EEB Residential Committee Meeting

Wednesday, February 9, 2022 10AM - 12PM (Webinar Only)

Meeting Materials: https://app.box.com/s/4vhj2hvr2k39v6kxmvorhj7rn0dcv517

Minutes

1. Welcome – Amy McLean
    a. Roll Call of Committee Members
    Board members: Amy McLean, Kate Donatelli, Kathy Fay, Ron Araujo, Donald Mauritz
    Other attendees: Bernard Pelletier, Diane Del Rosso, Dylan Martello, Emily Rice, Glenn Reed, John Greeno, Larry Rush, Leticia Colon de Mejias, Patrice Gillespie, Pete Carlson, Rebecca Baez Castro(EES), Richard Faesy, Shubhada Kambli, Tim Fabuien, Alycia Jenkins, Amanda Stevens, Amber McDonnell, Augusta Miller, Claire Sickinger, Damaris Velez, Devan Willemsen, George Lawrence, Giulia Bambara, Guy West, Jeff Howard, John Karyczak, Joseph Roy, Joyce Chai, Julia Dumaine, Madeline Priest, Martin Skelton, Michael Cresta, Michelle Long, Nate Kinsey, Patti Rice, Richard Olisky, Sharon Guarino, Shubha Jaishankar, Stacy Sherwood, Stephanie Weiner, Tammy Wilson, Tasha Perreault, Violette Radomski, Vivian Perez, William Wesson

    Ms. Melissa Kops had a prior engagement and could not attend and Ms. Brenda Watson was unwell and not able to attend.

    Amy McLean introduced Ms. Shubhuda Kambli, DEEP's new Office Director of Building and Transportation Decarbonization. Ms. Kambli has worked in all levels of government, including the US EPA and ENERGY STAR®. Most recently, Ms. Kambli was at the city of Hartford, working as Sustainability Director, implementing projects related to the city's climate action plan, which included energy, food, wastewater, landscape, and transportation.

    b. Meeting procedures and process update
    Ms. Amy McLean reviewed the meeting process and procedures. A copy can be found in the materials folder. Ms. McLean requested that guests mute their lines when not speaking and refrain from side conversations in the chat. To speak, attendees were directed to put their name in the chat or to wait for the public comment sections at the beginning and end of the meeting. Ms. McLean reminded speakers to identify themselves prior to speaking.

2. Approve 1/12/2022 Residential Committee Meeting Minutes
    Ms. McLean motioned to approve the minutes; Ms. Kathy Fay seconded the motion. There was no discussion and the motion passed 3-0.

3. Public Input/Comments
    Ms. Leticia Colon de Mejias of Efficiency for All notified the Committee of a few things. Ms. Colon de Mejias shared that the cost of supplies has tripled for insulation, foam and other produced used to complete EE work in the residential and multifamily sectors. Ms. Colon de Mejias also noted that supply chain issues are delaying projects. Ms. Colon de Mejias noted that these two issues are relevant to the EE programs as they cause delays in servicing customers, puts pressure on contractors operating under set rates that haven't been adjusted for this inflation, and ultimately inhibit the programs achieving demand reduction goals.

    Ms. McLean acknowledged this is something that the Board needs to follow up on but wasn't sure it could be addressed immediately. Ms. McLean solicited comments from other Board members and also suggested further discussion on the matter. Mr. Richard Faesy suggested this be brought to the CTAC meeting and shared that the Companies are likely aware of these issues. Ms. Kathy Fay expressed an interest in understanding how to handling this issue in terms of service agreements between vendors and contractors. Ms. McLean appreciated Ms. Colon de Mejias bringing this up and noted that it's important

to the Committee and EEB.

4. End of Year/Q4 Report – Companies

Ms. Diane Del Rosso, Eversource's CT Manager of Residential Energy Efficiency, provided a presentation on behalf of Eversource that can be found in the materials folder. Ms. Del Rosso noted that the electric Residential portfolio performed well for 2021, with expenditures at 138% of goal and lifetime savings at 144% of goal.

Ms. Del Rosso shared a chart displaying ES Electric's overall YTD Q4 2021 spending, savings, and lifetime savings, broken out between residential and C&I as well as by program. Ms. Del Rosso shared that residential and new construction performed well, meeting or exceeding goals. HES-Core Services and HES-HVAC and Water Heaters and HES-IE also performed well, exceeding 100% of goal. For HES-IE, the annual savings were slightly lower than lifetime, which may be due to a dip in lighting for that segment.

Ms. Del Rosso shared a chart displaying ES Gas's overall YTD 2021 spending, savings, and lifetime savings, broken out between residential and C&I as well as by program. Expenditures, savings, and lifetime savings were all greater than 160% of goal. ES will need to be mindful that they are overspent for 2022. Gas programs performed well, and Ms. Del Rosso pointed out that HES-Core Services came in at 240% of expenditures goal and over 300% of savings and lifetime savings goals.

Ms. Del Rosso shared residential secondary performance metrics results, summarized in a table. HES-IE MMBtu Core Services savings (13.62 compared to goal of 14.73) and the equity metric (1.73% compared to a goal of 2.1%) are the only metrics ES did not meet or exceed goal. The MMBtu Core Service metric will be split in 2022 between homes that do and do not have duct work. HES/HES-IE participation for single family customers automatically enrolled in the Matching Payment Program (the "equity metric") was a new equity metric in 2021. Ms. Amy McLean asked about the automatic enrollment and for an explanation of what that means. Ms. Del Rosso said that in 2020 PURA and DEEP wanted to make sure customers in arrears were able to take full advantage of the C&LM programs. The Matching Payment Program (MPP) is a way for customers to get caught up with back payments over a period of time. The metric focuses on MPP customers that have never enrolled in HES or HES-IE before and encourages them to participate.

HES and HES-IE annual ccf savings were 289,412 compared to a goal of 237,456 and percent of single-family HES homes that received rebates was 53.83% compared to a goal of 28.66%. Eversource increased insulation incentives, lowered customer co-pay, and increased installation rebates for market-rate customers, which likely drove that success. At the end of 2021, Eversource did decrease the installation rebate and brought back the co-pay so participation 2022 may be affected. More details can be found in Ms. Del Rosso's presentation.

Ms. Del Rosso shared the multifamily electric performance results, noting that there were many pandemic-related challenges. For example, blower door testing is not conducted at this time and in-unit measures are lagging. Expenditures and lifetime savings are at about 50% for market rate, but low-income did perform better at 75% of expenditures and lifetime savings at 120%. Ms. Del Rosso noted that although there is an underspend for this segment, overall, the residential portfolio was overspent. Ms. Del Rosso said that 5,724 MF units were served in market-rate and 9,577 MF units were served in LI. Eversource MF gas was at 150% of budget for market rate and savings just under 90%. For LI, ES was at 115% expenditures with 90% savings. 2,179 units in market-rate were served and 945 IE units were served.

Ms. Del Rosso shared HVAC and domestic hot water results, broken out by equipment. Boiler circulator pumps, natural gas boilers and natural gas furnaces came in above goal. Ms. Del Rosso noted that the mini-split heat pumps far exceeded goal (5,529 units versus a goal of 2,704 units). Ms. McLean referenced a study by the Evaluation Committee that explored heat pump uptake and noted she would want to see that report. Ms. McLean noted that heat pump water heaters are misunderstood and customers may not be aware of the technology or benefits. Mr. Faesy noted that an expert in heat pump water heaters for multifamily will be speaking later in the meeting and added that we can bring this into future Agenda items.

Ms. Kathy Fay asked why the programs are still offering rebates for natural gas water heaters and other natural gas appliances and how that aligns with our goals? Ms. Del Rosso noted that customers using

natural gas pay into the EE fund and currently the Plan continues to put together natural gas savings opportunities in both C&I and the residential sector, including the details here for natural gas water heaters, furnaces and boilers. Mr. Glenn Reed noted that in the Three-Year Plan, the companies have committed to investigating whether those incentives should continue, in part, for the reasons that Ms. Fay brought up. Mr. Faesy clarified that this is the case for condensing boilers, but does not believe the Plan includes a commitment for review beyond that. Ms. Del Rosso agreed with Mr. Faesy.

Ms. Del Rosso provided mail-in rebates results for HVAC, including central AC, ducted heat pumps, and geothermal heat pumps. Central AC did not meet its goal, but ducted and geothermal heat pumps did. Ducted heat pumps exceeded the goal by approximately three-times. Ms. Del Rosso noted that the central AC and heat pump numbers indicate that customer are opting for heat pumps over central AC. Ms. McLean asked if customers can retroactively get a rebate after installing new equipment. Ms. Del Rosso noted she would need to look at the individual rebates, but the Companies do provide some flexibility. Ms. Del Rosso directed customers to the Energize CT website to start if they want to find out, retroactively, if they are eligible for a rebate. Ms. Fay wondered why the programs are offering rebates for central AC when there is potential to have more heat pump installations. Ms. Del Rosso noted that there are opportunities for high efficiency central ACs and heat pumps aren't necessarily a simple retrofit.

Ms. Del Rosso provided information on heat pumps replacing existing electric resistance heat and oil or propane equipment. By far, mini-split heat pumps were the highest volume for replacing electric resistance heat while geothermal heat pumps were more prevalent in replacing oil or propane-fired equipment.

Ms. Del Rosso shared that 56% of new construction customers received a HERS score of 50 or lower. Ms. Del Rosso shared a few tables breaking out new construction heating fuels by home/unit type. There were no homes going through the program using oil for heating, but 30% using propane and 54% gas with the remaining 34% using electricity.

Mr. Larry Rush, Avangrid's CT Residential Manager, welcomed new Board members and Ms. Shubhuda Kambli. Mr. Rush provided a presentation that can be found in the materials folder. Mr. Rush noted that UI expended 131% of budget and 175% of savings, SCG 114% spent and 116% savings, and CNG 109% spent and 102% savings.

Mr. Rush provided an overview of electric spending and savings by program. HES-IE did not meet its spending goals in 2020 but exceeded the budget and savings goals in 2021. Mr. Rush shared that Avangrid was able to claim decent savings through the Residential Behavior Program and Retail Products.

Mr. Rush shared an overview of gas spending and savings by program and Company. For SCG, the HES and HES-IE programs performed well. SCG curtailed a program for HVAC and water heaters toward the end of the year due to participation and budget. Mr. Rush noted there were not many new construction projects, and that program was slowed down due to shifting funds to other programs.

For CNG, Mr. Rush shared that there was high spending on HES and HES-IE programs. HVAC and water heater program was curtailed at the end of the year due to spending. A few projects pulled out from New Construction and CNG didn't see many others in 2021.

Mr. Rush discussed secondary metrics and provided 2020 and 2019 results for comparison. Mr. Rush noted UI was slight of goals (97%-98%) for HES and HES-IE. UI exceeded the baseline from 2020 due to the increased incentives for insulation; 37% of projects received the enhanced rebate. UI fell short of the RNC metric (number of homes with HERS rating under 50) but will be looking into it for 2022. UI is also looking at a different weighting for 2022 in regards to including multifamily and expanding the RNC metric. Ms. McLean asked about the RNC goal, specifically "what causes that?" Mr. Rush responded that it's a mix of design builds and where they fall on the HERS rating.

Mr. Rush discussed the equitable distribution metric, noting that UI has seen a huge increase in MPP participation. Mr. Rush noted that the Company worked really hard to improve the number of customers going through the programs by working with vendors. Ms. McLean said she wanted to know more about what worked well versus what could have been done better, indicated that could be a discussion offline.

Mr. Rush shared SCG's secondary metrics results. Gas savings were exceeded for 2021 and Mr. Rush attributed that to increased incentives. CNG's HES-IE savings fell short, but HES performed well. Some of the add-ons and multifamily projects can be attributed to the HES performance.

Regarding HVAC and water heating equipment, Mr. Rush is proud of what he has seen in the geothermal market in 2021. Mr. Rush noted similar shifts as Eversource to ducted and ductless heat pumps. UI was short of ductless heat pump goal, which Mr. Rush was surprised by. Heat pump water heaters performed well and doubled in volume, signaling possible a shift to heat pump water heaters.

In SCG territory, Mr. Rush noted that the HVAC and water heater program was curtailed at the end of the year, but exceeded the goals. CNG's HVAC and water heater program performed well, exceeding goals for furnaces, boilers but a little short on natural gas tankless water heaters.

Mr. Rush provided highlights from the Heat Pump Pilot. Twenty-three projects have been completed to-date, which is three above the goal. UI has a surplus of applications and has received requests to continue the Pilot. Of the 23 installations, 11 were ducted, 7 were hybrid, and 5 ductless that all displaced oil or propane heating equipment.

Mr. Rush offered an overview of heat pump conversions from electric resistance heat. There has been an uptick in these conversions from previous years. 86% of projects used ducted systems.

Mr. Rush provided the multifamily report, indicating that UI exceeded savings goals for IE but fell short on IE expenditures and market rate savings and expenditures. UI served 1,512 market-rate units and 3,580 LI units. For SCG, there were 1,037 market-rate units served and 2,297 IE units served. SCG fell short of spending and savings goals in both markets. CNG served 1,413 market-rate units and 2,502 LI units and exceeded market-rate spending and savings goals. IE savings and budget goals were not met.

5. Home Energy Score Update – Companies

Ms. Diane Del Rosso acknowledged the team that has been working diligently to develop additional offerings. The DOE Home Energy Score is a rating, and the Department of Energy likes to use an analogy of a miles per gallon type rating, and it assesses many different parts of a home. It reviews the foundation, envelope, walls, insulation, windows, HVAC, and water heating. It provides two scores; one is an initial score and a second score with improvements. Scores are provided on a scale of 1-10.

HES contractors in the field have all gone through training with the Department of Energy to become Home Energy Score Assessors. As Assessors, they are putting information into our app via a tablet. The developed mobile tool syncs with Department of Energy to generate the score and produce a report. The report from the initial score outlines recommended measures.

HES was the first state-wide program to adopt the Home Energy Score and they were first offered in April 2015. Between April 2015 to February 18, data collected was only used internally. In February 2018, the Companies began working with NEEP which uses MLS called Helix to collect data. A customer release was developed to disclose data sharing. In April 2021, in response to DEEP's conditions of approval, that customer release was again updated to offer a better understanding of what information was and wasn't being shared. Customers willing to share their Home Energy Score could opt-in to sharing their data.

Ms. Del Rosso shared historical information about how many assessments have been completed, against how many Home Energy Scores have also been completed. The Home Energy Scores tracked with the HES Assessments until a drop in 2018. One of the orders was to increase Home Energy Scores, and in 2021 they did increase by 11% from 2020. Ms. Del Rosso shared the same information for the past twelve months, which makes it easier to see the increase in Home Energy Scores.

In 2022 the Companies plan to make a few significant changes, in response to DEEP's Compliance Order. A Final Home Energy Scores can be requested after an add-on measure is completed. HES-IE customers can receive and initial score with their assessment as well as receive a Final Home Energy Score after their add-ons are complete. Virtual Final Scores will be provided by the original vendor that calculated the Initial Score, available within 12 months of the first assessment. In-person Final Scores will be provided by and Inspector with a post-inspection of the add-on measure, available within 24 months of the first assessment.

There are two metrics, a 40% Initial Score adoption rate and a 15% Final Score adoption rate. The Companies are not sure what percent of Final Scores will be adopted, but the Companies plan to send notices to customers reminding them to get their Final Scores. In December 2021, the average adoption rate across vendors was 58% adoption rate for the Initial Score. There are half a dozen vendors below target, so Companies will continue to work with them to make sure that they have all of the necessary training so their techs feel more comfortable providing the score.

6. Case Studies and Technologies
    a. Heat Pump Water Heating in Multifamily Buildings – Dylan Martello, SWA

    Mr. Dylan Martello, Stephen Winter Associates, shared a presentation that included electrification trends, a comparison of central and decentral hot water, a summary of domestic hot water (DHW) options, and case studies of operation or soon-to-be DHW projects.

    Electric DHW is the direction the market is heading. For example, Mr. Martello indicated that New York City plans to make it law by 2023. Mr. Martello noted that building owners and operators tend to choose what is familiar. Deciding whether to use central or decentral hot water includes common decisions points: metering, spacing, long-term electrification goals, and structural capability (i.e., can the roof support equipment). Either the building owner will pay for domestic hot water, where they really need to pay for about twice as many meters to meter that apartment if they want to pass that cost on to the tenant, and that requires more maintenance.

    In decentralized systems, tenants will pay for hot water and some data suggest this drives domestic water consumption down. Central systems can yield to situations where tenants tend to operate their water heaters. Like if they're getting cold air into the apartment or if it's very noisy, they'll either open that closet and find a way to switch it into electric resistance mode themselves or they'll call up the facilities staff to have them do so. Mr. Martello said this happens a lot so we need to design these systems with tenant comfort in mind. Mr. Martello shared that there are more design approach options that include more features. Semi-central systems can offer benefits of maintenance access and mid-sized equipment.

    Mr. Martello shard a list of eleven different system options, sorted by central, decentral, and semi-central. Mr. Martello noted that many systems that use heat pumps may also use electric resistance heat for backup. Water sourced heat pump systems, where you can tie into an existing hydraulic system, like an existing boiler plant or hydraulic heating and cooling. This can lend free cooling in the summer but lower heating capacity in the winter. Mr. Martello noted that solar thermal is also an option for some applications. For more details on the systems Mr. Martello selected, view Slide 12 in his presentation located in the materials folder.

    Mr. Martello shared the volume of projects by type (central, decentral, and semi-central) that SWA has been involved with. SWA has seen many decentral projects with electric resistance tanks and a handful of decentral systems with integrated tank heat pump wat heaters that reject cool air to units.

    Mr. Martello shared a Guide to Multifamily Integrated Tank Heat Pump Water Heater Systems. The guide summarizes different approaches and gets into the specifics of how to avoid design errors. Mr. Martello briefly shared a case study at Hotel Marcel in New Haven, CT. Hotel Marcel is currently installing an air-sourced heat pump water heater system developed by Becker and Becker on Slide 18. Mr. Martello's presentation and contact information can be found in the materials folder.

7. DEEP Legislative and Regulatory Updates:
    a. 2022-2024 Plan Determination & Conditions of Approval

    Ms. Kate Donatelli shared that DEEP is working on developing a Determination and any associated Conditions of Approval. The public will be able to provide comment on this draft before it's finalized.

    b. Comprehensive Energy Strategy

    Ms. Donatelli noted that the CES is a document that looks at the State's future energy needs and strategies for achieving certain objectives, including reducing costs for ratepayers, increasing

grid reliability, and mitigating any environmental and public health impacts. DEEP updates the CES regularly, the last was updated in 2018.

DEEP launched the 2022 CES Proceeding in January 2022. This proceeding starts with a scoping process, that includes opportunities for public participation. On February 17th, there will be a webinar on the scope of the CES, and public written comments will be accepted through March 3 at 4PM. Ms. Donatelli encouraged stakeholders interested in this process to review DEEP's Notice of Proceeding. The Notice includes more information on the areas DEEP is looking for feedback, as well as how to register for the webinar and summit public comments.

c. Weatherization/Health & Safety Barriers Remediation Plans
Ms. Donatelli provided an update. The RFP closed on January 4, 2022. OPM rules prevent DEEP from disclosing much information about that RFP process, but it will share updates with this group when it can.

d. DEI Consultant
Ms. Donatelli said the Board is looking to hire a Diversity, Equity, and Inclusion Consultant. The RFP closed on January 5, 2022 and the Consultant Committee is in the process of deliberations.

e. CTAC
The meeting last month included a number of topics, including: new air sealing opportunities, new insulation rebates and the impacts of those rebates, supply chain costs, and progress on the low-income qualification tool. Ms. Donatelli said that now that we're into the New Year, DEEP wants to ensure CTAC meetings are structured in such a way that enables the group to really dive into the issues that are of greatest interest to contractors. At the last meeting, DEEP put forward a 2022 meeting plan to accomplish this. DEEP will be reaching out to contractors and utilities in the coming weeks to solidify its 2022 goals for the Committee

8. Upcoming EEB Focus Area: Electrification and Fuel Switching – Consultants
Mr. Richard Faesy reminded the Committee that the EEB has selected a number of Focus Area topics for 2022. Mr. Richard shared the tentative schedule for those topics throughout the year, a copy of which can be found in the materials folder. Electrification and Fuel Switching is coming up next month, followed by a Combined Residential and C&I Program Update in April. August does not currently have a topic.

Mr. Faesy said that the Consultants will, each month, tee up the next topic and provide an opportunity for any suggestions and inputs ahead of time that may be incorporated as they prepare materials. Mr. Faesy shared a list of bullet points for the Electrification and Fuel Switching topic. Some of which include defining electrification and fuel switching and how they relate to decarbonization. What are some of the impacts and challenges both on the electric infrastructure, the grid side, and with potential stranded costs for remaining gas customers? What are the equity considerations? A full list of bullets that Mr. Faesy provided can be found in Slide 2 of his presentation.

Mr. Faesy solicited feedback and/or suggestions on what is missing, what could be modified, or how the presentation can be improved. Ms. McLean asked Ms. Emily Rice to send this presentation to the Committee members that could not attend today to get their input. Ms. McLean stated that it is really important for the Committee to be thinking this topic through.

9. Agenda items for future Residential Committee meetings
    1. Program QA/QC Processes and Results (HES, HES-IE, HVAC, MF) (March) - Companies
    2. Residential New Construction (Passive House, All-Electric New Construction, Update on New CT Building Code) (April) – Companies
    3. Update on CT Green Bank Financing Programs for 2022 (April)
    4. Low Income Deep Dive (WAP and HES-IE Coordination) – (DEEP)
    5. HVAC Contractor Training and Certification Plans - Companies
    6. Concierge Services Offering - Companies
    7. DEI Consultant Engagement and Recommendations
    8. Defining "Weatherization" for Connecticut
    9. Case Studies and Technologies Topic Ideas
        - Maine heat pump experience and insights

- ENERGY STAR Home Upgrade
- Zero Energy Now program
- Aligning programs with state goals
- Sierra Club Energy Burden presentation
- MyHeat (remote IR drones)

10. Public Comments

Mr. Bernie Pelletier, PACE, was delighted to see the utilities are exceeding their spend goals, but is concerned the programs are running out of money. Mr. Pelletier is concerned the contractors performing the work are struggling with rising costs. Mr. Pelletier stated that we cannot give up the momentum that has been built up through this pandemic and hopes we can find more money and make better use of the money we do have.

Ms. Leticia Colon de Mejias has received a lot of information in her e-mail just as a general resident of Connecticut, about the Battery Storage Solar Program that is administered by the utilities and Green Bank. Ms. Colon de Mejias wondered when that program would be more effectively explained to contractors that exist in Connecticut and might want to participate? Ms. Colon de Mejias also expressed an interest in more targeted communications to Connecticut contractors that have been serving the state for a lot of time. Ms. Colon de Mejias is concerned about contractors from neighboring states taking that work. Ms. Colon de Mejias said an equity lens would mean that maybe we should tell people what's going on and be inclusive, so they can participate in having opportunities.

Ms. Colon de Mejias shared information on the GC3 Equity Session and is interested in people reviewing the session held on equity in transition. The materials go over the concepts of electrification and what equity means in our transition in Connecticut, which was defined by the Equity Commission on the GC3. Ms. Colon de Mejias suggested this as a topic for a future meeting. Ms. Colon de Mejias thanked the Committee for taking on these very difficult topics in an organized manner, and asked the Committee to consider inviting contractors from Connecticut that do this work every day, present on the barrier issues, or successes that we're experiencing.

Ms. Patrice Gillepsie asked if the Consultants could comment on using the Home Energy Score as a definition as a weatherized home. Mr. Richard Faesy, noting that he has not spoken with anyone else and shares this response as an individual, said he is very familiar with Home Energy Score and has been working on it with DOE and in other states since its inception. Mr. Faesy thinks it's a great proxy for the efficiency of homes. Mr. Faesy remarked that this issue is perennial in terms of Connecticut's quest for defining what weatherization is, the challenge is that nobody was tasked with being responsible for taking this on and following it to the end. There is not one answer, Mr. Faesy added. Mr. Faesy's personal opinion is that Home Energy Score should, and could, be one of those aspects of defining weatherized homes for Connecticut.

Mr. Glenn Reed shared some background on using Home Energy Score as a definition for weatherized homes. A few years ago, when Home Energy Score was first being developed in Connecticut, using the Home Energy Score as part of the definition for weatherized homes was actually part of the mix proposed by DEEP. That did not come to fruition.

11. Adjourn

Ms. Amy McLean apologized to Mr. Dylan Martello and other speakers for running short on time; noting that it's not fair to cut speakers short when they have prepared materials.

Ms. Kathy Fay motioned to adjourn. Ms. McLean seconded the motion. There was no discussion. The motion passed 3-0.