NEW CONSTRUCTION & MAJOR RENOVATIONS

2024 Memorandum of Understanding for Path 2: Whole Building Energy Use Intensity (EUI) Reduction

Welcome to the Whole Building Energy Use Intensity (EUI) Reduction Program! This participation pathway is intended for customers with large or complex projects, who are interested in setting an EUI reduction target that represents a minimum 5-15% site EUI improvement over a baseline building EUI. The intent of the incentives and technical assistance offered in this pathway is to provide a holistic energy reduction approach that shifts customer and design team focus to expected performance outcomes as they work through the project design.

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 should engage their Mass Save Sponsors[2] during the project's conceptual or schematic design phases, but before 100% Design Development.

2. **Electrification requirements**

   Projects participating in Path 2 must be fully electric for space heating, ventilation, air heating, domestic hot water equipment and kitchen equipment.

   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)Highly ventilated buildings (as defined in Stretch Code) or hospitals (defined to include all facilities licensed by the Massachusetts Department of Public Health as a hospital under G.L. c. 111, §§ 51 through 56.) where natural gas or other fossil fuels may only be used for limited space and ventilation air heating,[3] or
   (B)In labs or vocational technical schools where natural gas or propane may only be used for scientific research or instructional purposes, or
   (C)Diesel or propane emergency generation, or
   (D)In emergency facilities, natural gas may be used for emergency generation in lieu of diesel or propane.

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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.
3. Participating projects in the highly ventilated building and hospital/medical building exceptions above would still need a minimum amount of space heating and ventilation air electrification to qualify for PA support. That minimum would align with Stretch code language that design teams in many cases will already be familiar with, as follows: "Electric air source, exhaust source, or ground source heat pump systems shall supply 25% of the building's peak space heating and ventilation air heating load at the ASHRAE 99.6% winter climatic design condition." Highly ventilated building and health care facility exception projects must still electrify domestic hot water and kitchen end uses.

Major renovations will be supported by PAs even if they include new natural gas equipment or are connected to campus loops that are served by natural gas fed central plant equipment, however any efficiencies related to new gas equipment will not count towards the EUI reductions.

"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 have a minimum of 50,000 square feet (sf) of comfort conditioned (heated and cooled) space.[4]
4. Buildings should be comfort-conditioned (heated and cooled), but partially conditioned buildings such as warehouses and industrial facilities, may be eligible on a case-by-case basis.
5. Core and shell projects may participate, provided they meet the requirements above (tenant fit outs are not eligible for this path but may participate in Path 3).
6. Projects must be new buildings, building additions or full gut renovations of existing buildings. Qualifying gut renovations are 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.
7. Multi-family projects are not eligible – Mass Save has separate participation options available for these projects.
8. Participants must be a customer of one of the Mass Save Sponsors. Note: projects located in the service territory of a municipal electric utility or projects that are utilizing district steam (MATEP or Vicinity) are not eligible for this path.
9. New building and addition projects connected to campus loops that are served by natural gas fed central plant equipment may only participate if they are connecting to those loops to meet exception criteria listed above.

4. Mass Save Sponsors may allow participation in this pathway for energy intensive projects even if they are less than 50,000 sf in size.

Key Customer Commitments:

1. Participating project teams commit to setting an EUI target in early design (at minimum, a 5-15% EUI reduction from the Mass Save baseline per Table 1 below) and working toward it throughout the remainder of design. Customers also commit to providing design documents to the Mass Save Sponsors early in design and to providing drawings at mid design and at final design.

Table 1: EUI Reduction Incentive Tiers

Path 2: EUI Reduction Incentive Tiers					
	Incentive Rate	Heat Pump Adder*	All sectors other than office/labs	Office	Lab/office
Tier 4	$0.35/sf	Air Source Heat Pumps: $800/ton Variable Refrigerant Flow (VRF): $1200/ton Ground Source Heat Pumps: $4500/ton"	10%-15%	5%-10%	15%-20%
Tier 3	$0.50/sf		15%-20%	10%-15%	20%-25%
Tier 2	$0.75/sf		20%-25%	15%-20%	25-30%
Tier 1	$1.25/sf		25% and above	20% and above	30% and above

* 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. Customers agree to establishing a plan for determining the building's post occupancy EUI and identifying a responsible party.
3. Customers must commit to a 25% or 50%[5] cost share of the services of a third-party technical assistance (TA) vendor (services include energy charrette facilitation, EUI target setting, energy modeling, and mid-design review/feedback). If a project goes on hold for longer than six months, all outstanding technical assistance fees will be invoiced by TA vendor for time spent to date.
4. Customers commit to engaging with the Mass Save sponsors and Mass Save TA vendors at various meeting/benchmarks noted in process steps 1-6.

Key Mass Save Sponsor Commitments:

1. Cost share services of a technical assistance (TA) vendor (up to 75% of fee).
2. Assist customer and design team in identifying and evaluating EUI reduction strategies.
3. Offer construction incentives on a dollar-per-square-foot basis (plus additional $/ton heat pump incentive), supporting projects with deeper EUI reductions with higher incentive rates (see Table 1 above).
4. 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.

5. If a major renovation customer were to request Path 2 TA services for a project where primary heating is provided by fossil fuels, PAs would limit PA cost share of TA services to 50% of the fee to prevent paying for services related to new fossil fuel equipment.

NEW BUILDINGS & MAJOR RENOVATIONS

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 – Early Coordination with Mass Save Sponsors, Charrette, and EUI Target Setting

During schematic design or in pre schematic design, inform your Mass Save Sponsors of your new construction/major renovation project and schedule an energy charrette before the end of Design Development. You'll also need to establish your project's EUI target.

Mass Save Sponsors will bring in a Technical Assistance (TA) vendor who will help facilitate the energy charrette, offer guidance on EUI reduction strategies, and help with EUI target setting. In addition to the energy charrette and target setting support, the vendor will offer mid design feedback and will provide a final energy analysis report showing the final EUI percent reduction over the Mass Save baseline.

We ask that customers agree to cost share the services of the technical assistance vendor.

- Mass Save Sponsors will cover the fees for TA services in this Program at up to 75% cost share (each Mass Save Sponsor is capped at $20,000).
- Customer must commit to a minimum of 25% of the fee for TA services and must sign an Engineering Services Application (ESA) committing to this cost share.

Step 2 –Develop a Plan for Measurement and Verification of the Project's Operational EUI

In this path, customers are asked to establish a plan for evaluating energy use post occupancy and verifying that the low EUI target is achieved. Thought should be given to corrective action if, at post occupancy, the project is straying from the final design EUI. Mass Save Sponsors recommend that the project team submeter in accordance with the LEED BD&C v4 Energy and Atmosphere Advanced Energy Metering credit.

An optional Verification Incentive is available to help customers identify issues that may arise related to energy savings post construction (please request the Mass Save scope of work for more details).

Step 3 – Design

The EUI target should be written into the project documents, including the Owner Project Requirements (OPR). The project team will pursue the EUI target throughout design.

Step 4 – Interim Report and Consultation

The TA vendor will produce a model and report based on the 50% or 100% Design Development set. The customer, design team and the Mass Save Sponsors will meet at this time with the TA vendor to review results and recommendations for further reducing the project EUI.

The Mass Save Sponsors will lock in the target EUIs at each incentive tier at this time, based on the interim report. The target EUIs will remain locked for purposes of incentives unless there are major modeling concerns, major design changes, or major changes to project assumptions between 100% Design Development and 100% Construction Documents.

Step 5 – Mass Save Incentive Pre-Approval

Based on 100% Construction Documents (CDs), the TA vendor will prepare the final Mass Save energy model and report documenting the percent EUI reduction from the Mass Save baseline. Mass Save Sponsors will issue incentive offer letters per Table 1 in this document based on the Tier in which the final as designed % EUI reduction 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.

Mass Save Sponsors will make incentive payments at the end of construction. They will include both the $/sf construction incentive and the heat pump adder, if applicable. If a Mass Save Sponsor has retained a portion of the incentive payment, that Sponsor will make a second payment upon receipt of satisfactory trend or commissioning data.

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-saving equipment and system details that will lead the project to achieve the final design's predicted EUI.

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

Step 6 – Construction Completion, 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 % EUI reduction. 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 is built substantially in accordance with the design, they will make the incentive payments to the customer.

Select projects are subject to 20% incentive hold-back pending receipt of trend data or other information stipulated in the Minimum Requirements Documents (MRDs).

Late Engagement with Mass Save Sponsors

Project teams and customers who engage with Mass Save Sponsors on qualifying projects after the end of design development, may participate in the following manner:

- Engagement with Mass Save Sponsors from 100%DDs – 100% CDs:
  - Project teams may still participate in the Path 2 Whole Building EUI Reduction Program and receive full incentive rates. However, the cost share for TA services will be adjusted, 50% will be paid by the Mass Save Sponsors and 50% will be paid by the customer.
- Engagement after 100% Construction Documents:
  - Project teams may still participate in the Path 2 Whole Building EUI Reduction Program but will receive a reduced incentive equaling 75% of the standard Path 2 rates. Also, the cost share for TA services will be adjusted, 50% will be paid by the Mass Save Sponsors and 50% will be paid by the customer.

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 owner by the Sponsor(s) or design incentives paid to the design team.