2,651	-	-
DHW Heat Pump	(1,736)	567	$1,601	$5,400	$7,600
Electrification – HVAC	(120,119)	17,202	$33,781	$187,500	$937,500
Electrification – Kitchen	(7,003)	698	$902	$4,000	$72,000
Solar (Additional Rooftop)	75,075	-	$16,517	$54,720	$127,680
Solar (Carport)	71,174	-	$15,658.28	$84,300	$196,700.00
TOTAL:	**17,541**	**19,215**	**$71,110**	**$335,920**	**$1,341,480**

Table 2: Measures, Savings, and Cost Summary

Efficiency Measures	Load Reduction Measures	Electrification Measures	Renewables

Facility Overview

General Facility Information

Building Use

The Truro Central School building was constructed in 1938. An addition was constructed in 1991 which added classrooms, a gymnasium, and a new cafeteria. The core use of this building is used as an elementary school. This facility operates all year round in some capacity such that it operates during typical school hours throughout the school year, after hours until 6PM for recreation activities, and during the summer for recreation and summer school.

School Year Hours: M-F, 8:00AM-6:00PM

Summer Vacation Hours: M-F, 8:00AM-3:30PM

Gross Floor Area

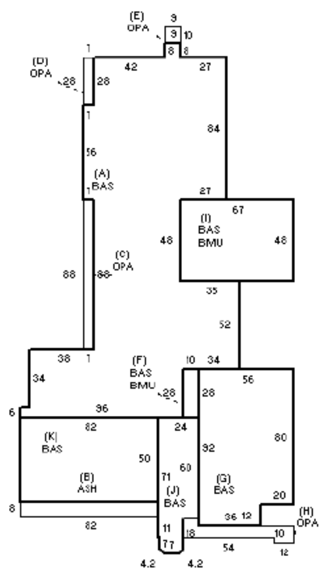
Below is a summary of the building areas which notes the size of the original structure and the size of the additional structure that was added in 1990. Available Floor Plans are not clear as to the overall square footage of the lower level and the upper level. However, the facility is built on a hill in which each of the levels are technically ground level. There is also an annex building adjacent to the school which utilizes the same electric meter and propane tanks that provide energy to the main building. The total occupied space is listed below:

Area Description	Floor Area
Full Building	33,521 Square Feet
1938 Original Structure	3,216 Square Feet
1990 Addition	27,955 Square Feet
Annex	2,350 Square Feet

Table 3: Floor Area & Square Footage

Building Overview

Original Year of Construction:	1938
New Addition Year of Construction:	1990
Number of Stories:	1
Structure Material:	Wood & Steel Frame
Building Type:	School
Conditioned Floor Area:	33,521 sq. ft.



General Conditions of Facility

This facility is in good condition and operates sufficiently for the type of occupancy. There have not been any significant upgrades to the structure other than the major 1990 addition. Some upgrades have been implemented over recent years which include the installation of mini-split heat pumps, LEDs, high efficiency condensing boilers, and a solar array. The roof is shingled and in good condition although the exact age of the roof is unknown. The foundation is concrete and there is a crawlspace between the main space and the foundation. The crawlspace has blown spray foam insulation on the walls and some fiberglass insulation below the 1st floor which is not continuous and does not create a sufficient thermal barrier. The flooring is hardwood and tile. Based on the age of construction and the insulation seen on-site, there is a sufficient thermal barrier from the walls to the ceiling and the floor. Exterior door weatherstripping is in good condition but is starting the wear in some places. There are no renewables on-site.

System	Condition	Approximate Age	Useful Life (years)	Remaining Life (years)
HVAC – Boilers	Very Good	6	20	14+
HVAC - HP Mini Splits	Okay	Varies	18	-
DHW	Fair	11	13	2
Windows	Fair	20+	-	-
Envelope	Good	Varies	-	-
Lighting Systems	Okay	3	10	7+
Renewable Energy Systems	Okay	<5	20	15+

Table 4: Facility and System Conditions

Site Summary

The Truro Central School building was built in 1938 with the newer addition built in 1990. The site serves the Truro community as a K-6 school. The site relies on electricity and propane to operate. However, to align with the local and state electrification goals there will be measures that will need to be implemented to net-zero carbon-based fuel emissions by the year 2050.

System	Description
Building Enclosure	The building is a wood framed building that was built in 1938 and reinforced with steel during a major renovation 1990. The building's envelope insulation was improved during the renovation and was brought up to MA building code during the time of design. Spray foam insulation was visible. The building envelope appears to be mostly in good condition. Although the weather-stripping for few exterior doors is starting to wear it is still sufficient. The building has operable double hung double pane windows that appears to be in good condition.
Electrical Infrastructure	There is one 1600A main switchgear in the main electrical panel provided with 208V service. Multiple downstream sub-panels are fed by the main switchgear. Sub-panels distribute power to all other downstream loads such as lighting, plug loads, HVAC, and any other electric powered systems on site. The main switchboard is also tied into the on-site backup generator with a 400A transfer switch and the solar array. Although the existing service is sized to accommodate the building's loads, it is still recommended to perform a study on the existing electrical loads before electrifying the HVAC equipment.
Carbon-Based Fuel Sources	There are (3) propane tanks on-site that are buried. Two of the tanks serve the boilers for building heat. The other tank is dedicated to the DHW, kitchen equipment, and the annex direct vent furnaces.
Lighting Systems	Fixtures identified throughout the facility were either already retrofit with linear LED lamps or were converted to new LED fixtures. The exact age of the LED fixtures and LED retrofits is unknown but based on the operating hours of the site and the hours LEDs can be used before they fail, the lighting at this facility will be sufficient for at least another 5 years.
HVAC	The HVAC system at this facility is comprised mainly of (4) Heating Ventilation Units (HV) with hydronic coils that provide heating and ventilation to the school. There's (1) RTU serving the administrators area providing cooling only with a supplemental in-duct hot water coil for heating. Multiple 24 Kbtu Ductless Mitsubishi non-cold climate heat pumps are used to provide cooling to the classrooms and the gym. Supplemental perimeter heat zone heating is provided by hydronic baseboards. The hydronic heating system has been upgraded to (2) 725 MBH Lochinvar High Efficiency condensing boilers. The boiler pumps are (2) 290W high efficiency variable speed Magna 3 Grundfos pumps. The heating circulator pumps are (2) duty/stand-by 5 HP end-suction base mounted that are controlled by two VFDs based on demand. The annex building is heated by (3)

	20,700 propane fired, direct vent, Rennai floor mounted furnace units. The building is cooled by two window ACs in the office areas. There are multiple exhausts serving the school including a ¾ HP exhaust tied to HV-3 (Kitchen & Café)
Domestic Hot Water	The domestic hot water load is provided by (1) 80 gallons and (1) 52 gas fired storage tank water heater. The annex building has (1) 30-gallon electric resistance water heater. All water heating should be upgraded to Heat Pump technology.
Building Controls	There is a central Niagara BMS system. The system has a Distech Jace and controllers. The system features a 7-day schedule and hot water (Outdoor Air) OA reset. The Gym HV features supply fan VFD and Demand Controlled Ventilation (DCV) controls.
Process Loads	The only process loads are within the kitchen. The building has a walk-in cooler and freezer with inetlliGen controls. The building also features propane-fired kitchen equipment such as (2) stove tops and an oven. In addition to a commercial sized dish washer.
Renewable Energy Systems	This site has a (140) panel solar PV system on the south-facing sloped roof of the gymnasium that is no more than 25kW based on the sizes of the inverters found on-site. There are (4) 5.3kW inverters and a revenue grade meter. The entire system is back fed into the main switchboard. Although no generation data for this solar array was provided, the usage has been estimated based on the roof height, azimuth of the panels, and the maximum total inverter kW.

Table 5: Description of Systems

Energy Use Overview

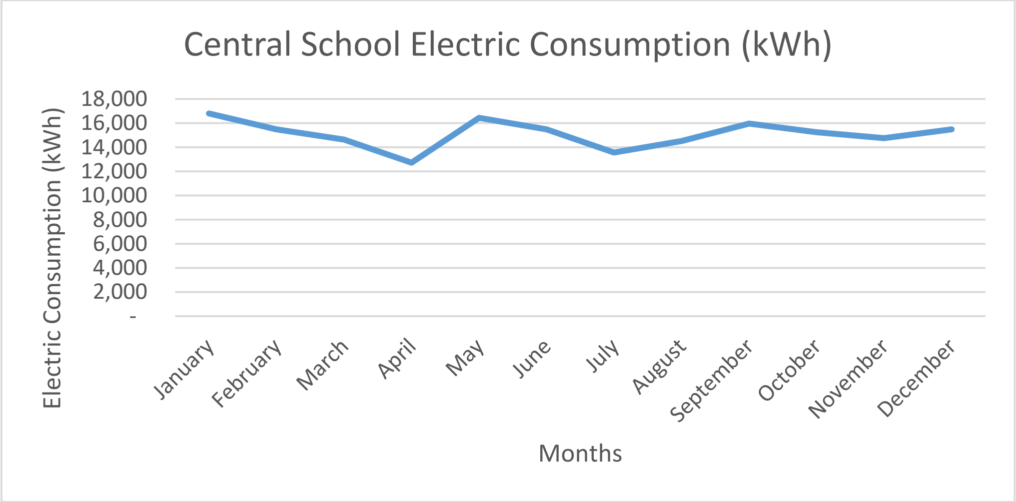
Electricity Consumption

The site has one electric account, Acct# 15763040019, that serves the building. There is one electric meter (Meter# 2442705) feeding the 1200A, 208/120V main switchboard that is back-fed by the existing solar PV system. The Solar PV system has a revenue grade meter. Exact generation and consumption data for the PV system was not provided by the town although the Solar PV section within this report estimates the generation. The main switchboard is tied into the backup generator transfer switch. The main switchboard feeds multiple downstream panels with various HVAC, lighting, and plug loads.

Normalized Electric Usage

Month	2022 Electricity Consumption (kWh)	2023 Electricity Consumption (kWh)	Normalized Electricity Consumption (kWh)
January	16,800	13,920	16,765
February	15,480	12,960	15,480
March	14,640	14,520	14,640
April	12,720	15,360	12,720
May	16,440	12,480	16,515
June	15,480	12,360	15,480
July	13,560	12,960	13,560
August	14,520	11,760	14,520
September	15,960	18,360	15,978
October	15,240	16,320	15,240
November	14,760	16,200	14,760
December	15,480	16,800	15,480
Totals:	**181,080**	**174,000**	**181,138**

Table 6: Electricity Usage (2022 Usage, 2023 Usage, & Weather Normalized to Represent an Average Year)



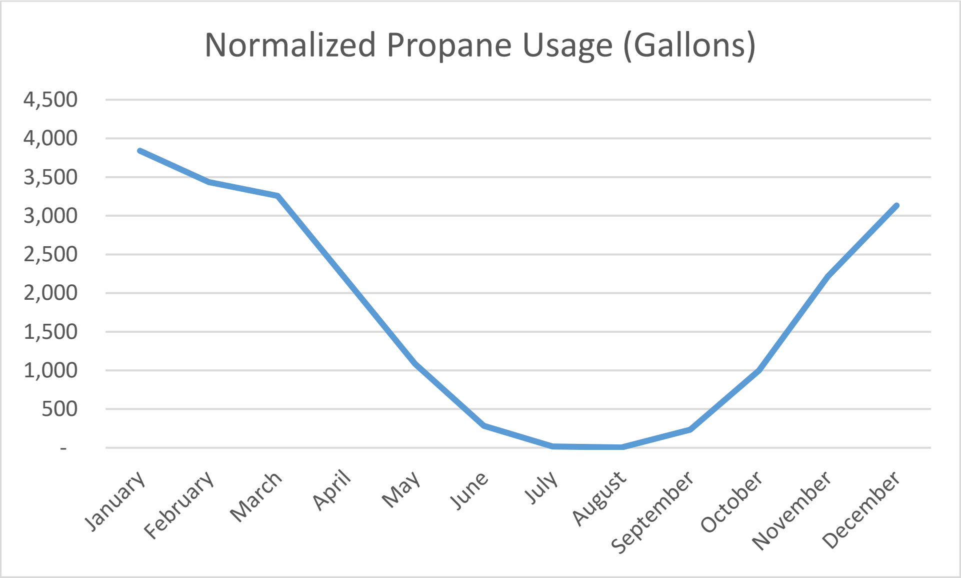
Deliverable Fuel Consumption (Propane)

This school has (3) main propane tanks. One of the tanks serves the direct vent furnace heaters in the annex, the kitchen equipment, and the domestic hot water. The other (2) tanks are dedicated to the hydronic boilers. There is a gas-fired backup generator but there is no reported usage for this unit.

Normalized Propane Usage

Month	2022 Propane Consumption (Gallons)	2023 Propane Consumption (Gallons)	Normalized Propane Consumption (Gallons)
January	3979	2,875	3,841
February	3223	3,001	3,435
March	2800	2,777	3,257
April	1762	1,679	2,174
May	979	948	1,085
June	262	256	283
July	16	-	16
August	4	8	4
September	219	47	233
October	869	582	1,001
November	1708	2,403	2,216
December	2644	3,492	3,133
Totals:	**18,467**	**18,068**	**20,679**

Table 7: Propane Usage (2022 Usage, 2023 Usage, & Weather Normalized to Represent an Average Year)



Energy Usage & Carbon Emissions Benchmarking

Energy Usage Intensity (EUI)

Energy Usage Intensity measures how much energy a facility uses with respect to its size. Based on the noted square footage and the available utility consumption data, the Truro Community Center had an EUI of approximately 69.1 kBtu/Sqft/yr in 2022 which is not typical for buildings of this size. This is above the national median reference value of 48.5 kBtu/Sqft/yr reported for “K-12 School” by Energy Star Portfolio Manager Data.

https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf

Carbon Emissions Index (CEI)

Benchmarking the carbon emissions of any facility begins with identifying the quantity and types of the fuels used to operate a facility. Organizations such as local, state, and federal governments continue to implement regulatory compliance policies requiring carbon emissions of buildings to be calculated and benchmarked against ordinance defined emission limits.

For Climate Leader Communities in the state of Massachusetts, the carbon emissions index is a measure of Metric Tons (MT) of CO2e/sf/yr which accounts for the different carbon emissions values of each unit of fuel type considered. Based on the noted square footage of the facility and the quantities used of each fuel type, this facility has a CEI of 0.0020 MTCO2e/sf/yr.

EUI & CEI Benchmarking

The Climate Leader Communities program in Massachusetts requires the use of a greenhouse gas emission baseline in Metric Tons of CO2. This report utilizes DOER’s MassEnergyInsight (MEI) data provided by Cape Light Compact. As noted in the table below, the decarbonization road map required by Climate Leaders lists that both emissions from onsite fossil fuels in buildings and the energy usage intensity must be reduced by the noted percentages in the noted years.

Suggested Emission Reduction Timeline

Targets	2027	2030	2040	2050
Reduce emissions from onsite fossil fuels in buildings	-20%	-35%	-60%	-100%
Zero emission vehicles (ZEVs) in light-duty fleet adoption	5%	20%	75%	100%
Zero emission vehicles (ZEVs) in medium-/heavy-duty fleet adoption	0%	20%	50%	100%
Energy Use Intensity reduction *(deep energy retrofits/retro commissioning)*	-20%	-25%	-25%	-30%
Total Emissions Reduction Goals (% of 2022 emissions)	**>15%**	**>35%**	**>65%**	**>95%**

https://www.mass.gov/doc/climate-leader-communities-municipal-decarbonization-roadmap/download#:~:text=The%202021%20Climate%20Law%2C%20statewide,reduction%20by%20calendar%20year%202030.

Central School - EUI				
Year	Electricity Usage (kWh)	Propane Usage (Gal)	EUI (kBtu/sf/yr)	2030 EUI Compliance
2022	181,080	18,467	69.1	-
2023	174,000	18,068	67.3	-
2030 (Projected)	163,539	0	14.6	Compliant

Table 7: EUI Benchmarking

Central School - CEI					
	Propane CO2e (MT/yr)	Total CO2e (MT/yr)	CEI (MT/sf/yr)	2030 CEI Target - 35% Reduction (MT/sf/yr)	Compliance
2022	106.37	106.37	0.0032	0.0021	-
2023	104.07	104.07	0.0031		-
2030 (Projected)	0.0	0.0	0.0000		Compliant

Table 8: CEI Benchmarking (2030 Projected Emissions are Based on the Implementation of the Proposed Measures)

Decarbonization Overview

The process of decarbonizing a building involves implementing measures to reduce or eliminate carbon dioxide (CO2) emissions associated with its operation. The goal is to make buildings more energy-efficient, use cleaner energy sources, and overall contribute to a lower carbon footprint. Here are key strategies for decarbonizing a building which includes Energy Efficiency (Foundational), Load Reduction, and Electrification measures.

The start to the decarbonization process takes a whole building approach similar to the energy efficiency process; the site is subject to an energy audit. Opportunities to upgrade the building envelope are identified and implemented. Here, envelope insulation and fenestration deficiencies are rectified to reduce heating and cooling loads. At this point, the site considers installing energy efficient equipment including but not limited to lighting, HVAC systems, appliances and any equipment specific to building use. The transition from fossil fuel-based heating systems to electric heat pumps for space heating and cooling needs to be considered at this part of the process. In concert, smart building technologies like controls based on occupancy or other parameters can be implemented to further reduce energy load.

Installing on-site renewable energy systems such as solar panels or wind turbines to generate clean, renewable electricity needs to be a part of the plan with the goals of electrification and decarbonization in mind. When the site's electric loads are reduced through energy efficiency and optimization, renewable energy systems like solar panels can be properly sized. Energy storage solutions to store excess energy generated by renewable sources, such as batteries, are part and parcel and will improve overall energy resilience.

Decarbonizing a building requires a holistic approach that considers both operational and embodied carbon, as well as the entire lifecycle of the structure. It often involves a combination of technological innovations, design considerations, and policy support to achieve meaningful reductions in carbon emissions.

Proposed Measures

Type	Measure Description	Implementation Difficulty	Cost Implication ($/$$/$$$)
Efficiency Measure 1	Retro Commissioning	Low	$$$
Load Reduction Measure 1	Windows	High	$$$
Electrification Measure 1	DHW Heat Pump	Medium	$$
Electrification Measure 2	Air-to-Water HP Hydronic Boiler Replacement	High	$$$
Electrification Measure 3	Ducted AHU HP Units	High	$$$
Electrification Measure 4	Kitchen Equipment Upgrade	High	$$$
Renewable Energy	Solar	High	$$$

Table 9: Proposed Emissions Reduction Measures

Efficiency Measures	Load Reduction Measures	Electrification Measures	Renewables

Efficiency & Load Reduction Measures:

The noted efficiency and load reduction strategies shown in the table above provide an overview of measures that can be explored before electrification options to immediately reduce the facility's consumption. Although some measures are more difficult to implement than others, any of these measures will either reduce the consumption to operate (i.e. Retro-Commissioning) or will support the HVAC system by reducing envelope losses (i.e. Windows & Weatherization) and in turn, reduce the load on the HVAC system that is required to meet desired temperature setpoints.

Retro-Commissioning (RCx):

This measure can be a stand-alone measure and would tune the existing mechanical and controls system. It is typical that RCx projects can save approximately 5% of fuel consumption (electric and fossil fuel). If a new heat pump system or mechanical HVAC system is installed this measure could still be implemented but would not carry the same savings values shown in this report.

Windows:

The existing windows are at the end of their useful lives and would be beneficial to the overall efficiency of the school to upgrade to new windows with higher thermal resistance. Doing so will lower the heat loss due to infiltration and conductive heat transfer as a result of indoor to outdoor temperature gradients. Upgrading the windows involves high cost and some level of occupant disruption. The windows can be upgraded independently from the other listed efficiency and load reduction measures. Although this measure is not a necessary upgrade to perform in order to reach the target emissions and energy reductions, it is recommended.

Electrification Measures:

HVAC Electrification:

Replacing the gas-fired equipment via electrification with Heat Pump technology will reduce the carbon footprint of the facility. Although there may be challenges with implementation due to the nature of retrofitting new equipment to an existing system, the electrification pathway coupled with the previously noted load reduction strategies will not only support the movement away from fossil fuel, but it will also support decarbonization.

There are a variety of opportunities at this facility to electrify the heating system as well as improve the efficiency of the cooling system. It is recommended to replace the existing condensing boilers with an Air-to-Water heat pump system serving the hydronic heating system and the (4) HVs so that they utilize heat pump technology.

We recommend approaching HVAC electrification in two phases. Phase 1 is converting Heating Ventilation Units 1, 2, 3, and 4 to heat pump units since they are at the end of their useful life. The units can be replaced with new ducted heat pump systems coupled with Energy Recovery Ventilator (ERV) with CO2 sensors. The ERV will allow the system to provide building code required ventilation while reducing energy and; heating and cooling peak loads. The new ducted heat pump systems will act as the primary source of heat. HV 1 & HV 2 would require an alternative upgrade solution such as an LEV kit as the market does not yet have heat pump units of that size available. LEV kits introduce the ability to connect larger AHUa to a VRF (Variable Refrigerant Flow) unit.

Phase 2 will involve replacing the boiler with an air-to-water heat pump when it reaches the end of its useful life. The hydronic system will act as a supplemental source of heat to the Phase 1 ducted heat pumps. The proposed air-to-water system will need careful engineering design by an engineering professional where the existing hydronic infrastructure and distribution will be assessed for conversion. Additionally, it is recommended that the electrical infrastructure and loads are checked by a professional electrical engineer.

Incentives: Heat Pump incentives may vary depending on the current Mass Save program at the time of install but is currently $2,500/ton for qualified units.

Kitchen Equipment Electrification:

The existing kitchen equipment utilizes propane as its fuel source. The kitchen has two large cooking ranges and an oven. To fully displace fossil fuel use at this site, the kitchen equipment will need to be upgraded to electric. It is important to note that new and electric powered kitchen equipment will significantly increase the amperage draw on the kitchen subpanel and thus infrastructure upgrades will likely be

Incentives: Mass Save currently offers incentives for Kitchen equipment but varies based on the type of equipment installed. Typical incentives for a gas oven and range combo are around $2,000/unit to $4,000/unit.

Code Triggers:

Replacing the existing systems with electrification measures will trigger the requirement for energy recovery and would therefore require the addition of an Energy Recovery Ventilator (ERV). Not only do ERVs ensure that the proper ventilation rates are met by supplying the proper amount of fresh air to occupied spaces, but they also utilize a heat exchanger allowing for enthalpy (heat energy) within the air exhausted from the space to be re-used. Doing so enables the HVAC system to operate at higher efficiencies while meeting code requirements.

Renewables

Solar Photovoltaic (PV) Array

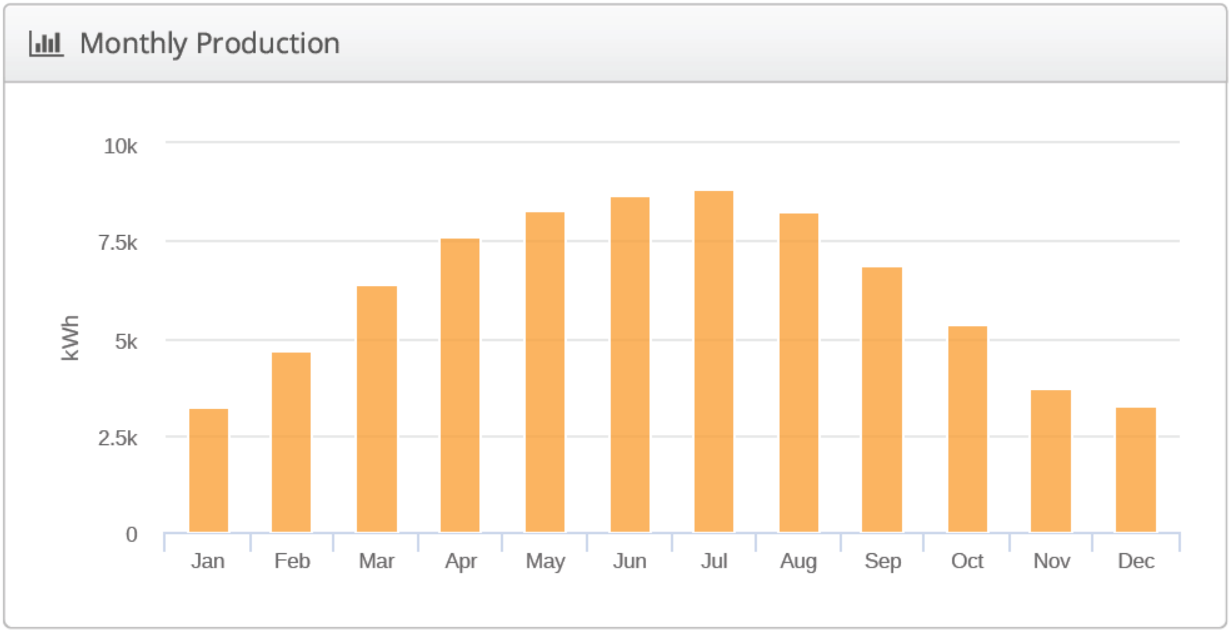
Solar Photovoltaic (PV) systems harness sunlight to generate electricity, where semiconductor materials convert sunlight into direct current (DC) electricity. These systems consist of solar panels made up of interconnected solar cells, inverters to convert DC electricity into usable alternating current (AC), mounting structures, and often include energy storage solutions such as batteries for storing excess energy. Ideally in the northern hemisphere, solar panels are south facing to receive the most direct sunlight.

This site already has a solar PV array generating electricity that is used by the facility. However, based on the energy benchmarking performed, in order to reduce both the CEI and the EUI of the facility, further reducing the grid-based energy consumption will be required. Based on the size of the existing system and the availability of roof space it is recommended to add solar to the west facing roof of the classroom area, and the south facing roof of the library section of the upper level. Furthermore, the potential to add a solar carport for additional generation capacity should be considered. Based on the modeling performed, there are two systems that can be independently looked at as seen below. The existing system produces approximately 25,000kWh annually that is used by the facility. The additional rooftop solar and carport solar systems will minimize grid-based consumption and allow the facility to reduce it's EUI even if electrifying equipment serving the building increases the overall load.

PV System Summary	
Module DC Nameplate	60.8 kW
Total Estimated Annual Production	75,075 kWh
Performance Ratio	80%
Total Estimated Cost (Est. $3/Watt Installed)	$182,400
Total Tax Credits (Est. 30% Credit, 179d)	$54,720
Total Cost Savings (Est. $0.22/kWh)	$16,516
Payback (After Tax Credits)	7.7 yrs

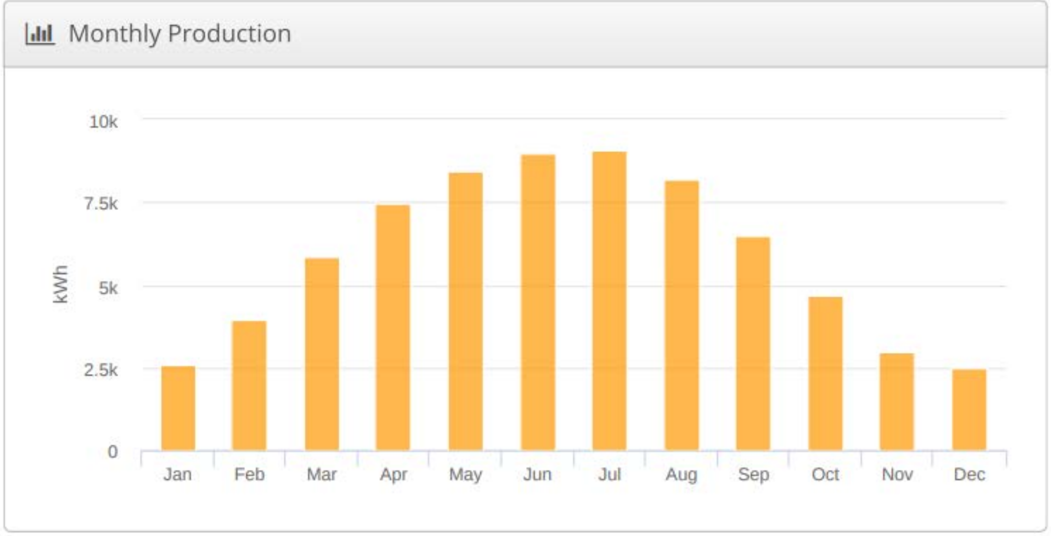
Table 7: Proposed PV System Summary – Additional Roof Mounted System


HelioScope


Monthly Production
10k
7.5k
5k
2.5k
0
kWh
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

PV System Summary	
Module DC Nameplate	56.2 kW
Total Estimated Annual Production	71,174 kWh
Performance Ratio	86%
Total Estimated Cost (Est. $5/Watt Installed)	$281,000
Total Tax Credits (Est. 30% Credit, 179d)	$84,300
Total Cost Savings (Est. $0.22/kWh)	$15,658
Payback (After Tax Credits)	12.5 yrs

Table 8: Proposed PV System Summary – Carport



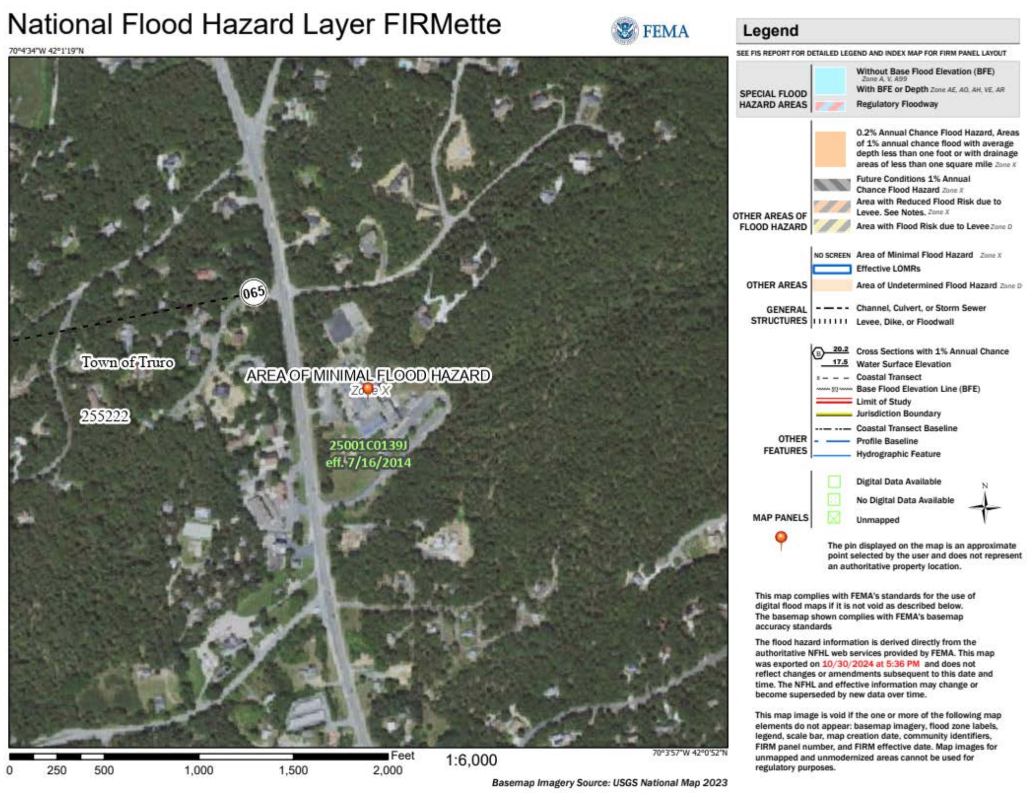
Resiliency

Backup Power Sources

In the event of a power outage or service disruption, there is no on-site backup generator to operate in brief outage periods. Further studies and development of a Solar PV system in conjunction with a battery storage system would support the facility with phasing out of fossil fuel use.

Coastal Flooding

The following depicts the National Flood Hazard FIRMette for the site location. The image below shows localized flood hazard data derived from the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRMs), which can help stakeholders identify flood risk and facilitate informed decision-making to mitigate potential risks. Based on this data, the building is in an area of minimal flood hazard. This indicates a low risk of flooding, with less than 0.2*% annual chance of flood events (500-year flood zone). Properties within this zone generally have a low probability of flood damage, and flood insurance is not typically required but may still be recommended for added protection. Incorporating flood-resistant designs and infrastructure ultimately safeguards lives and property and can reduce design costs when done in conjunction with designing for emission reduction measures.



Next Steps

It is recommended that you consider moving forward with the sustainable measures identified in this report. These measures represent a valuable opportunity to decarbonize the building while reducing energy usage and costs while leveraging available efficiency and sustainability incentives to decrease the overall implementation costs.

THREE EASY STEPS TO PARTICIPATE

- **Step #1:** Review your report with your Engineer and elect which measures to move forward with.
- **Step #2:** Sign proposal and schedule the installation of energy efficiency and microgrid improvements to ensure immediate meaningful energy savings and resiliency.
- **Step #3:** Recognize sustainable energy savings on a monthly basis!

Please be sure to contact Hossam Mahmoud, Sr. Energy Engineer at RISE engineering to take advantage of these opportunities today. I can be reached at hmahmoud@therisegroupinc.com or (774)-994-7269.