



EEB Residential Committee Meeting
Wednesday, December 8, 2021 10AM - 12PM (Webinar Only)

Meeting Materials: <https://app.box.com/s/kewx0nkos2c2xsvt8xitm0d60hipwsl>

Minutes

1. Welcome – Amy McLean

a. Roll Call of Committee Members

Board members: Amy McLean, Brenda Watson, Kate Donatelli, Ron Araujo, Steve Bruno, Don Mauritz

Other attendees: Bernard Pelletier, Devan Willemsen, Diane Del Rosso, Emily Rice, Giulia Bambara, Griff Keating, Larry Rush, Meghan O'Connor, Mike Uhl, Patrice Gillespie, Richard Faesy, Andrea Goodman, Art St. Armand, Brendan Thomas, Claire Sickinger, Michael Cresta, Erin Cosgrove, Glenn Reed, James Dormon, Jeff Howard, Joe Buonannata, John Karyczak, Joseph Roy, Joyce Chai, Julia Dumaine, Madeline Priest, Kara Marshall, Martin Skelton, Michelle Long, Rebecca Baez Castro, Richard Olisky, Sharon Guarinol, Shubha Jaishankar, Stacy Sherwood, Stephanie Weiner, Tammy Wilson, Tanya Mulholland, Tim Fabuien, Damaris Velez

b. Meeting procedures and process update

Ms. Amy McLean reviewed the meeting and procedures. Ms. McLean encouraged attendees to use the chat only for questions and not side conversations.

2. Approve 10/13/2021 & 11/10/2021 Residential Committee Meeting Minutes

Ms. McLean noted that both the Chairs were not present at the November meetings, but that they are able to approve the minutes even though they did not attend. Ms. Brenda Watson agreed. Ms. McLean motioned to approve the October minutes; Ms. Watson seconded. The motion passed 2-0. Ms. McLean motioned to approve the November minutes; Ms. Watson seconded. The motion passed 2-0.

3. Public Input/Comments (limit to 3 min./person)

There were no public comments.

4. Heat Pump Cost-Effectiveness Analysis Report – Consultants

Mr. Richard Faesy introduced Griff Keating, who worked on a similar study in Massachusetts and collaborated to apply the analysis to Connecticut. Mr. Faesy noted that the Consultant Team conducted an in-depth analysis of space and water heating electrification economics and cost-effectiveness. The analysis aligns with the Three-Year Plan's decarbonization priority and growing public interest in heating electrification within CT's energy efficiency programs. Analysis work and methodology from Massachusetts has been applied, and tailored to CT in order to minimize costs. Heating electrification provides a wide variety of implementation scenarios with varying customer and utility economics; it's rarely a simple one-for-one switch out.

Mr. Griff Keating reviewed full displacement, 80% displacement, and 40% displacement scenarios. Full displacement means the heat pump displaces 100% of the home's space heating, 80% means the heat pump displaces 80% of the home's space heating, and so forth. Total resource cost test, which assesses the economics from both a utility and customer perspective, was determined for the installed cost in each scenario. For full displacement, TRC was determined for incremental cost whereas the other scenarios assumed full cost of the installation measures since the legacy

heating system would be left in place.

Key assumptions for the analysis included CT gas and electric pricing, and November 2021 EIA CT oil and propane pricing. All prices were based on the Avoided Energy Supply Cost (AESC) projections. Total resource cost (TRC) and modified utility cost (MUCT) test were conducted. Financing analysis was run at 0.99% APR for 10-year terms, which reflect the Heating Loan Program terms.

Full displacement ductless scenarios had better cost-effectiveness results, regardless of fuel, than the partial scenarios. When the TRC or MUCT is below 1, it means the costs outweigh the benefits, and when above 1 it means the benefits outweigh the costs. For ducted scenarios, full displacement was not favorable for gas systems (TRC and MUCT <1), but the economics were considerably improved when replacing oil and propane systems.

Mr. Keating also presented life cycle cost and annual cash flow from a customer's perspective for these scenarios. For ductless heat pumps, the gas displacement systems showed negative life cycle costs (LCC) and cash flow, which is not favorable for the customer. Displacing propane was favorable for each scenario and displacing oil was mixed. These trends were similar for ducted systems.

The Consultants recommend future analysis for heat pump water heaters as well as carbon impacts and sensitivity testing. Sensitivity testing assesses critical points like fuel price fluctuations, changes in avoided costs, and carbon pricing. Essentially providing insight to the best scenarios for heat pump applications based on multiple parameters. C&I preliminary results will be presented in January and final analysis results will be presented to EEB in February. (Now February and March). The Consultants will engage with DEEP, Companies, and key stakeholders to ensure the best results. An analysis tool, summary table, presentation, and memo are the deliverables.

Ultimately the analysis will provide a better understanding of heating electrification in CT. It will inform what measures can be implemented now and what market changes are necessary to support less cost-effective installations. The tool will be useful for planning program changes around changing fuel prices and equipment costs.

Mr. Bernie Pelletier, with PACE, noted that 10-15% of CT homes are heated with electric resistance heat and suggested these scenarios would be "slam dunk". Mr. Faesy noted that there is no question about supporting heat pumps in situations when there is already inefficient electric heating in place, and the programs have existing incentives in place for these scenarios. Mr. Pelletier referenced the scenario displacing a boiler, and the homeowner needs to replace the AC anyway, would full displacement for heating and cooling be favorable? Mr. Keating noted that a significant consideration is how much the heat pump will be used for heating, and the economics vary by this factor. The incremental cost is approximately \$1,000 higher for a heat pump than a conventional AC unit. Mr. Pelletier noted a hybrid with controls that adapt the equipment based on outdoor temperature could improve economics.

A copy of the presentation, with more details, can be found in the [materials folder](#).

5. HES and HES-IE (One to Four Units) Participation Study – UI

Mr. James Dormon, UI, with support from Ms. Tanya Mulholland and Mr. Larry Rush, provided results of the 2021 Customer Participation Survey. The study leveraged Experion Credit Reporting Company and census data for targeted understanding of customer trends. HES and HES-IE programs include home evaluations that identify and address weatherization measures and other direct-install opportunities like low-flow water devices. HES-IE is for qualified applicants between 0-60% of State Median Income those participants may be eligible for waived fees and additional services.

Connecticut's population is 3.6 million and UI serves approximately 20%, 764,000. Environmental Justice communities are defined as 30% or more of the population and live below the federal poverty level; Mr. Dormon shared where those communities are in UI territory (East and West Haven, Bridgeport, Derby, and Ansonia). These are the state's most physically and economically distressed municipalities that have been measured by ability to qualify for services. These communities are scored by factors like per capita income, percentage of poverty in the population, and unemployment rate, and change in population among five other factors.

Mr. Dormon shared program participation over time, noting dips in 2015 due to budgetary reasons and 2020 due to restrictions of audits and installs. Participation otherwise has been relatively consistent. In Mr. Dormon's charts, LIN ("low income") means HES-IE. For 2021 the programs increased by 60% as they ramped back up. When considering household income, there is high participation among those with less than \$75,000. 35% of participants have homes built between 1950s-1980s. Some older homes have barriers to participation like asbestos. For HES-IE Mr. Dormon also provided a chart of home age by location. Bridgeport and New Haven had the highest participation by location; 2% of the Bridgeport population participated. HES shows more even participation by location than HES-IE, but similar participation by home age as HES-IE. As homes get larger, participation in HES falls off; 1950s homes with 1,000-3,000 square feet seem to be the "sweet spot" for HES. Mr. Dormon noted that the Companies can request more square footage information from Experion in the future to try and break down the participation by size of homes further.

Mr. Dormon shared income levels vs house size trends. Homes built since 1976 have been required to have insulation by code, so homes older than that have a higher need for weatherization than homes built after energy codes were passed. In HES-IE more than half of program participants have gas heating fuel.

Mr. Dormon noted that language is a barrier to participation. Using census data, UI can identify languages spoken by location and better serve customers by providing tailored marketing materials. Spanish and Italian are prevalent in New Haven County while Spanish, French, and Portuguese are prevalent in Fairfield County.

Mr. Dormon shared next steps which include continuing to identify green-leaning customers, look to the DEI Consultant for consultation, utilize the Low-Income Qualification Tool (LINQ), and study non-participants. Mr. Dormon noted the Companies may need Experion to break down the language by location data to better target customers. The largest buckets to target include houses built between 1950s-1980s, less than 3,000 square feet, with delivered fuel and gas-heated homes.

Ms. Amy McLean noted that some of the largest emitters of Greenhouse gases are those homes without insulation. Ms. McLean asked about homes older than 1950s in the area, which may have the most weatherization barriers, but need the programs the most. Mr. Dormon noted this was a challenge given barriers that exist. Mr. Larry Rush noted that the customers with older homes and poor insulation are participating. Mr. Glenn Reed asked if there were any significant difference between UI and Eversource data. Ms. Megan O'Connor noted that she hadn't compared this with Eversource numbers but can do so and comment next meeting. Ms. Diane Del Rosso suggested Eversource present its data and difference between Eversource and UI at the next meeting.

Mr. Bernie Pelletier asked when the technicians enter the home and collect insulation and barriers to weatherization data, is that stored somewhere so that we have an understanding of the conditions of CT homes? This would help better target and achieve the weatherizing 80% of CT homes by 2030 goal. Mr. Rush noted that UI has recorded information on what percentage of home are barriered. Mr. Pelletier asked if insulation information or air changes per hour are recorded. Mr. Rush noted that a barriered home won't have a blower door test run, but for non-

barriered homes that data is collected. An attendee asked how electric heat customers fit into targeted marketing; Mr. Rush noted that less than 2% of the customer base has electric heat and they are encouraged through direct marketing to consider heat pumps.

6. DEEP Legislative and Regulatory Updates:

a. 2022-2024 Plan Technical Meetings & Public Input Session

Ms. Giulia Bambara shared that there was great participation at the Technical Meetings and Public Input Session. Ms. Bambara thanked those that participated, particularly stakeholders, Companies, and Consultants that presented.

Some of the hot topics included ramping up heat pump adoption by offering enhanced incentives, removing natural gas incentives, developing stronger workforce development programs, incorporating more stringent metrics, and ramping up participation in LI communities. All the meeting materials, including recordings, can be found on [DEEP's webpage](#).

Written comment period closed last Friday and DEEP is in the process of reviewing those comments. DEEP sent a second request for information from Companies which is due December 9. If anyone wants more information of what was discussed, the Consultants will provide a high-level overview at the EEB meeting at 1:00 EST.

b. CTAC

Last month the meeting mostly consisted of presentations from Companies; including listen and learn meetings, HES-IE insulation baseline, and HES pricing notifications to vendors. Regarding the insulation baseline, there were concerns about demonstrated percentages and how the baseline figures were calculated. This continues to be a discussion. The next meeting is in two weeks on Wednesday, December 29.

c. Weatherization/Health & Safety Barriers Remediation RFP & Plans

The RFP has been posted and is available on the [CT Source Bid Board](#). Questions were due December 1 and answers will be released December 10. Proposals are due January 4. All communication regarding the RFP should be directed to [Holly Suchecki](#).

7. Annual Legislative Report Committee Input

Mr. Steve Bruno is looking for additional input on items to include in the ALR. The ALR will be provided to legislators and stakeholders. Typically, the report includes a letter from the chairs, introduction to Board members. Mr. Bruno shared suggestions received so far; including the DEEP equity proceeding and the DEI Consultant, pandemic and recession response to support customers and the workforce. Another topic is emerging issues like decarbonization, economic recovery and climate change. Loss of lighting savings and the implication on program planning as well as integration of active demand response/EE with PURA's grid modernization dockets.

An Executive Summary will include the importance of EE, recognition of the EEB's work and performance highlights of savings, workforce numbers, and emissions reductions. The report will also discuss outreach and engagement with customers and workforce, C&I energy solutions, and residential energy solutions. For each sector, the report will include case studies, program highlights, and milestones. The report will include sections on economics, peak demand, and environmental benefits. The Report will have town-specific data that shows program participation and impacts by location. On the back cover will be a key benefits infographic.

Mr. Richard Faesy asked is participation by program will be included. Mr. Bruno said yes, that data would be included. Ms. Amy McLean asked if the EEB ever gets feedback from legislators. Mr. Bruno noted that legislators gravitate to the town-by-town data. The report is also shared via press releases and on the Energize CT website and is printed and shared. Mr. Bernie Pelletier asked if the data by town includes specifics on heating equipment and fuel delivered, similar to the

community dashboard. Mr. Bruno noted that the dashboard differs from the report but that he would bring this back to the team.

Ms. McLean referenced the companion reports that will be included (Governor's Committee on Climate Change – GC3 Phase 1 Report, GHG Emissions Report – November 2021), and stated that it's important for C&LM program design to incorporate goals outlined in these reports. Ms. McLean asked how the report could emphasize the connection between the EEB, C&LM Plans and these goals. In other words, how can the report connect the work with how it impacts people's lives? Ms. Brenda Watson said that ensuring this is explained in a way that people outside of the industry can understand is important.

8. Agenda items for future Residential Committee meetings

- a. HES and HES-IE (One to Four Units) Participation Study (Eversource in January)
- b. Community Partnership Initiative – Companies (January)
- c. DEEP Determination and Conditions of Approval - DEEP (January or February)
- d. End of Year/Q4 Report & Home Energy Score Deep Dive (February)
- e. Low Income Deep Dive (WAP and HES-IE Coordination) – (DEEP)
- f. Program QA/QC Processes and Results (HES, HES-IE, HVAC, MF) (March)
- g. Companies' Concierge Services Offering
- h. DEI Consultant Engagement and Recommendations
- i. Water Utility Coordination
- j. Defining "Weatherization" for Connecticut
- k. Case Studies and Technologies Topic Ideas
 - Maine heat pump experience and insights
 - Water heating in electrified homes
 - Heat Pump Standards – NEEP, ENERGY STAR, 47/17 Ratio
 - ENERGY STAR Home Upgrade
 - Zero Energy Now program
 - Passive House/All-Electric New Construction

Regarding (i) Water Utility Coordination, Ms. Brenda Watson shared that in 2011 Connecticut Light and Power requested a pilot that addressed the nexus of water and energy because they predicted water utility rates would increase over time. This project didn't take off. Marrying energy and water efficiency has been an ambition of Ms. Watson's. Ms. Watson believes it's important to address the underlying issues affecting water insecurity, reliability, and equity. The Committee is kicking off a discussion next month with the hopes of being able to figure out where to start, who should be involved, and what it will mean for ratepayers and utilities. Water comprises about 20% of an energy bill, so it's relevant not just for the Board but for ratepayers and utilities.

Regarding (k) Case Studies and Technologies Topic ideas, Mr. Bernie Pelletier stated that calculated savings need to be compared with actual consumption. Mr. Richard Faesy noted this was a laundry list and the Consultants are open to more ideas for this list. Mr. Faesy encouraged attendees to share technologies, programs, etc. that would be helpful and useful for future presentations. Mr. Bernie Pelletier commented on NYSERDA's approach to aligning contractors with State goals and suggested this as a topic to learn more about. NYSERDA has a consistent program that outlines NY's climate goals and what contractors are going to do as well as oversight for that work. Ms. McLean agreed and said the Board has a responsibility to help DEEP achieve its goals through the EE programs.

9. Public Comments

Ms. Patrice Gillespie referred to the GHG emissions status, and stated that the EEB was asked why the figures didn't coordinate with the State's goals in a clearer way. At the time, former Board member Mike Li had said we need to get the programs and goals coordinated properly. Ms. Gillespie said she hopes this can be addressed in the ALR. Ms. McLean agreed and stated

that the Report should acknowledge that the Energize CT Programs are the conduit to meeting the State's goals. The Board can help legislators enable these programs by making its case through the ALR.

Ms. Gillespie, speaking on behalf of some of the NGOs and municipalities that have submitted applications to the CPEI application program, stated that they are awaiting memorandums of understanding and she is hoping they can be distributed this week. Ms. McLean asked if anyone on the line could comment on the timing for the MOUs. Mr. Ron Araujo noted that the Companies are reviewing the grants with DEEP and when that is complete, they will be released. Mr. Araujo noted the Companies are planning to meet this week and plan on a communication following that meeting.

Ms. McLean thanked everyone for their work this year, that much has been accomplished, and it's been an amazing year.

10. Adjourn

Ms. Watson motioned to adjourn; Ms. McLean seconded. The motion passed 2-0 and the meeting was adjourned.