

NEW CONSTRUCTION & MAJOR RENOVATIONS (10/22/2020)

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

The Path 1, Zero Net Energy (ZNE)/Deep Energy Savings Program (the “Program”) is intended for customers pursuing a ZNE or zero net ready building and who also are interested in maintaining focus on the Energy Use Intensity (EUI)¹ reduction component of ZNE. To participate, customers must commit to a very low EUI target and must pursue that target throughout design and construction as well as through post occupancy. 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. (collectively The Companies) offer incentives to help customers offset the incremental costs associated with designing and implementing low EUI strategies. The technical assistance and incentives offered in this pathway focus customers and project teams on post occupancy outcomes.

Project Eligibility:

1. Project teams must commit to a goal of either zero net energy, zero net energy ready² or Passive House (as a path to net zero)
2. Customer must engage The Companies during the project’s feasibility or conceptual design phases, but before 50% Schematic Design
3. Projects must have a minimum of 20,000 square feet of comfort conditioned (heated and cooled) space
4. Projects must anticipate year-round occupancy. For K-12 schools, this requirement includes a minimum of 4 weeks of anticipated summer use in classroom areas.
5. Building must be separately metered (not on same utility meters as other buildings)
6. 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) DHW, (3) lighting, (4) envelope, and (5) process equipment
7. Core and shell and multi-family projects may not participate in Path 1 at this time
8. Projects where scope includes Combined Heat and Power (CHP) are not eligible for participation in Path 1
9. Participants must be a customer of one of The Companies

Key Customer Commitments:

1. Project teams must be willing to target a **25.0 site EUI or less**. An exception may be requested (or necessary) if 25.0 EUI is not reasonable due to building type, hours of operation or because some percentage of the building is semi-conditioned. In these situations, participants alternatively may pursue a site EUI target representing a minimum 25.0% EUI reduction (for electrically heated buildings) or 40.0% EUI reduction (for non-electrically heated buildings) from the Energize CT code baseline. The Companies must approve any exceptions, and any EUI target shall not be greater than 75 in this pathway.³

¹ Energy Use Intensity (EUI): A measure of a building’s gross annual energy consumption (excluding parking garages) relative to its gross square footage (excluding parking garages; penthouse square footage should also not be included, as it is not conditioned space). EUI is calculated as kBtu per square foot per year.

² Zero Net Energy Building: A building that produces as much clean, renewable energy as it uses when measured over a one-year period. Zero Net Energy Ready Building: Projects that are not able to add renewables on site right away but achieve the EUI Target set for the project.

³ Electricity generating renewables, such as Photovoltaics (PV) or wind turbine technology, do not contribute towards the site EUI target.

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2. Include ZNE or ZNE ready goal and the EUI target in the project documents, including the Owner Project Requirements (OPR)
3. Agree to cost share the services of an Energize CT ZNE expert
4. 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 and comply with the program Energy Modeling Guidelines.
5. Commission the building to levels equivalent to the LEED BD&C Version 4 Fundamental Commissioning and Verification Prerequisite and the LEED BD&C Enhanced Commissioning credit (Option 1, Path 1) and Envelope Commissioning credit (Option 2)
6. Establish a plan for determining how the building's site EUI will be calculated once the building is operational, and identify the responsible parties
7. Ensure electric vehicle charging stations are separately metered
8. Ensure any on site generation is separately metered
9. Ensure any unconditioned spaces are separately metered
10. Meet the requirements of ASHRAE 90.1-2016, paragraph 8.4.3 related to metering and data storage
11. 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 ZNE expert (50% of fee up to \$10,000 cost share) to help the project team develop a roadmap to low EUI and ZNE success.
2. Offer project incentives on a dollar per square foot basis up to \$3.50/sf. See Table 1 that follows.
3. Offer \$10,000 toward zero net energy or Passive House certification.
4. Offer up to \$15,000 in Design Team Incentives. See Table 2 that follows.
5. Offer an optional Verification Incentive to help customers achieve their predicted EUI upon operation. See Table 1 that follows.

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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 the customer or design team to a particular EUI target. Further, this Memorandum does not bind the Companies to any particular 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.

The Companies understand that the following customer:

_____ (“The Customer”)

will undertake the following (check one)

- new construction
- major renovation,
- addition

_____ (“Premises Address”)

This project is being designed by the following design professionals (collectively, the “Design Team”):

_____ (“Architect” or “Design Firm Official”)

_____ (“Electrical Engineer”)

_____ (“Mechanical Engineer”)

Participating Companies:

_____ (“Electric Utility Provider”)

_____ (“Gas Utility Provider”)

IMPORTANT:

Customers participating in this pathway may not also participate in the Energize CT *upstream* programs where incentives for HVAC, domestic hot water, food service and lighting equipment are offered directly to distributors. To 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 upstream or rebate (post-installation) incentives for this project.

Detailed Process:

Step 1 – Customer Engagement with The Companies

Customers may reach out to The Companies even before they select the Owner’s Project Manager (OPM) and Designer. Very early engagement allows The Companies to provide guidance on what language to include in OPM and designer services Requests for Services (RFSs) related to zero net energy and low EUI targets. Once the design team has been selected and zero net energy is a clear goal, the customer will re-engage with The Companies in conceptual/early feasibility or early schematic design. Initial conversations will focus on EUI target setting and confirmation that customer and design team goals align with the program requirements.

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Step 2 – EUI Target Setting and Developing a Roadmap to Meet the EUI Target

The target EUI for projects participating in this pathway is a site EUI of 25.0 or less or an alternative percent reduction target in accordance with key customer commitment listed in Step 1 previously.

- Projects pursuing an EUI of 25 or less – The Companies will engage a ZNE specialist to provide technical assistance and ZNE planning throughout design
- Projects pursuing the 25.0% or 40.0% reduction scenarios – The Companies will engage a ZNE specialist to help determine a 25.0% or 40.0% EUI reduction target. The specialist will also help the design team with developing strategies and a pathway for getting the design to achieve the target.

Once The Companies confirm the customer is eligible for participation in this ZNE pathway, customers will be required to sign a Whole Building Performance Integrated Design Agreement and commit to cost sharing the services of the ZNE specialist. The agreed upon Baseline, ECMs that will be modeled and Measure Runs shall be documented by filling out the General Information and Modeling Plan Charrette tabs on the Whole Building Project Report Template and submitted to The Companies prior to creation of the energy models.

Step 3 – Design

Once the EUI target is established, it should be written into the project documents, including the OPR, where it will serve as a touchstone throughout the rest of design and construction. 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 to achieve the target EUI.

In addition to the feasibility and early schematic design technical support and ZNE road mapping services, the Energize CT-authorized ZNE specialist will review the project documents at the end of Schematic Design and at Mid Design Development, and then will provide reports back to the team with any further recommendations and considerations.

The customer must make final cost share payments to the ZNE specialist once the ZNE specialist's work is complete at the end of design development.

The customer must ensure a commissioning contract is in place that meets the requirements of this Program. The customer must provide a copy of the commissioning scope of services to The Companies.

If the customer is pursuing an EUI target through the 25.0% or 40.0% reduction from the Energize CT baseline option, the EUI target will be estimated during the early feasibility and schematic design phases, but will not be locked in for purposes of incentives until The Companies confirm the baseline EUI based on the 100% Design Development set. Once The Companies have reviewed that set, The Companies will lock in the target EUI. The target EUI will remain locked for the purposes of incentives unless there are major design changes between 100% design development and 100% construction documents, including, but not limited to, HVAC system type changes and space type changes.

Step 4 – Planning for EUI Data Collection and Corrective Action

Customers must consider how they will determine the post occupancy EUI of the project in coordination with The Companies and determine who will be responsible for collecting the data. Thought should be given to corrective action if at post occupancy the project is straying from the final design EUI. The project must comply with ASHRAE 90.1-2016, paragraph 8.4.3 related to metering and data storage, and 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.

An optional Verification Incentive is available to help customers identify issues that may arise related to energy savings post construction (please request the scope of work for the Verification Incentive from The Companies for

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more detail). The Companies will reimburse 50% or up to \$10,000 of the fee associated with this work. Customers must decide during design if they wish to pursue this incentive so that a contract can be put in place.

Step 5 – Incentive Pre-Approval from The Companies

At the end of design, the design team must complete a final energy model representative of the final design. If the design team’s energy model affirms the design will achieve the target EUI, The Companies will pre-approve an incentive of \$3.50/sf. If the customer has a contract in place for the Verification Incentive scope, this incentive component will be pre-approved as well.

An additional \$1.00/sf incentive will be available after the one-year post occupancy period if the project achieves the target EUI in practice (see Step 7 for details on when the post occupancy period begins). If the design team’s model does not achieve the target EUI (either a 25.0 EUI or a 25.0%/40.0% reduction in EUI from the Energize CT baseline), the project will shift out of the Path 1 ZNE/Deep Energy Savings participation pathway but continue participating with The Companies in the Path 2 Whole Buildings EUI Reduction Pathway (contact The Companies for more details on this pathway).

The Companies will require customers to sign:

1. The Letter of Agreement (LOA), which lays out the energy-using equipment and system details that will lead the project to achieve the target EUI.

The customer must commit to constructing the building as it was designed and as it was documented in the Whole Building Performance Modeling Template. Major deviations from the design and specific equipment included in the design could jeopardize the project’s ability to achieve the target EUI and could jeopardize the customer’s opportunity to obtain full incentives.

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

Table 1. Summary of Customer Incentives*	
Construction Incentive	\$3.50/sf
Post Occupancy Incentive	\$1.00/sf
ZNE or PH Certification Incentive	\$10,000
Optional Verification Incentive	50% of fee up to \$10,000

*Customer incentives are capped at 95% of the combined incremental cost of the EUI reduction strategies included in the project. Projects must be cost-effective to receive the full customer incentive and are subject to each of The Companies’ program budgets.

Step 6 – Construction Completion and Construction Phase Incentive Payment

A few weeks before substantial completion, the customer must provide a set of approved submittals, invoices and photographs corresponding with major equipment that is key in attaining the predicted EUI. The Companies may also request a copy of the project’s schedule of values.

All projects participating in the Program are subject to inspection by each participating company. Customers may be asked to arrange for these post inspections to take place once the building is ready for occupancy.

Once The Companies complete the review of submittals, invoices and photographs, and upon completion of the post inspection, The Companies will make the \$3.50/sf construction incentive payment to the customer and will make the design team incentive payment. Where equipment and systems installed deviate substantially from equipment and systems shown in the design documents, The Companies reserve the right to adjust the customer and design team incentive amounts.

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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.⁴ The Companies pay the DTIs to the design team lead, who may disperse them to 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 7 – Post Occupancy Incentive, Verification Incentive, and Certification Incentive

Once the building is functioning in a steady state (at anticipated occupancy and operating as intended), the customer and The Companies agree to begin the Energize CT Performance Period, which will last for one year. At the end of the Energize CT Performance Period, the customer is responsible for supplying the post occupancy energy usage (including utility bills, delivered fuel usage, and on-site generation), which is subject to review by The Companies.

As described in Step 4, customers may optionally choose to pursue a Verification Incentive from The Companies. Regardless of whether the customer pursues the Verification Incentive, the Energize CT 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 90.1-2016, paragraph 8.4.3 and as verified by the commissioning agent.
- All corrective action the customer intends to take as a result of the Verification Team's scope of work has been completed.
- The occupancy and use of the building have reached a "steady state."

If, at the end of the Energize CT Performance Period, the building achieves an operational EUI, which, when adjusted for weather by The Companies, achieves the target EUI, The Companies will pay the customer the additional \$1.00/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.

If the customer opts to certify the project as net zero in accordance with LEED Zero, the International Living Future Institute's (ILFI's) Living Building Challenge 4.0 (including Zero Carbon, Zero Energy, CORE, Petal or Living Certification), or if they receive Passive House certification from either PHIUS or PHI, The Companies will pay a \$10,000 certification incentive.

⁴ Where the project has a contract that may restrict payments to the design team (as can happen with some municipal projects), it is the responsibility of the design team lead to work with the customer to ensure that the design team can obtain design team incentive payments per this program offering.

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By signing below, the customer represents that he/she (1) shall be the sole and lawful customer of the Premises and (2) has read, understands, accepts and agrees to the terms and conditions for participation in the Program outlined above.

Customer Signature: _____

Customer Printed Name: _____

Date: _____

Email: _____

Phone: _____

Design Firm Official Signature: _____

Design Firm Official Printed Name and Company Affiliation: _____

Date: _____

Email: _____

Phone: _____

AGREED:

_____ **Date:** _____

The Companies (specific Utility and its representative to be identified)

_____ **Date:** _____

The Companies (specific Utility and its representative to be identified)

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Process Checklist

Path 1: ZNE/Deep Energy Savings Program

Pre-Design Phase

- If possible, engage The Companies before hiring an Owner's Project Manager (OPM) and design team. The Companies can offer request for proposal or request for services (RFP/RFS) language and questions to help customers select a designer or OPM with zero net energy (ZNE) project experience.
- Incorporate zero net energy (ZNE) goals and/or low Energy Use Intensity (EUI) goals into the RFP/RFS for OPM services and designer services

Feasibility and Early Schematic Design Phases

- Once design team is hired, re-engage The Companies to ensure this Program is a good fit
- Sign Energize CT Memorandum of Understanding (MOU)
- Sign an Engineering Services Agreement (ESA) confirming customer is willing to cost share the services of a ZNE expert that The Companies would bring to the project
- Establish EUI target and a roadmap for achieving the target
- Add ZNE goal and EUI target to Owner Project Requirement (OPR) and provide The Companies with a copy
- Conduct iterative energy modeling throughout design to ensure the project is tracking toward the EUI target
- Establish a plan for calculating site EUI once the building is operational; identify responsible parties and consider tools that will flag unexpectedly high energy use (e.g., submetering)
- Ensure that a commissioning contract is in place that meets the program requirements and provide copy of commissioning scope to The Companies
- If pursuing the Verification Incentive, establish a contract with the Verification Team to complete this work and provide a copy of the contract that includes the scope of work necessary to obtain the incentive to The Companies.

Mid Design

- Continue to conduct iterative energy modeling throughout design to ensure the project is tracking toward the EUI target
- Provide 50% or 100% Design Development set to Energize CT-authorized ZNE expert for review and team feedback/discussion
- Designers must include language in project documents informing contractors that this project is participating in an Energize CT downstream program pathway, and that they may not pursue or accept any HVAC, food service, domestic hot water or lighting upstream or post-installation incentives for this project
- Finalize customer cost share payments to the ZNE specialist upon receipt of the specialists' Design Development Review Report

End of Design – Upon Completion of Design Team's Energy Modeling

- Provide the design team's energy modeling report based on 100% Construction Documents to The Companies showing the predicted EUI of the project's final design. If the EUI target is met, move forward in Path 1 below. If the EUI target is not met, move forward with Path 2 (consult The Companies).
- Sign the Letter of Agreement – affirming intent to build in accordance with the equipment and systems identified

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Construction/End of Construction Phase

- Maintain focus on the project components such that the predicted EUI is maintained as a target throughout construction
- Provide submittals, invoices, photographs and possibly a contractor schedule of values at the end of construction to affirm that major equipment and systems contributing to the predicted EUI have been installed
- Schedule a post installation walk-through with The Companies
- Sign the Measure Verification forms to confirm project is complete and ready for occupancy and to confirm that equipment and systems have been installed as expected to contribute to the predicted EUI.
- The Companies will pay customer's construction incentive if equipment is installed as expected
- The Companies will pay the Design Team Incentives if equipment is installed as expected

Energize CT Performance Period

- Once the project reaches a steady state of occupancy and operation, provide The Companies with an affidavit that confirms the metering system is set up and operating properly per ASHRAE 90.1-2016, paragraph 8.4.3 as verified by the commissioning agent, all corrective action customer intends to take related to energy use has been taken, and the building's occupancy and operation are in a steady state.
- Customer will provide The Companies with one year of post occupancy usage (including utility bills, delivered fuel usage, and on-site generation) after the beginning of the Energize CT Performance Period
- The Companies will review the data and true up the EUI date to adjust for weather
- If weather adjusted EUI meets the target EUI, The Companies will make the \$1.00/sf post occupancy payment
- If customer opted for the optional Verification Incentive, provide The Companies with copies of reports from each review interval
- The Companies will make a \$10,000 certification support payment if customers certify their projects as net zero in accordance with LEED Zero or the International Living Future Institute's (ILFI's) Living Building Challenge 4.0 (including Zero Carbon, Zero Energy, CORE, Petal or Living Certification) or if they receive Passive House certification from either PHIUS or PHI

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