NEW BUILDINGS & MAJOR RENOVATIONS

2024 Memorandum of Understanding for Path 1: Zero Carbon & Low EUI Buildings (K-12 School)

Welcome to the Path 1, Zero Carbon & Low EUI Buildings Program! This Program encourages customers to pursue fully decarbonized building solutions with a sustained focus on low Site Energy Use Intensity (EUI) from early design all the way through post occupancy. Path 1 is a performance-based participation pathway, such that final customer incentives are based on the building's post occupancy site EUI. While the Program is a zero-carbon incentive offer, customers are not required to install solar or purchase renewable energy offsets to participate.

Definition: Site EUI is a measure of a building's gross annual site energy consumption relative to its gross square footage. The units are kBtu/sf/year. For this Program, gross square footage excludes parking garages and penthouse square footage, as these are not typically conditioned spaces.[1] The Program's EUI calculation does not include onsite renewables.

Project Eligibility:

1. To participate, customers must engage Mass Save Sponsors[2] before the end of their project's Design Development phase, but preferably during their project's Feasibility or Conceptual Design phases.

2. **Electrification requirements**

   New buildings and additions may not have a gas meter or include any new fossil fuel equipment for any purpose unless meeting the following exceptions:
   (A)Diesel or propane emergency generation, or
   (B)In emergency facilities, natural gas may be used for emergency generation in lieu of diesel or propane, or
   (C)Propane may be used for lab purposes.

   Major renovations may not have a gas meter or include any new fossil fuel equipment for any purpose unless meeting the following exceptions:
   (A)Diesel or propane emergency generation, or
   (B)In emergency facilities, natural gas may be used for emergency generation in lieu of diesel or propane, or
   (C) In any major renovation where the building had natural gas service prior to the major renovation, natural gas may be used for emergency generation.
   (D)Propane may be used for lab purposes.

   "Emergency facilities" are defined as hospitals, police and fire stations, facilities identified as supporting Critical Transportation Needs or Emergency Shelters in a state or local Comprehensive Emergency Management Plan, acute/post-acute medical facilities with life sustaining equipment, water/sewer pump stations, and emergency communication centers that serve a life safety function (for example, 911 Centers).

   "Emergency generation" is defined as equipment that is available to provide power to all or portions of a building in the event of a power outage.

3. Projects must be whole buildings and must have a minimum of 10,000 square feet of comfort conditioned (heated and cooled) space.

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1. EUI calculations will exclude exterior lighting loads (parking garages/lots) and associated loads in garage space (i.e., exhaust fans). If there are enclosed spaces in garages with equipment loads (i.e., unit heaters in elevators lobbies), these loads and square footages will be included in the building's EUI calculation.
2. The Mass Save Sponsors are National Grid, Eversource, Unitil, Cape Light Compact, Liberty Utilities, and Berkshire Gas. To determine your Mass Save Sponsors, please visit https://www.masssave.com/en/saving/business-rebates.

4. Customers must anticipate year-round occupancy. For K-12 schools, this requirement means a minimum of 4 weeks of anticipated summer use in classroom areas.

5. Building must be separately metered (not on same meters as other buildings).

6. Projects must be new buildings, building additions, or full gut renovations. Gut renovations would qualify for this Program if the scope is such that occupancy is not possible during construction and where scope includes (A) complete removal/replacement/redesign of the entire HVAC system including distribution AND (B) complete redesign/replacement of all lighting (there might be very limited spaces where lighting could remain), AND (C) scope related to one or more of the following: DHW heating equipment, building envelope or process equipment. Alternatively, gut renovations qualify for this program if they also qualify for MSBA support through MSBA's Core Program.

7. The project may not include Combined Heat and Power (CHP). Projects connected to campus loops that are served by natural gas fed central plant equipment and projects connected to district steam loops (MATEP or Vicinity) are not eligible for Path 1.

8. Participants must be customers of one of the Mass Save Sponsors. Note that projects located in the service territory of a municipal electric utility are not eligible for this path.

Key Customer Commitments:

1. To participate, project teams must be willing to set a site EUI target within Tier 1 or Tier 2 per Table 1 below. Note that Tier 2 is only relevant for high school projects.

Table 1: EUI Targets & Incentives

K-12 Schools	Site EUI Range	Incentives			
		Payable at end of Construction		Payable at end of 1 yr. post occupancy	
		Construction Incentive $/sf	Heat Pump Adder*	Post Occ. Inc. $/sf	Adder for getting under ZNE EUI target
Tier 2 (high schools only)	26-29	$1.50	Air Source Heat Pumps: $800/ton Variable Refrigerant Flow (VRF): $1200/ton Ground Source Heat Pumps: $4500/ton	$ 1.50	Not applicable
Tier 1 - Net Zero Level (all Schools)	25 or less	$2.00			$0.05/ EUI point reduction/sf

* Equipment must be used as a primary heating source to qualify. The heat pump adder is only available for equipment that transfers heat from a source outside of the building (i.e. outside air or a ground loop) for space heating purposes. In order to maximize the benefits of electrification designs, supplemental electric resistance must be limited. Projects not achieving an average annual heating system performance greater than a COP of 2.0 will be considered on a case- by-case basis.
The incentive calculation is based upon the nominal heating capacity (btu/h) at AHRI or ISO conditions divided by 12,000.
• Air Source Heat Pumps (ASHP): heating capacity at AHRI standard rating conditions
Air-to-Air Systems: AHRI 340/360 - OA 47°F db
Air-to-Water Systems: AHRI 550/590 - OA 17°F db, LWT 120°F
• Variable Refrigerant Flow – Air Source (VRF): heating capacity at AHRI 1230 standard rating conditions
Air-to-Refrigerant Systems: OA 47°F db

• Ground Source Heat Pumps: heating capacity at ISO 13256 or AHRI 1230 (if VRF) standard rating conditions
Ground Loop Heat Pump (GLHP): 32°F liquid entering heat exchanger
Ground Water Heat Pump (GWHP): 50°F liquid entering heat exchanger
Incentives for ground source heat pump projects will be based upon the lesser value of the peak heating load capacity of the heat pump systems or the peak heating load capacity of the ground loop/well.

2. Agree to cost share the services of the Mass Save zero carbon/low EUI expert. If a project goes on hold for longer than six months, all outstanding technical assistance fees will be invoiced for time spent to date.

3. Continuously monitor the predicted EUI of the project with iterative energy modeling throughout each phase of design. Design team's energy model should meet the requirements of ASHRAE 90.1 G2.2. At minimum, whole building energy modeling runs must take place at 100% Schematic Design, 50% Design Development, 100% Design Development and 100% Construction Documents (National Grid may request additional runs). Project teams will need to report predicted EUIs to their Mass Save Sponsors at each of these intervals.

4. Ensure electric vehicle charging stations, any on-site generation and any non-ancillary unconditioned spaces (e.g., parking garages) are separately sub-metered or that the energy use is captured separately by the Energy Management System.

5. Meet the requirements of ASHRAE 90.1-2016, para. 8.4.3 related to metering and data storage and provide post occupancy data to the Sponsors of Mass Save as listed in Step 6 of this document at the end of an agreed-upon one-year post occupancy period.

Key Mass Save Sponsor Commitments:

1. Cost share the services of a zero carbon/low EUI expert (50% of fee up to $10,000 cost share) with the customer to help the project team develop a roadmap to low EUI and zero carbon success.

2. Offer project incentives per Table 1 above.

3. Offer a separate Verification Incentive (50% cost share up to $10,000) to help customers and their teams achieve the predicted EUI once the building is operating. Ask your Mass Save Sponsors for details.

This document outlines the roles and responsibilities of each party to set transparent expectations for all parties participating in the Program. Under no circumstances does this Memorandum require customers or design teams to incorporate any particular EUI reduction strategy, nor does this document bind customers or design teams to a particular EUI target. All assistance offered by Mass Save Sponsors through this Program is offered in an advisory capacity only and is subject to change.

THE MASS SAVE SPONSORS UNDERSTAND THAT THE FOLLOWING CUSTOMER:							
The Customer (name):							
will undertake the following (check applicable):							
☐	new construction	☐	major renovation		☐	addition	
Project Schedule (Dates)	100% SD	100% DDs	100% CDs	Expected Construction Completion			
Premises (address):							
Premises SF (excluding un-conditioned space):		**Premises EUI Target (kBTU/SF):**					
Main Project Contact:							
Email:		Phone:					
This project's design team professionals include:							
		Email:	Phone:				
• Architect:							
• Electrical Engineer:							
• Mechanical Engineer:							
• Other Contact:							
Participating Mass Save Sponsors:							
• Electric Sponsor:							
• Gas Sponsor:							

IMPORTANT:

Customers participating in this pathway may not also participate in the Mass Save midstream programs where incentives for HVAC, domestic hot water, food service and lighting equipment are offered directly to distributors. To ensure participation in only one Mass Save program pathway, designers must include language in project documents informing contractors that this project is participating in a Mass Save downstream program pathway, and that they may not pursue or accept any HVAC, domestic hot water, food service or lighting midstream incentives for this project.

Detailed Process:

Step 1 – Set an EUI Target and Take Advantage of the Services of a Zero Carbon/Low EUI Expert

Engage with your Mass Save Sponsors as early as possible in design. You'll need to participate in a zero carbon scoping session and set a target EUI as early as possible in design. To assist the project team in achieving its target EUI, Mass Save Sponsors will enlist the support of a zero carbon/low EUI specialist who will provide technical assistance and road mapping services for the project through feasibility and early design. We'll work with you on the best scope to suit your project needs, though we do have a minimum scope that we require and ask customers to cost share.

Step 2 – Design to the Target EUI

The project team will pursue the EUI target throughout design and will conduct the iterative energy modeling necessary to ensure the design remains on track.

Step 3 – Make Sure You're Ready to Assess Post Occupancy Performance

Develop a plan to collect post occupancy EUI data (data collection requirements are detailed in Step 6 below). Consider how you'll take corrective action if the project strays from the final design EUI. Mass Save Sponsors offer a separate "Verification Incentive" that can help. Ask your Mass Save Sponsors for more information.

Step 4 – Mass Save Sponsors Issue Incentive Offer Letters

At the end of design, provide the Mass Save Sponsors with the design team's energy model and a short report that details:

- The final design's site EUI.
- The final predicted energy use.
- The building's total gross square footage per the definition on the first page of this MOU.
- Whether there is a natural gas meter associated with the building for emergency generation.
- If heat pumps are included in the design, state the heat pump type(s) and nominal heating capacity (btu/h) at AHRI conditions divided by 12,000 for each heat pump type.

Mass Save Sponsors will issue incentive offer letters per Table 1 in this document based on the Tier in which the final design EUI lands. If more than one Mass Save Sponsor is participating, the customer may receive two incentive offers summing to the incentive levels in Table 1. The incentive offers will be split into two major components and payment timeframes:

- Payment 1: Mass Save Sponsors will make their first payment at the end of construction. It will include both the $/sf Construction Incentive and the Heat Pump Adder, if applicable.
- Payment 2: Mass Save Sponsors will make the second payment(s) at the end of an agreed upon one-year post occupancy period.

  - The post occupancy payment will be made if the operating EUI lands within the Tier the project set out to achieve.

Customer incentives are capped at 100% of the combined incremental cost of the EUI reduction strategies included in the project. Projects must be cost-effective to receive the full customer incentives and are subject to each Mass Save Sponsor's program budget.

Customers are required to sign:

1. Custom application, formally requesting Mass Save incentives.
2. The Mass Save incentive offer letter from each Mass Save Sponsor, and

3. The Mass Save Minimum Requirements Document (MRD), which lays out the energy-using equipment and system details that will lead the project to achieve the target EUI.

Customers must commit to constructing the building as it was designed and documented in the MRDs. Major deviations from the design could jeopardize the project's ability to achieve the target EUI and opportunity to obtain full incentives.

At the end of design, the Mass Save Sponsors will request pdfs of the Final Design Documents. The Mass Save Sponsors may conduct further analysis at their own expense to determine more granular information regarding Mass Save program energy savings. The Mass Save Sponsors will share the design documents with at least one additional vendor at their discretion at this time.

Step 5 – Construction and Construction Phase Incentive Payment

A few weeks before substantial completion, customers must provide a set of approved submittals, invoices and photographs corresponding with major equipment that is key in attaining the predicted EUI. All projects participating in the Program are subject to inspection by each participating Mass Save Sponsor.

Once Mass Save Sponsors complete their review and affirm the project was built substantially in accordance with the design, they will make the construction phase incentive payments to the customer.

Step 6 – Post Occupancy Incentive, Verification Incentive, and Certification Incentive

Once the building is functioning in a steady state, the customer and the Mass Save Sponsors agree to begin the Mass Save Performance Period, which will last for one year. At the end of the Mass Save Performance Period, the customer is responsible for supplying post occupancy energy usage data for Mass Save Sponsors to review.

The Mass Save Performance Period as it relates to the post occupancy incentive will begin once the customer affirms:

- The sub-metering system or Energy Management System is set up and operating properly per ASHRAE 90.1-2016, para. 8.4.3. The system shall be capable of maintaining all data collected for a minimum of 36 months.
- All significant corrective action the customer intends to take has been completed.
- The occupancy and use of the building have reached a "steady state."

Customer shall supply the Sponsors of Mass Save with the following at the end of the Performance period:

- Final commissioning report, if available.
- Electrical energy usage for the following loads shall be recorded and reported to Mass Save on at least an hourly, daily, monthly and annual basis for the one-year period (Exception – up to 10% of the load for each of the following categories (b) through (e) shall be allowed to be from other electrical loads):

  a. Total building electrical energy
  b. HVAC systems
  c. Interior lighting
  d. Exterior lighting
  e. Receptacle circuits
  f. On site generation

- All data shall be provided in either an Excel or CSV format.

If, at the end of the Mass Save Performance Period, the building achieves an operational EUI, which, when adjusted for weather by the Mass Save Sponsors, falls within the Tier in which the project's final design EUI landed, the Mass Save Sponsors will pay the customer the additional $1.50/sf incentive for this Program. The post occupancy EUI is adjusted for weather so that customers are not unfairly penalized for particularly harsh weather and are not unfairly benefitted by particularly mild weather.

By signing below, customers represent that they (1) will be the lawful utility customers of the Premises and (2) have read, understand, accept, and agree to the terms and conditions for participation in the Program outlined above. The project's lead architect is required to also review and sign the MOU acknowledging that he/she has read and understands the terms and conditions for participation.

Customer Signature:		Customer Printed Name:
Date:	Phone:	Email:
Architect Signature:		Architect Printed Name and Company Affiliation:
Date:	Phone:	Email:

Disclaimers

Except for payment of incentives as set forth hereunder, the Mass Save Sponsors do not make any representations, warranties, promises or guarantees in connection with the Program, energy conservation measures (ECMs), EUI reduction strategies, energy savings, benefits, adequacy or safety of ECMs or other items, or any work, services or other item performed in connection with the Program including, without limitation, the warranty of merchantability or fitness for a particular purpose. Also, other than the (i) energy cost savings realized by Customer, (ii) energy or ancillary service market revenue achieved through market sensitive dispatch, (iii) alternative energy credits, and (iv) renewable energy credits (altogether, the "Customer Credits"), the Mass Save Sponsors have unilateral rights to apply for any credits or payments resulting from the Program or ECMs (the "Sponsor Credits"). Such Sponsor Credits include but are not limited to credits and payments for: (a) ISO-NE capacity, (b) forward capacity credits, (c) other electric or natural gas capacity and avoided cost payments or credits, and (d) demand response program payments. Customer waives, and agrees not to seek, any right to any Sponsor Credit. The Mass Save Sponsors are not responsible for the payment of any taxes assessed by federal, state or local governments on either benefits conferred on the customer by the Sponsor(s) or design incentives paid to the design team.