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Eversource East Hampton Service Center – SCOPING STUDY

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Executive Summary

QGM Consulting (Padraic Hagan and Austin Malik) conducted an energy efficiency scoping study at Eversource located at 22 East High Street East Hampton, CT 06424 on Wednesday May 6, 2026. QGM analyzed the buildings' electric and natural gas use as well as associated Greenhouse Gas emissions. Objectives were to identify and quantify potential Energy Efficiency Measures (EEMs) for energy reduction, and estimated Greenhouse Gas reduction potential for any corporate initiatives or targets.

Included in this report is a list of potential EEMs with savings and implementation cost estimates. Please note that the values presented in this report are meant to provide an order of magnitude and are not final values or guarantees for the determination of incentives. A measure summary is provided in the table below.

Eversource East Hampton Service Center - Scoping Study Measure Summary							
EEM#	Energy Efficiency Measure (EEM)	Estimated Annual Cost Savings	Estimated Annual Energy and GHG Savings		Potential GHG Reduction	Estimated Project Cost	Simple Payback
#	Description	$	kWh	GHG (MT CO2e)	% Site GHG	$	Years
1	Building Shell Gap Remediation	$5,000	32,000	9.3	4%	$30,000	6.0
2	New Transformers	$2,000	11,000	3.2	2%	$60,000	30.0
3	Air Balancing	$1,000	7,000	2.0	1%	$30,000	30.0
4	Powered Window Blinds	$1,000	3,000	0.9	0%	$7,500	7.5
TOTAL		$9,000	53,000	15.4	7%	$127,500	14.2

These are the measures identified during the assessment walk through; additional measures could become evident with more time on site. Simple paybacks do not include potential incentives or any non-energy benefits which may include maintenance savings, labor savings, water savings, etc. unless otherwise indicated.

General Facility Description

The East Hampton site consists of (2) buildings constructed in 1975:

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- The main building consists of offices, conference rooms, workrooms, and a warehouse
- The garage building used for fleet vehicle maintenance

An aerial view of the campus is shown below:

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Total facility footprint is ~35,000 SF across both buildings. Typical occupancy is 7:00 AM – 4:00 PM Monday through Friday, with equipment scheduled for occupancy 5:00 AM – 5:00 PM. Total site operating hours are estimated to be ~3,300 annually.

HVAC is provided through a mix of packaged rooftop units (RTUs) and split systems. HVAC equipment is controlled with a modern Building Management System (BMS) from Automated Logic.

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Lighting systems are modern LED with integrated controls and were observed to be functioning well.

Monthly Billing Analysis

Electric energy is metered but not billed at this site, with annual use provided. Monthly use was modeled based on annual use, the site's footprint, hours of operation, equipment power density and estimated utilization, and example monthly load profiles from similar sites.

$0.1428/kWh was used as an electric rate based upon Eversource Facilities' third-party electric supply costs for similar type facilities. The most recent 12 months are summarized below:

Annual Site Summary					
Energy Usage and Costs	Costs	Energy		MT CO2 Emitted	Unit Costs
	$	kWh	mmBTU		
Electric (kWh)	$ 79,000	722,790	2,466	210.3	$0.14

A monthly summary of estimated electric and thermal use is shown below:

Monthly Utility Bill Summary			
Estimated Monthly Electric			
Month	Electrical Use (kWh)	Estimated Cost ($)	Estimated Blended Rate ($/kWh)
Jan-25	87,434	$9,618	$0.11
Feb-25	69,947	$7,694	$0.11
Mar-25	52,461	$5,771	$0.11
Apr-25	34,974	$3,847	$0.11
May-25	29,145	$3,206	$0.11
Jun-25	64,118	$7,053	$0.11
Jul-25	81,605	$8,977	$0.11
Aug-25	69,947	$7,694	$0.11
Sep-25	58,290	$6,412	$0.11
Oct-25	29,145	$3,206	$0.11
Nov-25	64,118	$7,053	$0.11
Dec-25	81,605	$8,977	$0.11
TOTAL	**722,790**	**$80,000**	**$0.11**

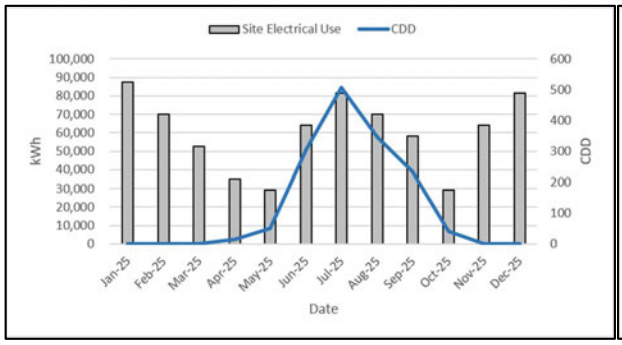
The energy use intensity (EUI) shown below is an indicator of building performance in terms of energy use (kbtu) per building square foot:

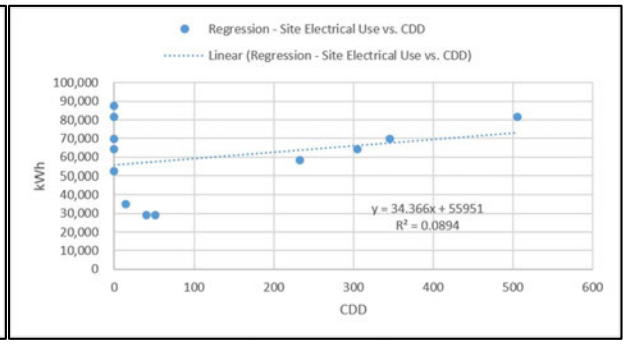
Building Energy Use Intensity (EUI)			
Utility	**Site EUI**	**Source EUI**	**Unit**
Electricity	69	194	kbtu/sf

Source-site ratio per national average, source:
https://portfoliomanager.energystar.gov/pdf/reference/Source%20Energy.pdf

The EUI metric can be used to baseline existing energy use for future comparison or to compare this building to similar buildings of this type (general office space/fitness center). Energy Star publishes median data by building type for overall comparison.

For electrical consumption, weather data for the site was utilized to help generate a monthly site profile. Below are graphs for the estimated monthly site electrical use and cooling degree days:

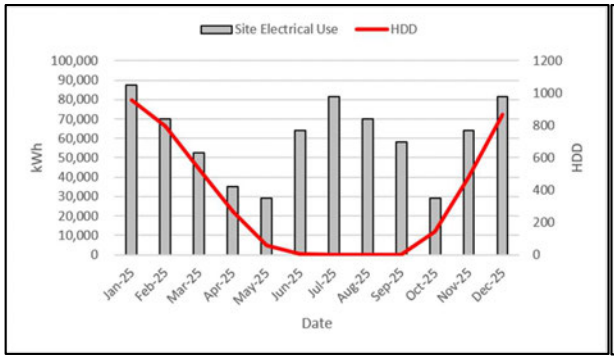


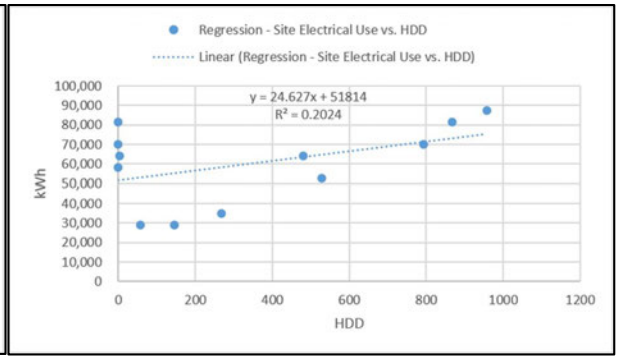


The regression above along with provided annual use was developed to help determine building monthly electrical use. While electric peaks visually coincide with CDD, electric use also peaks with HDD due to the presence of electric heating. The first pass regression does not show a statistically significant relationship to CDD, with an R^2 value of 0.089. The Department of Energy Superior Energy Performance (SEP) program qualifies that a statistical relationship exists with an R^2 value of 0.75.

Additionally, monthly electric use was compared to HDD to address site electric heating operations in the developed profile, with similar results to the cooling analysis:

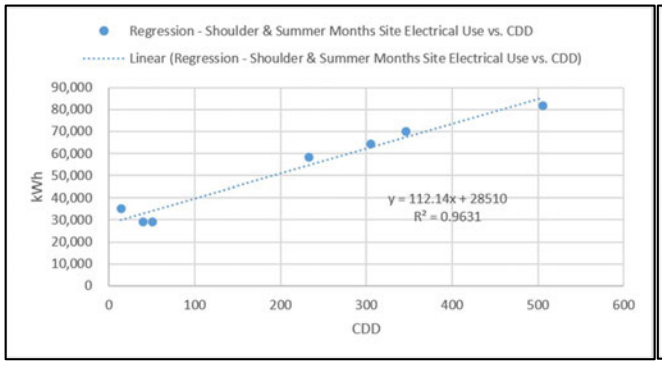
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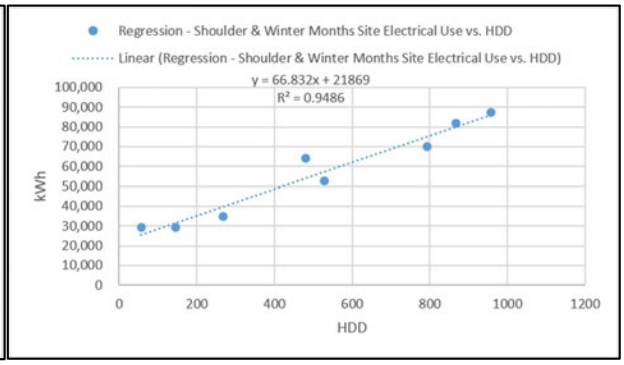




As above for CDD, visual electrical use peaks to coincide with increases in HDD; however, the regression indicates no statistical relationship. The combination of two correlations makes initial regression difficult.

As an additional aid to modeling electric use, CDD and HDD were next used with only the relevant months: summer and shoulder months for CDD and winter and shoulder months for HDD, with the resulting graphs shown below:



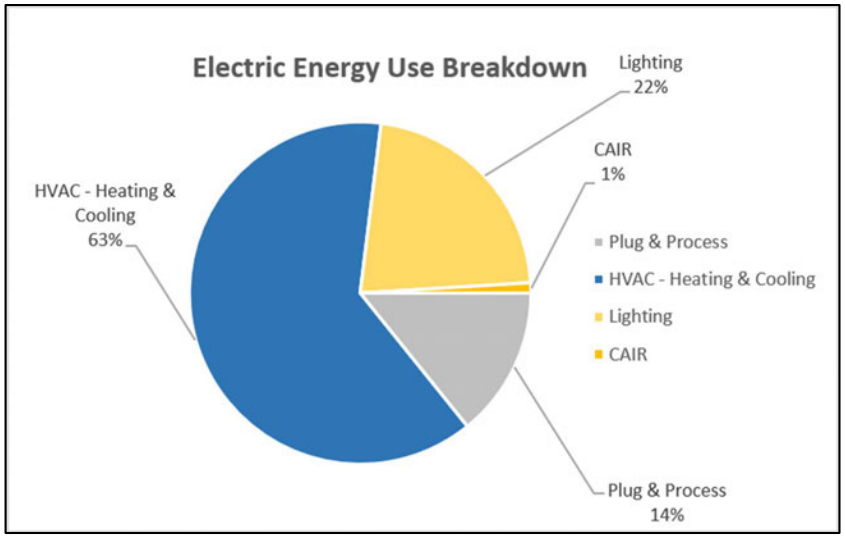


R^2 values of 0.96 for separated cooling electric use and 0.95 for separated heating electric use indicate good model fits for the estimated monthly electric use at this site.

Mechanical System Energy Use Breakdown

Electric Use

Based on the initial walk-through, the following electric energy use breakdown was developed. These results should be considered high level and were sourced from motor nameplates, typical load factors, and estimated operational hours. Actual data logging is required to confirm these assumptions.



Estimated End Use Breakdown - Electricity	
Electric End Use	**Energy Use (kWh)**
Plug & Process	103,000
HVAC - Heating & Cooling	455,000
Lighting	160,000
CAIR	7,000
TOTAL	**725,000**

Lighting Equipment

The entire site was recently retrofitted with LED lighting that appears to be in good working order. Lighting systems include integrated controls in office and common areas that are reported to be functioning well.

Equipment Inventory:

Site equipment inventories were created to catalog the current equipment. Shown below are tables for HVAC and CAIR equipment on site.

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Eversource East Hampton HVAC Equipment Inventory									
Tag	Type	Manufacturer	Model	Serial #	Cooling Ton	MBH	Fan HP	CFM	Notes
	Air Handling Unit	Trane	UCCAD08C0G0DV032	H23K95024			5		
RTU-1	Roof Top Unit	Trane	THD180G4RND16HGE	211710932D	15	123	5		
RTU-4	Packaged Heat Pump	Trane	WSC120H4RPA1FDN	183910335L	10	184	2.75		
RTU-5	Package Heat Pump	Trane	WSC072H4RNA008G	183814126L	6	123	1		
	Roof Top Unit	Trane	THC048F4RGA66AC	234310253L	4	61.416	1		High Efficiency Unit
	Roof Top Unit	Carrier	TED360B4CY2B3E	C20K06337	36	246	15		
	Cooling Tower	Trane	TTA09044DAA02BS	23404121YA	9.5				
	Split System Outdoor Unit	Mitsubishi	MUZ-FH12NA		1				
	Exhaust Fan	Dayton	2RB60	26141665				785	
	Exhaust Fan	Greenheck	GB0-141-LNDX	15608439					
EXH-5	Exhaust Fan	Centri Master	P10D4	320083					
EXH-8	Exhaust Fan	Centri Master	PR13D8-23	KX10235					
EXH-9	Exhaust Fan	Centri Master	PR14D2-2S						
EXH-10	Exhaust Fan	Centri Master	PR14D8-2S	KX10233					
	Circulation Pump						0.5		
Booster 1	Circulation Pump						3		
Booster 2	Circulation Pump						3		
	Water Heater	Rheem	ES120-36-G	A252003009					4 kW electric water heater

Eversource East Hampton Compressor Inventory							
Make	Model	HP	Estimated Capacity (CFM)	Compressor Control Type	Cooling	Voltage	Estimated Annual Run Hours
Quincy	QT-10	10	19	Constant Speed	Air Cooled	230	1,000
**Annual run hours estimated*							

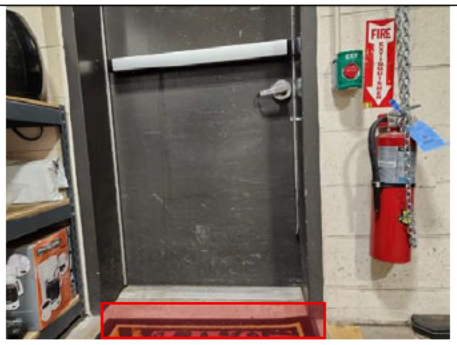
Eversource East Hampton Dryer Inventory			
Make	Model	Rated CFM	Type
Quincy	QPNC	64	Non-Cycling

Eversource East Hampton Air Receivers	
Location	Capacity (Gallon)
Integrated Storage Tank GTV	80

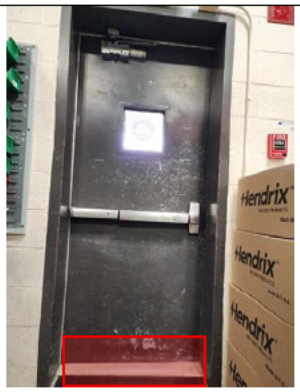
Site Energy Efficiency Measures/Recommendations

EEM – 01 – Consider Building Shell Gap Remediation

Gaps and cracks were noted at doors and windows and are likely to be present at the roof/wall building plane intersection. Insulation and air sealing are understood to be original construction and have likely degraded over time. Envelope gaps are thus allowing the infiltration/exfiltration of untempered air and increasing the load on HVAC equipment. It is recommended that the site perform a comprehensive building and thermal shell survey and remediate any identified gaps. Pictures below detail some of the observed building shell gaps:



Noticeable visible daylight – if light can get through, air can get through



Additional example of door air gap

Savings were estimated assuming improvements in thermal envelope as well as a reduction in outdoor air infiltration during both heating and cooling seasons:

- **Estimated Annual Energy Savings:** 32,000 kWh
- **Estimated Annual Cost Savings:** $5,000
- **Estimated Implementation Costs:** $30,000 including survey costs

Next Steps:

- It is recommended that the site discusses building shell survey and remediation with a specialized vendor.

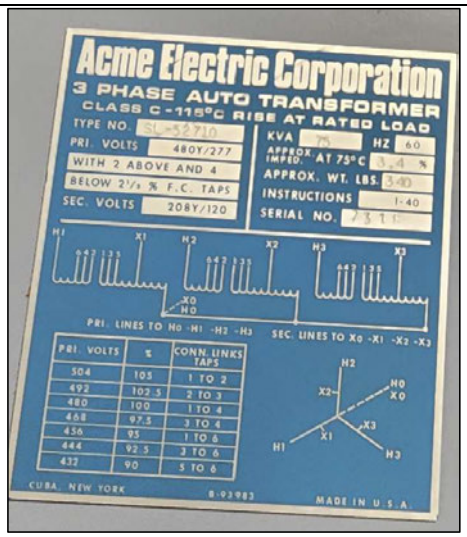
EEM – 02 – Consider New Transformers

Discussion with facility staff indicates that the site will be upgrading their electrical equipment (transfer switch(es), panels, and transformers) in the near future. Existing transformers are original construction, and efficiency of these units has likely degraded slightly over time. Photos below show detail of the existing equipment:

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Existing transformer T-1



Nameplate of same. Equipment vintage is not shown but font/labeling and wear suggest original construction

Replacement with new transformers will improve efficiency and result in some minor electrical savings along with this operational improvement.

Savings are based on an estimated current efficiency of 95% with an average load of 10%, operating 8,760 hours annually. Proposed transformer efficiency is 98.7%.

- **Estimated Annual Energy Savings:** 11,000 kWh
- **Estimated Annual Cost Savings:** $2,000
- **Estimated Implementation Costs:** $60,000

Next Steps:

- The site is encouraged to discuss potential electrical service upgrades with a trusted local vendor.

EEM – 03 – Consider HVAC Balancing

Discussion with facility staff included overcooling complaints in the main conference room. The issue is believed to lie in a controls/equipment gap and may be addressed in part by air balancing. The balancing process consists of surveying airflows against design capacities, checking/exercising dampers, and tuning fans and airflows to optimize delivery of tempered air.

Energy savings were estimated based at an overall 2% reduction in estimated annual HVAC energy use (assuming the entire main building would be rebalanced). Savings are modest for this measure but compliment an existing operational need for air balancing.

- **Estimated Annual Energy Savings:** 7,000 kWh
- **Estimated Annual Cost Savings:** $1,000
- **Estimated Implementation Costs:** $20,000

Next Steps:

- Site staff are encouraged to discuss testing and balancing with a trusted local vendor.

EEM – 04 – Consider Automated Powered Window Blinds for Sun Facing Office Areas

Discussion with facility staff noted sun complaints for high sun-facing windowed office areas at certain times of day. High solar gains can lead to overheating concerns as well as occupant complaints. Powered window blinds can be installed with autonomous controls, allowing raising or lowering based on solar intensity or a schedule, reducing both overheating and its associated cooling load as well as occupant discomfort.

Energy savings were estimated based at an overall 5% reduction in estimated annual cooling energy use. Savings are modest for this measure but complement an existing operational need. Costs are high-level estimates based on internet research and assume (1) wall.

- **Estimated Annual Energy Savings:** 3,000 kWh
- **Estimated Annual Cost Savings:** $1,000
- **Estimated Implementation Costs:** $7,500

Next Steps:

- Site staff are encouraged to investigate powered energy blind product solutions and installers.

Sustainability Considerations

Background

Site and portfolio sustainability is best guided by the framework and methodology set forth in ASHRAE Standard 228-2023 *Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance* (available for purchase here: https://www.ashrae.org/technical-resources/bookstore/ansi-ashrae-standard-228-standard-method-of-evaluating-zero-net-energy-and-zero-net-carbon-building-performance). The site is not known to have a present net-zero strategy; however, the ASHRAE standard presents a strong method to:

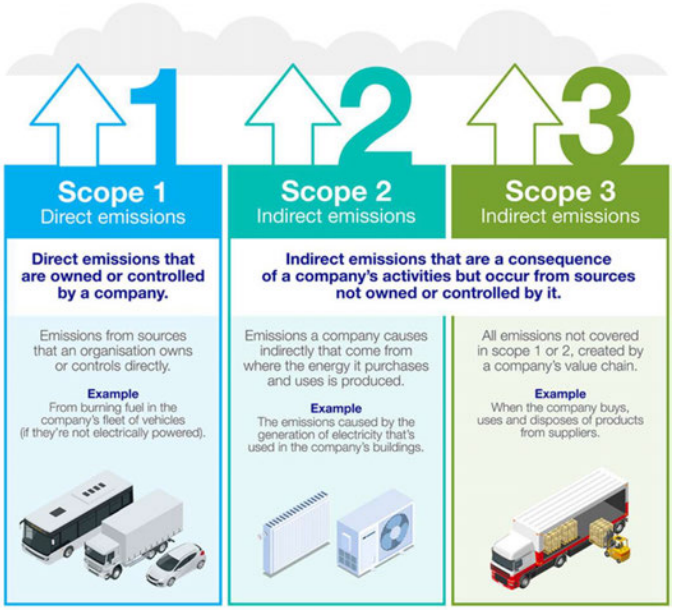
- Assess current building energy use and carbon emissions
- Establish a baseline
- Develop milestones
- Develop a plan to reach milestones

The data and information shown below are intended to help develop an understanding of where current portfolio sustainability goal aligns with current position.

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Emissions Scopes

Emissions reporting is generally addressed across three Emissions Scopes, as seen below:



An important aspect of developing a sustainability plan is the determination of which emissions scopes will be targeted for reduction. The majority of sustainability planning at the time of this report is focused on Scopes 1 and 2, although large corporations with significant supply and delivery chains have begun to address Scope 3 as well. The focus of the sustainability plan in this report is on Scope 1 and 2 emissions.

ASHRAE Standard 228-2023 *Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance*

ASHRAE 228-2023 includes the following diagram illustrating energy flows into, from, and out of a site:

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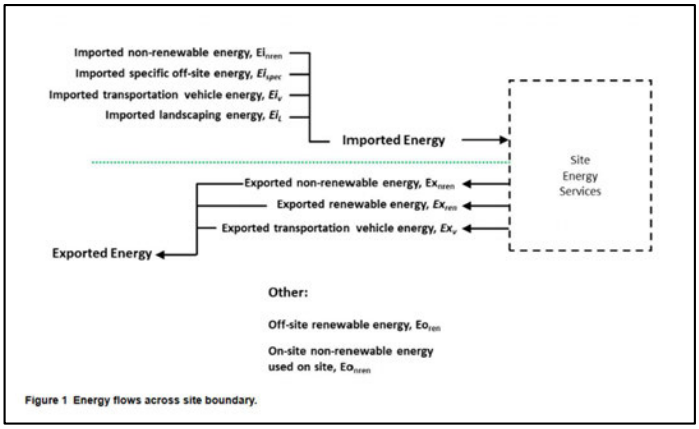
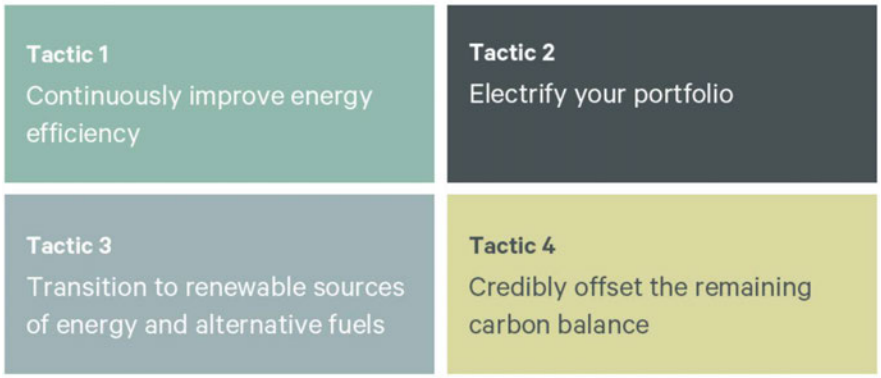


Figure 1 Energy flows across site boundary.

The difference between energy flow into a site, and energy flow out, is site net energy. The primary goal of sustainability is to reduce this net energy, and therefore, net carbon emissions associated with the site and its operation.

Sustainability Plan

With a carbon baseline established and a goal and timeframe put in place, the next step is to develop a sustainability plan to reduce site net energy and carbon. A four-step plan, as outlined in an article from CBRE (Decarbonizing Commercial Real Estate | CBRE) and shown in the chart below, is recommended:



The table below details the four-step plan with narrative descriptions and progress to date for the target site. Note that the process is by nature to be repeated for continuous improvement and consideration of new technologies:

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ESCT East Hampton Service Center Sustainability Plan			
Step	Description	Progress	Notes
1	Efficiency/Conservation	50%	In process, identifying and determining measures
2	Electrify Remaining Loads	100%	Identify and electrify remaining energy loads
3	Renewable Energy Offset	0%	Onsite or purchased renewable electricity
4	Offset Remaining Loads	0%	Purchase RECs on open market, consider portfolio offsets

Step 1: Efficiency and Conservation

Identify possible efficiency and conservation measures at the target site to reduce energy use and associated carbon. This step is in progress at this site – this study has identified several possible measures for the reduction of energy use. These measures should be considered for implementation.

Step 2: Electrify Remaining Loads

Site net energy loads not able to be reduced should be considered for electrification – complete at this all-electric site.

Step 3: Renewable Energy Offset

Offset of site electrical energy use via renewable energy: either generated onsite or through purchasing of renewable energy from sources such as community solar or solar farms as well as energy brokerage.

Step 4: Offset Remaining Loads

Lastly, the site may consider RECs and/or purchased carbon offsets to meet the remaining site net carbon. ASHRAE 228-2023 rigorously defines each of these categories and is strongly recommended as a guideline for these efforts and associated accounting.

Repeat: Steps 1 – 4

A sustainability plan should be viewed as a process of continuous improvement. The site is encouraged to consider additional opportunities and technologies as they become available and more economical.

Next Steps:

- Site to review suggestions in report (and calculation assumptions) and discuss internally if there is any interest to move forward with any of the recommended measures.
- QGM would like to have a virtual report-out to discuss this report. The goal of the meeting is to determine which, if any, of the suggested ECMs are to be acted upon in the near to intermediate future.
- For those ECMs that require input from designers, site is suggested to initiate the process sooner than later. Site is encouraged to get contractors/vendors to site to review and provide budgetary costs.