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Eversource 626 Glenbrook Rd Stamford, CT – SCOPING STUDY

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Executive Summary

QGM Consulting (Padraic Hagan and Austin Malik) conducted an energy efficiency scoping study at the Eversource Electric Service Center campus located at 626 Glenbrook Road Stamford, CT 06909 on Friday February 13, 2026. QGM analyzed the building's 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 associated 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 of savings. A measure summary is provided in the table below.

Eversource Stamford 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	CCF	GHG (MT CO2e)	% Site GHG	$	years
1	Building Shell Remediation	$5,000	12,000	2,500	17.2	7%	$ 30,000	6.0
2	Install Variable Frequency Drives on AHU 1 & 2	$1,100	8,000	0	2.3	1%	$ 10,000	9.1
3	Occupancy HVAC Controls for Conference Room	$1,500	10,200	0	3.0	1%	$ 1,000	0.7
4	Consider Air Balancing	$800	4,000	200	2.3	1%	$ 5,000	6.3
5	Install New High Efficiency Boilers	$2,700	0	2,000	11.0	5%	$ 70,000	25.9
6	Replace PTAC with ASHP (heat pumps)	$1,400	10,000	0	2.9	1%	$ 4,000	2.9
TOTAL		$12,500	44,200	4,700	38.7	16%	$120,000	9.6

These are the measures identified during the walkthrough; additional measures may 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.

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General Facility Description

The Glenbrook Road Stamford facility was originally constructed in 1962 and consists of ~57,000 SF and contains offices, conference rooms, operations centers, workrooms, and shop areas.

The main building has had recent renovations, including installing a new chiller, (2) new boilers, and (2) new hot water (HW) pumps. RTUs and AHUs are controlled with an up-to-date Automated Logic Building Management System (BMS), with occupied/unoccupied scheduling, adaptive/optimal startup, and demand control ventilation.

Additional spot heating and cooling for operations center areas is achieved with split system heat pumps, unit heaters (UHs) and packaged terminal air conditioners (PTAC) units.

Lighting systems are LED with motion/occupancy controls. Lighting controls are reported to be commissioned and working well.

Typical building occupancy is 6:00 AM – 3:30 PM, Monday through Friday with limited weekend hours for garage and shop areas, with office areas occupied until ~6:00 PM. 24-hour occupancy occurs during emergency and storm events. Occupied building operations are estimated to be 3,700 annual hours.

Monthly Billing Analysis

Historical energy data was received in the form of a natural gas bill. This information included the most recent natural gas billing rates and quantity of natural gas used, along with the previous 12 months of natural gas use. Electric use 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 and estimated utilization, and an example monthly load profile from a similar site.

The most recent 12 months are summarized below:

Most Recent 12 Month Summary						
Energy Usage and Costs	Costs	Energy			MT CO2 Emitted	Unit Costs
	$	kWh/CCF	mmBTU	% of total		
Electric (kWh)	$ 71,615	501,504	1,711	50%	123.0	$ 0.14
N. Gas (CCF)	$ 22,106	16,610	1,724	50%	91.5	$ 1.33
Total	**$ 93,720**		**3,435**	**100%**	**214.5**	

$0.1428/kWh was used as an electric rate based upon Eversource Facilities' third-party electric supply costs for similar type facilities. A monthly summary of electric and thermal use is shown below:

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Monthly Utility Bill Summary							
Electric - Estimated Monthly				Natural Gas - Billed Monthly			
Month	Electrical Use (kWh)	Estimated Cost ($)	Estimated Blended Rate ($/kWh)	Month	Natural Gas Use (CCF)	Total Cost ($)	Blended Rate ($/CCF)
Feb-25	33,742	$4,818	$0.14	Feb-25	3,010	$4,006	$1.33
Mar-25	35,591	$5,082	$0.14	Mar-25	2,300	$3,061	$1.33
Apr-25	39,519	$5,643	$0.14	Apr-25	1,400	$1,863	$1.33
May-25	42,062	$6,006	$0.14	May-25	700	$932	$1.33
Jun-25	52,693	$7,525	$0.14	Jun-25	150	$200	$1.33
Jul-25	53,386	$7,624	$0.14	Jul-25	30	$40	$1.33
Aug-25	56,853	$8,119	$0.14	Aug-25	70	$93	$1.33
Sep-25	52,693	$7,525	$0.14	Sep-25	180	$240	$1.33
Oct-25	43,910	$6,270	$0.14	Oct-25	1,120	$1,491	$1.33
Nov-25	33,048	$4,719	$0.14	Nov-25	1,590	$2,116	$1.33
Dec-25	30,506	$4,356	$0.14	Dec-25	2,550	$3,394	$1.33
Jan-26	27,502	$3,927	$0.14	Jan-26	3,510	$4,671	$1.33
TOTAL	**501,504**	**$71,615**	**$0.14**	**TOTAL**	**16,610**	**$22,106**	$1.33

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

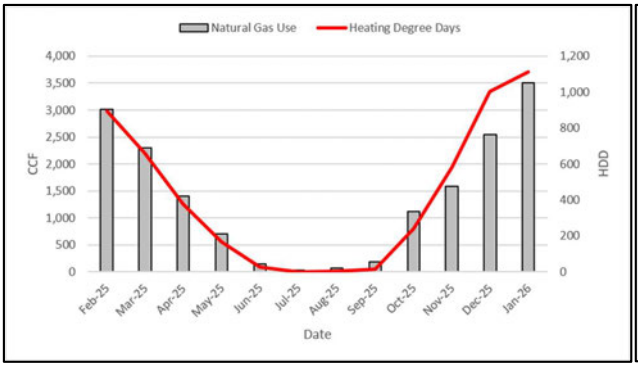
Building Energy Use Intensity (EUI)			
Utility	Site EUI	Source EUI	Unit
Natural Gas	32	33	kbtu/sf
Electricity	32	88	kbtu/sf
TOTAL	**63**	**122**	**kbtu/sf**

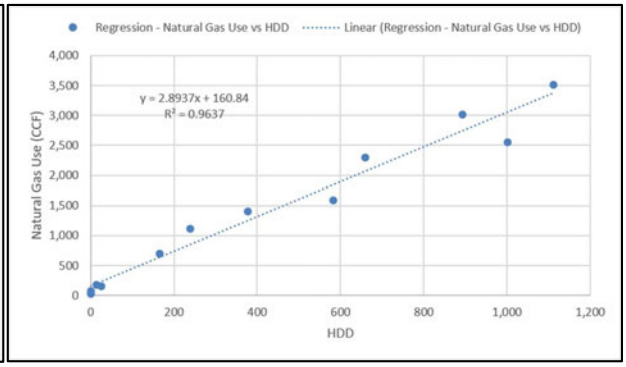
Source-site ratio per national average, source:
https://portfoliomanager.energystar.gov/pdf/reference/Source%20Energy.pdf

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.

Additionally, data was analyzed to understand the impact of weather on the site and natural gas use (actual metered use) and heating degree days (HDD), as seen below:

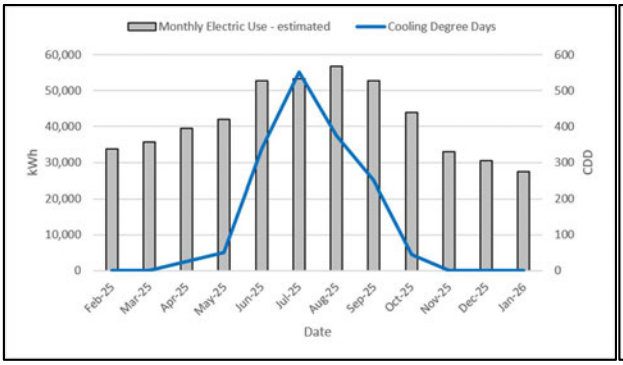
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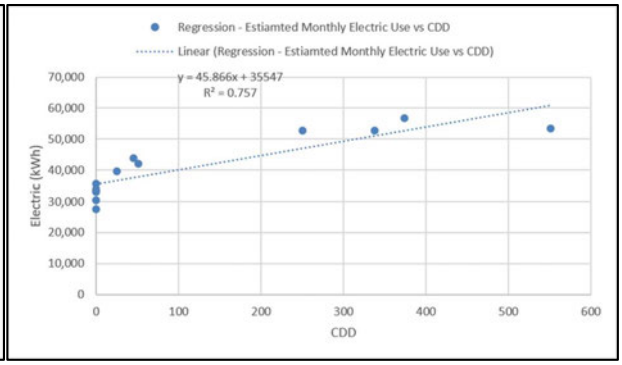




The first graph indicates a visual relationship between natural gas use and HDD, suggesting a majority of the natural gas is used for building heating. Minor summer month natural gas use can likely be attributed to service hot water. The regression further shows that site natural gas use has a strong, statistically significant relationship to HDD, with an R^2 value of 0.96.

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





The regression above was developed to help model site monthly electrical use. The R^2 regression shows a statistically significant relationship to CDD, with an R^2 value of 0.76 as the site's usage is driven by the outside weather. The Department of Energy Superior Energy Performance (SEP) program qualifies that a statistical relationship exists with an R^2 value of 0.75, indicating this is a strong statistical model fit.

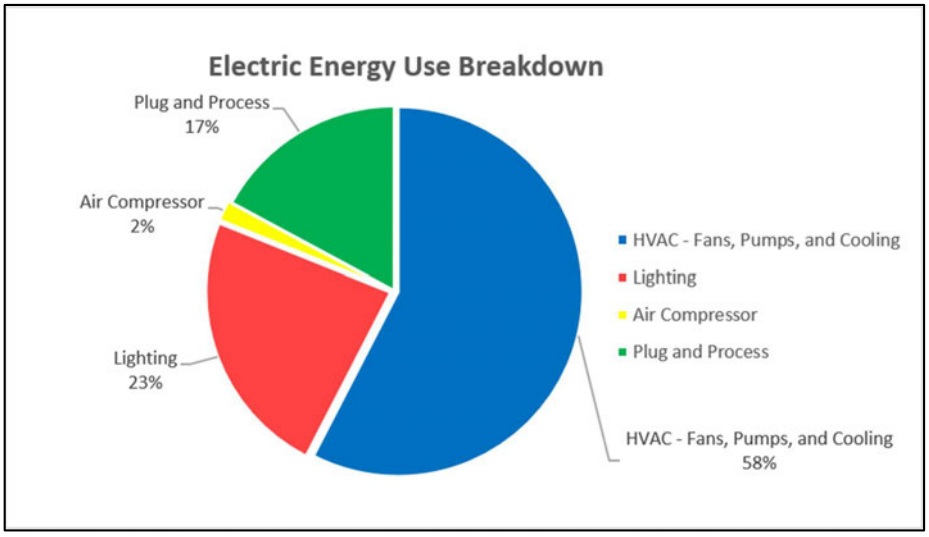
Mechanical System Energy Use Breakdown

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.

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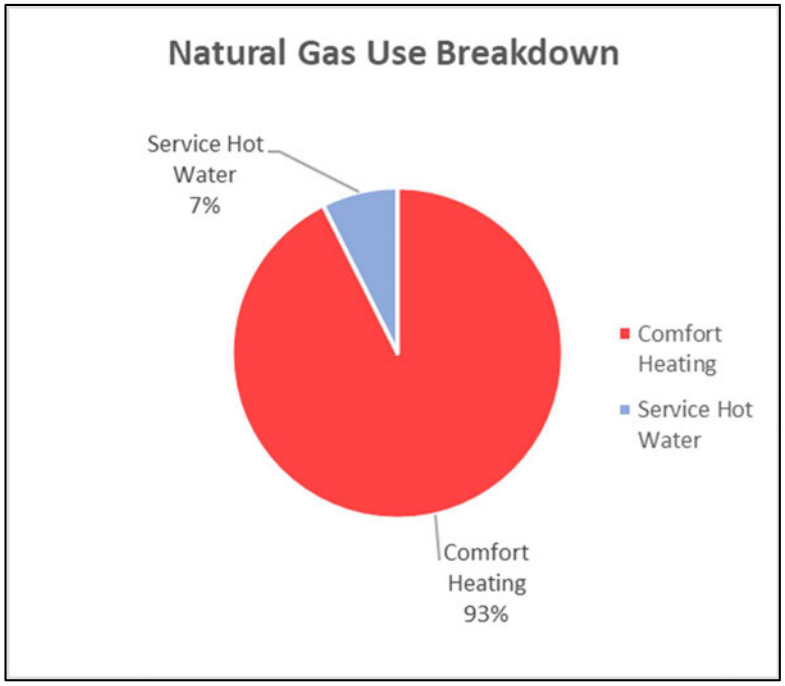
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Estimated End Use Breakdown - Electricity	
Electric End Use	**Energy Use (kWh)**
HVAC - Fans, Pumps, and Cooling	289,000
Lighting	118,000
Air Compressor	9,000
Plug and Process	86,000
TOTAL	**502,000**

Natural Gas Use

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



Estimated End Use Breakdown - Natural Gas	
Natural Gas End Use	**Energy Use (CCF)**
Comfort Heating	15,000
Service Hot Water	1,200
TOTAL	**16,200**

Equipment Inventory:

Site equipment was surveyed and inventories were created to better understand the current equipment, as shown below.

HVAC Equipment:

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Eversource Stamford Service Center HVAC Equipment Inventory								
Tag	**Type**	**Manufacturer**	**Model**	**Cooling Ton**	**MBH**	**Total Fan HP**	**Rated CFM**	**Notes**
AHU 1	Air Handling Unit	Trane	CSAA006UAL00			2	3,000	Serves the offices
AHU 2	Air Handling Unit	Trane	CSAA010UAL00			3	5,000	Serves locker rooms
AHU 3	Air Handling Unit	Trane	CSAA030UAL00			10	15,000	
AHU 6A	Air Handling Unit	Trane	CCDBG3ABOC			0.75	1,500	
RTU	Packaged Roof Top Unit- Natural Gas	Trane	YSC090A4EHA001	7.5	134	3.1	2,475	
RTU-2	Packaged Roof Top Unit- Natural Gas	Trane	YHC048E4RZA2F	4	96	0.75	1,200	
RTU-3	Packaged Roof Top Unit- Natural Gas	Trane	YHC074F4RHA27H	6	122	3.5	1,860	
RTU-4	Packaged Roof Top Unit- Natural Gas	Trane	YHC060F4RHA2EC	5	104	1.4	2,000	
RTU-5	Packaged Roof Top Unit- Natural Gas	Trane	OABD030A4-C1B100AB	2.5	60	6	1,100	
RTU-6	Packaged Roof Top Unit- Natural Gas	Trane	YHC074F4RHA27H	6	122	3.5	1,860	
	Wall Unit	Mitsubishi	PKA-A30KA7					
	Condenser	Mitsubishi	PUZ-A30NHA7					
	Condenser	Mitsubishi	PUY-A30NHA7					
	Condenser	Mitsubishi	SUZ-KA12NAHZ			0.1		
	Condenser	Mitsubishi	PUZ-HA24NHA1					
	Condenser	Mitsubishi	PUY-A12NKA7					
EXH-4	Exhaust Fan	Greenheck						
	Exhaust Fan	Greenheck	CUE-090-E-1-19-X			0.1	903	
	Exhaust Fan							
EXH-5	Exhaust Fan							
B-1	HW Boiler				850			
B-2	HW Boiler				850			

Eversource Stamford Service Center Unit Heaters		
Location	Type	Quantity
Service Garage	Fan Coil	2
Service Garage	Electric	2
Warehouse	Fan Coil	3
Locker Room	Fan Coil	2

Compressed Air Equipment:

Eversource Stamford Compressor Inventory							
Make	Model	HP	Estimated Capacity (CFM)	Compressor Control Type	Cooling	Voltage	Estimated Annual Run Hours
Quincy	QTH-15-120AM	15	51	Recip	Air Cooled	460	1,000
**Annual run hours estimated*							

Eversource Stamford Dryer Inventory			
Make	Model	Rated CFM	Type
Quincy	QRHT-50	50	Non-Cycling

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Eversource Stamford Air Receivers	
Location	Capacity (Gallon)
Integrated with Compressor	150

Chiller Summary:

Eversource Stamford Chiller Summary			
Manufacturer	**Model**	**Cooling Ton**	**Volts**
Trane	CGAM 080F	80	460

Best Practices

The Stamford Service Center facility was observed during the assessment walkthrough to be following several energy Best Practices:

- Use of LED lighting in most/all areas with aggressive controls
- Variable Frequency Drive (VFD) control of HW and CHW Pumps
- VFD control of some AHU fans
- Scheduled nighttime/weekend temperature setback in most/all areas
- Demand Control Ventilation and Adaptive/Optimal Startup HVAC control strategies in place

Recent Energy Efficiency Projects Overview

The campus has completed several energy efficiency projects in recent years. Listed below are some of the various completed energy projects:

- New Chiller
- New HW and CHW pumps with VFDs

With the projects described above, QGM Consulting was challenged to find additional energy efficiency measures (EEMs) and sustainability projects. Potential recommendations are outlined below, some of which may require some additional analysis and monitoring.

Site Energy Efficiency Measures/Recommendations

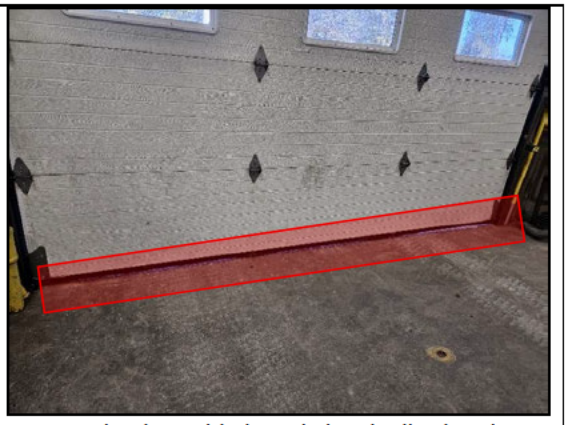
EEM – 01 – Consider Building Shell Gap Remediation

Gaps and cracks were noted at door and window seals and are suspected at roof/wall transitions in multiple areas throughout the facility. 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.

Discussion with site personnel indicates that there is a current or near future project to replace windows and evaluate doors. It is recommended that along with these improvements, 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:



Exterior door with degraded seals allowing air infiltration



Exterior door with degraded seals allowing air infiltration

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:** 12,000 kWh and 2,500 CCF
- **Estimated Annual Cost Savings:** $5,000
- **Estimated Implementation Costs:** $30,000 including survey costs

Next Steps:

- Facility staff are encouraged to continue with the planned window/door projects and discuss building shell survey and remediation with a specialized vendor.

EEM – 02 – Consider Installing VFDs on AHU-1 & AHU-2

AHU-3 was observed to utilize a VFD to vary the fans' motor output depending on actual space need as determined by an associate differential pressure sensor.

AHU-1 and AHU-2 do not utilize VFDs, with constant air flow and fan motor speed regardless of actual space demand. It is recommended that the site install VFDs on AHU-1 and AHU-2 to modulate fan airflow and motor speed thereby reducing AHU energy use. Additional equipment conversion would be required downstream of the AHUs to ensure airflow could be varied.

Savings assume an average 25% motor demand reduction with VFDs installed:

- **Estimated Annual Energy Savings:** 8,000 kWh
- **Estimated Annual Cost Savings:** $1,100

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- **Estimated Implementation Costs: $10,000**

Next Steps:

- Spot readings are recommended to confirm equipment loading assumptions and schedules.
- The site is encouraged to discuss potential control upgrades with a reputable mechanical/controls vendor.

EEM – 03 – Control Main Conference Room Heating and Cooling via Occupancy

An innovative control strategy noted in use at other Eversource sites is the control of auditorium and conference room HVAC equipment based on an occupancy schedule. These spaces see highly variable occupancy, particularly post-COVID. Setting these large and intermittently occupied spaces to unoccupied setpoints for significant periods of non-use (much as many sites do with lighting) reduces the associated energy expenditure, while still allowing a quick recovery for occupancy.

An area of potential opportunity at the Stamford facility is the executive conference room and office suite. The example below summarizes a potential before and after schedule – assuming average consistent use in the 10 AM – 2 PM period of weekdays:

HVAC Schedule - Existing and Proposed with Occupancy Control																			
Existing Schedule								Proposed Schedule - Estimated Reduced Hours											
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
12:00 AM								12:00 AM							
1:00 AM								1:00 AM							
2:00 AM								2:00 AM							
3:00 AM								3:00 AM							
4:00 AM								4:00 AM							
5:00 AM		X	X	X	X	X		5:00 AM							
6:00 AM		X	X	X	X	X		6:00 AM							
7:00 AM		X	X	X	X	X		7:00 AM							
8:00 AM		X	X	X	X	X		8:00 AM							
9:00 AM		X	X	X	X	X		9:00 AM							
10:00 AM		X	X	X	X	X		10:00 AM		X	X	X	X	X	
11:00 AM		X	X	X	X	X		11:00 AM		X	X	X	X	X	
12:00 PM		X	X	X	X	X		12:00 PM		X	X	X	X	X	
1:00 PM		X	X	X	X	X		1:00 PM		X	X	X	X	X	
2:00 PM		X	X	X	X	X		2:00 PM		X	X	X	X	X	
3:00 PM		X	X	X	X	X		3:00 PM							
4:00 PM		X	X	X	X	X		4:00 PM							
5:00 PM		X	X	X	X	X		5:00 PM							
6:00 PM		X	X	X	X	X		6:00 PM							
7:00 PM								7:00 PM							
8:00 PM								8:00 PM							
9:00 PM								9:00 PM							
10:00 PM								10:00 PM							
11:00 PM								11:00 PM							
Occ Hrs	0	14	14	14	14	14	0	Occ Hrs	0	5	5	5	5	5	0
UnOcc Hrs	24	10	10	10	10	10	24	UnOcc Hrs	24	19	19	19	19	19	24

Implementation of this strategy may be possible via programming within the existing controls or require the installation of new thermostats or local controls and occupancy sensors. The table below shows estimated costs and savings from the implementation of this type of control. Note that the AHU serving this space utilizes electric heat.

- **Estimated Annual Energy Savings: 10,200 kWh**
- **Estimated Annual Cost Savings: $1,500**
- **Estimated Implementation Costs: $1,000**

Next Steps:

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- Review of BMS is recommended to confirm equipment loading assumptions and schedules.
- The site is encouraged to discuss potential control upgrades with an ALC representative or internal resources.

EEM – 04 – Consider HVAC Balancing

Discussion with facility personnel regarding similar sites highlights the need for HVAC equipment 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 as an overall 2% reduction in estimated annual HVAC energy use. Savings are modest for this measure but compliment an existing operational need for air balancing. Costs assume use of inhouse personnel to effect changes.

- **Estimated Annual Energy Savings:** 4,000 kWh and 200 CCF
- **Estimated Annual Cost Savings:** $800
- **Estimated Implementation Costs:** $5,000

Next Steps:
- Equipment spot reads are recommended to confirm equipment loading assumptions and schedules.
- The site is encouraged to discuss potential testing and balancing with a reputable local vendor.

EEM – 05 – Replace Current Hydronic Boilers with High Efficiency Hydronic Boilers

Currently (2) hydronic boilers are utilized on site to provide hot water heating. The current boilers are slightly aged and are standard efficiency models. It is highly recommended that the site consider installing high efficiency hydronic boilers to utilize less natural gas to heat the site.

Savings estimate a current boiler efficiency of 80%, while the proposed average boiler efficiency is 94% based on manufacturer's data and experience with these types of systems.

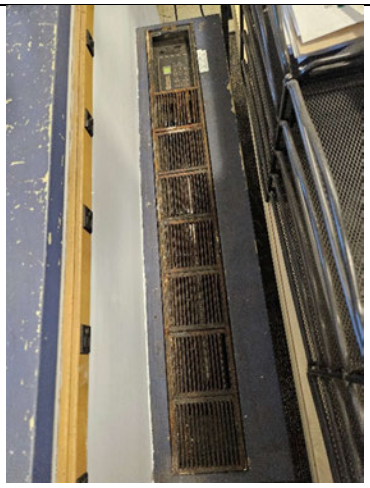
- **Estimated Annual Energy Savings:** 2,000 CCF
- **Estimated Annual Cost Savings:** $2,700
- **Estimated Implementation Costs:** $70,000

Next Steps:
- Facility staff should review equipment selection with a mechanical vendor or local supplier if planning to self-install.

EEM – 06 – Replace Packaged Terminal Air Conditioner with Air Source Heat Pump

A total of (4) aged package terminal air conditioner (PTAC) units were observed while on site. Below are photos of a few of the PTAC units:

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 PTAC mounted on exterior wall	 Example of aged PTAC unit

PTACs are utilized in multiple perimeter areas. It is recommended to consider replacement of these PTAC units with high-efficiency Air Source Heat Pumps (ASHPs) to replace the aged, low-efficiency equipment and any electric resistance heating associated with these units.

On review, several of these units were determined to not be in use. It is recommended that these units be removed or disabled if possible to prevent unneeded use. Savings are estimated assuming replacement of existing average equipment efficiencies:

- 1.5 kW/ton cooling (COP of 2.3)
- 99% efficiency heating (COP of 0.99)

With new higher efficiency equipment:

- 1.2 kW/ton cooling (COP of 2.9)
- Heat pump heating COP of 3.0

Estimated savings are shown below:

- **Estimated Annual Energy Savings:** **10,000 kWh**
- **Estimated Annual Cost Savings:** **$1,400**
- **Estimated Implementation Costs:** **$4,000**

Next Steps:

- Facility staff should review equipment selection with a mechanical vendor or local supplier if planning to install.

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Sustainability Considerations

Background

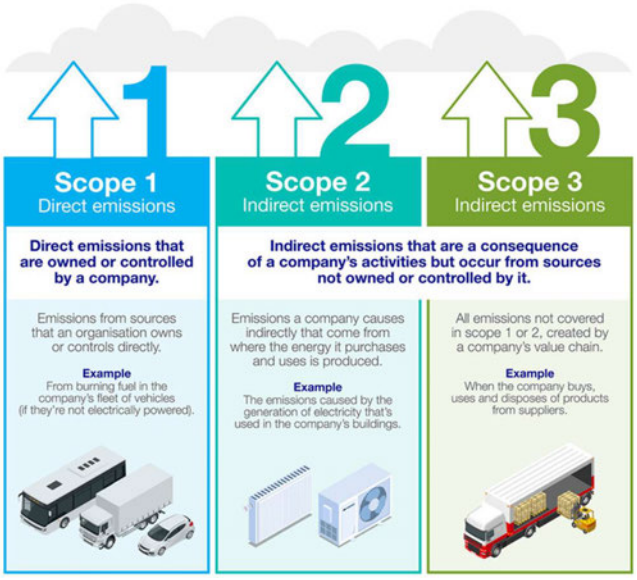
Site and portfolio sustainability is best guided by the framework and methodology set forth in ASHRAE Standard 228-2023 *Standard Method of Evaluating Zero Net Energy and Zero Net Carbon Building Performance* (available for purchase here: https://www.ashrae.org/technical-resources/bookstore/ansi-ashrae-standard-228-standard-method-of-evaluating-zero-net-energy-and-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.

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

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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:

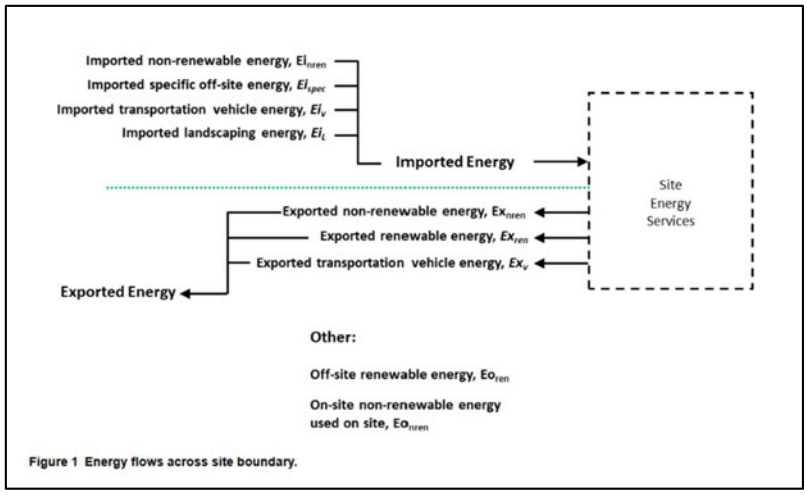


Figure 1 Energy flows across site boundary.

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:

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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:

Eversource Stamford Service Center Sustainability Plan			
Step	Description	Progress	Notes
1	Efficiency/Conservation	50%	In process, identifying and determining measures
2	Electrify Remaining Loads	0%	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.

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 assumptions) and discuss internally if any interest to move forward with any of the recommended opportunities
- Most attractive measures in terms of energy savings, operational efficiencies, and potential utility incentives include:
  - BMS control strategies
  - Installation of additional AHU fan VFDs
  - PTAC equipment replacement with ASHPs
  - Boiler replacement
- 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.