



New Construction & Major Renovations (2024)

ENERGIZE CONNECTICUTSM

Memorandum of Understanding for Path 1: Net Zero / Deep Energy Savings – Libraries

Welcome to Path 1 of the Commercial and Industrial (C&I) New Construction and Major Renovation Program. This path encourages customers to pursue a sustained focus on low site Energy Use Intensity (EUI) from early design all the way through post-occupancy. Path 1 is an all-electric performance-based participation pathway, such that final customer incentives are based on the building's post-occupancy site EUI. While the path is a path-to-zero 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 (including all fuels) relative to its gross square footage. The units are kBtu/sf/year. For this path, gross square footage excludes parking garages and penthouse square footage, as these are not typically conditioned spaces¹. The Program's EUI calculation does not include onsite renewables.

Project Eligibility:

1. Customer must engage The Companies² before 100% Design Development, but preferably during the Feasibility or Conceptual Design phases.
2. Projects must have a minimum of 10,000 square feet of comfort conditioned (heated and cooled) space.
3. Projects must anticipate year-round occupancy.
4. Building must be separately metered (not on same utility meters as other buildings).
5. Projects must be new buildings or major renovations. A major renovation would qualify for this Program if the scope is such that occupancy is not possible during construction and where scope includes at least 3 of the following 5 systems: (1) HVAC, (2) Domestic Hot Water (DHW), (3) lighting, (4) envelope, and (5) process equipment.
6. Projects where scope includes Combined Heat and Power (CHP) are not eligible for participation in Path 1. Projects on campus central plants may or may not be eligible. Talk with the Energize CT Companies as needed.
7. Participants must be a customer of one of The Companies. Note that projects in the service territories of municipal electric utilities are not eligible for this path.
8. Narrow exceptions on using fossil fuels may be acceptable including emergency generators.

Key Customer Commitments:

1. Project teams must be willing to target a **35.0 site EUI or less**. See Table 1 below for more target details:

¹ EUI calculations will exclude exterior lighting loads (parking garages/lots) and associated loads in garage spaces (i.e. exhaust fans). If there are enclosed spaces in garages with equipment loads (i.e., unit heaters in elevators and lobbies), these loads and square footages will be included in the building's EUI calculation.

² "The Companies" refers to The Connecticut Light and Power Company (CL&P) and/or Yankee Gas Services Company each dba Eversource Energy (Eversource) and The United Illuminating Company (UI), The Southern Connecticut Gas Company (SCG), and Connecticut Natural Gas Corporation (CNG), subsidiaries of AVANGRID, Inc.



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Table 1: EUI Targets & Incentives

Libraries	Site EUI Range	Incentives			
		Payable at end of construction		Payable at end of 1 year post occupancy	
		Construction Incentive \$/sf	Heat Pump Adder*	Post Occupancy Incentive \$/sf)	Adder for getting under ZNE EUI target
Tier 2	31-45	\$2.00	Air Source Heat Pumps: \$640/ton capped at: Eversource: \$400,000 Avangrid: \$200,000 Variable Refrigerant Flow (VRF): \$1000/ton capped at: Eversource: \$500,000 Avangrid: \$300,000 Ground Source Heat Pumps: \$4,000/ton capped at: Eversource: \$600,000 Avangrid: \$400,000	\$ 1.50	Not applicable
Tier 1 - ZNE Level	30 or less	\$2.50			\$0.05/EUI point reduction/sf
Grid Interactive Efficient Building Incentives					
Technical Assistance: 75% of fee for a grid-interactivity specialist with 25% cost share reimbursement potential** and/or \$3000 per program paid upon successful enrollment in the demand response or battery storage programs.					

* 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 (OA) or a geothermal source) for space heating purposes. In order to maximize the benefits of electrification designs, supplemental electric resistance and/or fossil fuel use (if any) to the vapor compression heat pump cycle must be limited by having a maximum configured setting of 30°F outdoor air switchover temperature to supplemental heat. 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/hr) 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 dry bulb (db)
 Air-to-Water Systems: AHRI 550/590 - OA 17°F db, Leaving Water Temperature (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 geothermal source/wells. Prior to payment of any incentives, confirmation of equipment capacities, quantities, ratings, and system configuration/control settings as installed at the project site will be required.

** Projects can have their 25% cost share of grid-interactive efficient buildings technical assistance reimbursed upon successful enrollment in the ConnectedSolutions and/or Energy Storage Solutions programs.

Note: Total Eversource project incentives are capped at \$2 million per federal tax ID. For projects in Avangrid service territory, please contact your Avangrid representative for information regarding federal tax ID caps.



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2. Agree to cost share the services of an Energize CT Net Zero Technical Assistance (TA) Consultant. See cost share percentage in the
3. Continuously monitor the predicted site 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. Project teams will need to report predicted EUIs to The Companies at each of these intervals. See Step 4 on page 5 below for more information.
4. Ensure electric vehicle charging stations are separately submetered.
5. Ensure any on site generation is separately metered.
6. Ensure any unconditioned spaces are separately metered.
7. Meet the requirements of ASHRAE 90.1-2019, paragraph 8.4.3 related to metering and data storage and commit to continued engagement with The Companies through a one-year post-commissioning, post- occupancy period.

Key Commitments of The Companies:

1. Cost share with the customer the services of a Net-Zero TA Consultant (50% of fee up to \$10,000 cost share) to help the project team develop a roadmap to low site EUI and net-zero success.
2. Cost share with the customer energy modeling services (75% of fee up to \$12,000 cost share). To receive this benefit, the energy modeling organization must be separate from the Net-Zero TA Consultant organization.
3. Offer project incentives on a dollar per square foot basis up to \$4.00/sf. See Table 1 above.
4. Offer up to \$15,000 in Design Team Incentives.
5. Offer an optional Verification Incentive to help customers achieve their predicted EUI upon operation. Contact The Companies for details about this additional offer.



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This document outlines the roles and responsibilities of each party and sets transparent expectations for all parties participating in Path 1 of the Program. Under no circumstances does this Memorandum require customers or design teams to incorporate any particular site EUI reduction strategy, nor does this document bind the customer or design team to a particular site EUI target. Further, this Memorandum does not bind the Companies to any particular site EUI strategy and/or any incentive, and any and all assistance offered by The Companies through this Program is offered in an advisory capacity only. Incentive offerings are contingent on availability of funds from the Connecticut Energy Efficiency Fund.

THE COMPANIES UNDERSTAND THAT THE FOLLOWING CUSTOMER:

The Customer (name):

Will undertake the following (check applicable):

New construction

Major renovation

Addition

Project Schedule (Dates)

100% Schematic
Designs

100% Design
Development

100% Construction
Documents

Expected
Completion

Premises (Address)

Premises SF (excluding
unconditioned space):

Premises EUI Target (kBTU/SF/yr):

Main Project Contact Name

Email

Phone



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Detailed Process:

Step 1 – Set an EUI Target and Take Advantage of the Services of a Net Zero TA Consultant

Engage with The Companies as early as possible in design. You will need to participate in a net-zero scoping session and set a target EUI as early as possible in design. To assist the project team in achieving its target EUI, The Companies will enlist the support of a net-zero specialist who will provide technical assistance and road mapping services for the project through feasibility and early design. We will 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 as described above. See Appendix for more information.

Step 2 – Design to 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 outlined in Step 6 below). Consider how you'll take corrective action if, during occupancy, the project strays from the final design EUI. The Companies offer a separate Verification Incentive that can help. Ask The Companies for more information.

Step 4 – The Companies Issue Incentive Offers

At the end of design, provide The Companies with the design team's energy model and short report that details:

- The final design's site EUI, calculated per the EUI definition in this MOU
- The final predicted annual energy use for electricity as well as any fossil fuels (natural gas, propane, oil)
- The building's total gross square footage per the definition on the first page of this MOU
- If heat pumps are included in the design, state the heat pump type(s) and heating capacity per Table 1 notes.

The Companies will issue incentive offers per Table 1: EUI Targets & Incentives above. If more than one of The Companies are participating, the customer may receive two incentive offers summing to the incentive levels in the table. The incentive offer will be split into two major components and payment timeframes:

- Payment 1: The Companies 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: The Companies will make the second payment(s) at the end of the agreed upon one-year post-occupancy period.
 - ◊ The post-occupancy payment will be made if the operating site EUI is at or below the EUI target the project set out to achieve.

Customers are required to sign the Energize CT Letter of Agreement (LOA) within the timeframe specified in the letter.

Customers must commit to constructing the building as it was designed and documented. 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 Companies will request PDF copies of the final design documents. The Companies may conduct further analysis at their own expense to determine more granular information regarding program energy savings. The Companies will share the design documents with at least one additional vendor at their discretion at this time. The vendor may request additional information from the design team.



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Step 5 – Construction and Construction Phase Incentive Payment

A few weeks before substantial completion, customers must provide a set of approved submittals, invoices, certifications, 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 of the participating Companies.

Once The Companies 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.

The design team is eligible for a Design Team Incentive (DTI) at construction completion if the customer's construction payment is approved. DTI rates, offered per Table 2 that follows, encourage the integrated design and continuous iterative energy analysis that is necessary to achieve the EUI target. The Companies pay the DTIs to the design team lead, who may disperse them to the other team members as appropriate.

Table 2: Design Team Incentives

Calculated at \$0.20/sf and capped at \$15,000, but not less than \$8,000 per project.

Step 6 – Post-Occupancy Incentives

Once the building is functioning in a steady state, the customer and The Companies agree to begin the post- occupancy performance period, which will last for one year. At the end of the performance period, the customer is responsible for supplying post-occupancy energy usage data for The Companies to review.

The performance period as it relates to the post-occupancy incentive will begin once the customer affirms:

- The metering system is set up and operating properly per ASHRAE 90.1-2019, 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 "steady state".

Customer shall supply The Companies with the following at the end of the performance period:

- A final commissioning report (if completed)
- Electrical energy usage for the following loads shall be recorded and reported to The Companies 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)³:

a. Total building electrical energy	d. Exterior lighting
b. HVAC systems	e. Receptacle circuits
c. Interior lighting	f. On-site generation
- Energy use from non-electrical sources (e.g. gas or propane for space heating, cooking, hot water, etc.) must be recorded and reported at least monthly (or if using delivered fuels, as often as deliveries are made) and annually for the same one-year period as the electric usage.
- All data shall be provided in an Excel or CSV format.

If, at the end of the Energize CT Performance Period, the building achieves an operational site EUI, which, when adjusted for weather by The Companies, achieves the target EUI, The Companies will pay the customer the additional \$1.50/sf incentive for this Program. The post-occupancy site 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.

³ It is recommended that the project team consider submetering in accordance with the LEED BD&C v4 Energy and Atmosphere Advanced Energy Metering credit, which requires submetering of any individual energy end uses that represent 10% or more of the total annual consumption of the building.



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IMPORTANT:

Customers participating in this pathway may not also participate in the Energize CT *Midstream (program payments made to distributors) or Express (customer rebate)* programs. To help ensure participation in only one Energize CT program pathway, designers must include language in project documents informing contractors that this project is participating in a Energize CT downstream program pathway, and that they may not pursue or accept any HVAC, domestic hot water, food service or lighting incentives made to distributors for this project. Customers may not separately apply for support through the Energize CT Express offers (which provide rebate payments after equipment purchase and installation).

By signing below, the Customer represents that they (1) are an authorized representative of the Customer at the Premises and (2) have read and understand the requirements for participation in Path 1 of the Program outlined above. Signing this document does not guarantee payment of incentives nor any commitment financial or otherwise on behalf of the participant. The terms and conditions for receiving incentives will be outlined in the Letter of Agreement (LOA) discussed in Step 4.

Customer Signature:				
Customer Printed Name:			Date:	
Design Firm Official Signature:				
Design Firm Official Printed Name and Company Affiliation:			Date:	
AGREED:			Date:	
AGREED:			Date:	
The Companies (specific Utility and its representative to be identified)	Eversource <input type="checkbox"/>	UI <input type="checkbox"/>	SCG <input type="checkbox"/>	CNG <input type="checkbox"/>
The Companies (specific Utility and its representative to be identified)	Eversource <input type="checkbox"/>	UI <input type="checkbox"/>	SCG <input type="checkbox"/>	CNG <input type="checkbox"/>



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Appendix - NET ZERO CONSULTANT SCOPE - PATH 1

Tasks	
Task 1	Base Net Zero Consultant Scope (Required)
1.1	<p>Facilitate/Participate in a Net Zero Scoping Meeting - Facilitate or participate in a scoping meeting with the project team to establish clear net-zero/low EUI goals and provide direction. Possible scope items include providing EUI benchmarks of similar projects for guidance, assessing whether additional analytical services are needed for project success (Task 2 and more), brainstorming energy reduction/conservation measures.</p> <ul style="list-style-type: none"> • Deliverable: Summary memo detailing key meeting results, recommendations, and EnergizeCT Sponsor next steps. Prepare proposal for Task 1 and for additional net-zero consulting services detailed in Task 2 if appropriate. • Turnaround Time: Within 2 weeks following meeting.
1.2	<p>If Needed - In the event that the project team, EnergizeCT Sponsors and Net Zero consultant all agree that a site specific EUI target is necessary for a particular project, the Net Zero consultant will assist in establishing an alternative EUI target that meets the requirements of the Path 1 MOU (roughly a minimum 25-40% reduction from a mixed fuel baseline).</p>
1.3	<p>Review and Comment on Design Drawings at Key Milestones - Review design documents at 100% SD, mid- DD, 100% DD. Participate in meetings with project team at each of these intervals.</p> <ul style="list-style-type: none"> • Deliverable: Memo at each interval (100% SD, 50% DD, 100% DD) stating the projected EUI and Path 1 tier the project is designing toward, including recommendations for further reducing site EUI, noting any abnormalities in modeling assumptions, and stating whether the project is still on track to achieve a Path 1 EUI at the end of design. Other information to include in final memo: <ul style="list-style-type: none"> ◇ The building's gross square footage (see Path 1 MOU for definition), ◇ Heat pump tonnage and type(s) ◇ Confirm that building is separately metered from other buildings, that parking garages, PV and electric vehicles are all separately submetered, and that the requirements of ASHRAE 90.1-2019 para 8.4.3 are met, such that the following loads will be metered/recorded and will be reported to EnergizeCT 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 shall be allowed to be from other electrical loads): <ul style="list-style-type: none"> » Total building electrical energy » HVAC systems » Interior lighting » Exterior lighting » Receptacle circuits ◇ Confirm that energy use from non-electrical sources (e.g., gas or propane for space heating, cooking, hot water, etc.) will be recorded and reported at least monthly (or if using delivered fuels, as often as deliveries are made) and annually for the same one- year period as for the electrical usage ◇ Updated design schedule <p>Turnaround Time: Within 2 weeks from receipt of design drawings.</p>



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1.4	<p>If needed, hand off to EnergizeCT modeler at 100% DD - Participate in one meeting with EnergizeCT Sponsors and the EnergizeCT Sponsors' own energy modeler (if different from the EnergizeCT Net Zero TA Consultant) at the end of DD to hand off the project. If the EnergizeCT Net Zero consultant will be the same as the EnergizeCT energy modeler, this scope item is not needed.</p>
Task 2	Additional Net Zero Consultant Services (Begin in feasibility or early SD to complete by 100% DD)
2.1	<p>Load Reduction Analysis- Analyze and provide specific recommendations for load reduction strategies, such as window-to-wall ratios, insulation levels, infiltration, shading strategies, and glazing properties with goals of load reduction, optimized daylighting and meeting the EUI target. Strategies should be optimized relative to one another. Assume meetings with the design team to review results.</p> <ul style="list-style-type: none">• Deliverable: Memo detailing recommended load reduction strategies.• Turnaround Time: In accordance with Customer's Schedule
2.2	<p>HVAC System Selection Analysis- Collaborate with the mechanical system design engineers to provide parametric energy analysis for up to three (3) HVAC system options. Assume meetings with design team to review results.</p> <ul style="list-style-type: none">• Provide recommendations for the 3 system options and ways to optimize each.• Show expected building EUIs under all HVAC scenarios analyzed. <p>◇ Deliverable: Spreadsheet/analysis/report showing results. ◇ Turnaround Time: In accordance with Customer's Schedule</p>
2.3	<p>Life Cycle Cost Analysis- Provide LCCA for systems under consideration to allow the design teams to make informed decisions at critical milestones of the project. The project team is to provide cost data for the parameters under study. Assume meetings with design team to review results.</p> <ul style="list-style-type: none">• Deliverable: LCCA spreadsheet/analysis showing results.• Turnaround Time: In accordance with Customer's Schedule
2.4	<p>Plug-Load Inventory & Load Reduction Analysis, and Assessment of Modeling Inputs - Subtasks to be considered: Inventory equipment anticipated for installation in the project in terms of expected wattage and use schedules; use industry research to assess expected energy use, make recommendations for reducing plug loads, make recommendations for modeling assumptions. Assume meetings with design team to review results.</p> <ul style="list-style-type: none">• Deliverable: Plug load memo /analysis showing results.• Turnaround Time: In accordance with Customer's Schedule



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For Utility Use Only

	Email	Phone
Project Architect:		
Electrical Engineer:		
Mechanical Engineer:		
Other Contact:		
Electric Company and Contact:		
Gas Company and Contact:		

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