



Energy Efficiency Board
December 8, 2021 | 1:00 – 3:30 pm

Documents for the meeting are located here:

<https://app.box.com/s/l3kwogsg4sp8nuncyfchg9d95aw2a1pi>

MINUTES

1. Process

A. Roll call of Board Members

Board Members: Neil Beup, Amy McLean, Stephen Bruno, Amanda Fargo-Johnson, Joel Kopylec, Kate Donatelli, Walt Szymanski, Ron Araujo, Donald Mauritz, John Viglione, Brenda Watson, John Wright

Other attendees: Kyle Huston, Emily Rice, Glenn Reed John Blair, Richard Faesy, Stacy Sherwood, Daniel Robertson, Devan Willemsen, Diane Del Rosso, Erin Cosgrove, George Lawrence, Giulia Bambara, Griff Keating, Ian Rinehart, Jay Goodman, Julia Dumaine, Larry Rush, Mark Thomson, Matt Macunas, Nate Kinsey, Patrice Gillespie, Philip Mosenthal, Richard Olisky, Rose Croog, Samantha Dynowski, Tim Fabuien, Violette Radomski

B. Minutes – Approve minutes from November 2021 Board Meeting

The Chair entertained a motion to approve November minutes. Mr. John Wright motioned to approve the minutes; Ms. Amanda Fargo-Johnson seconded. The motion passed 7-0 with no abstentions.

C. Board and DEEP vacancies

Ms. Kate Donatelli shared that DEEP has made internal recommendations to the Commissioner for review and expects to provide an update in the coming weeks. Regarding the new Bureau Chief position and two Director positions, one for Affordable Housing Retrofit Program and the other for the Office of Building and Transportation Decarbonization, DEEP is making progress and will update the Board when there is news to share.

D. EFG Staff Changes & Introduction of Stacy Sherwood

Mr. Glenn Reed notified the Board that he will be transitioning out of his role as Lead Technical Consultant and Stacy Sherwood will be taking his place by May of 2022. Mr. Reed will continue to support Mr. Richard Faesy on the Residential and Evaluation Committees' work. Ms. Sherwood joined EFG in October and will be increasingly taking over Mr. Reed's responsibilities. Ms. Sherwood is excited to join the Consultant team; she has over a decade of experience in energy efficiency, demand response, and AMI evaluation. Ms. Sherwood has worked with a variety of stakeholders in Arkansas on behalf of the Attorney General's Office, for the Office of

Consumer Advocates in Pennsylvania, and as a member of the Maryland Public Service Commission. Ms. Sherwood also served as lead on the low-income program initiatives in both Arkansas and Maryland as well as evaluated utility rate structures for the Department of Defense.

Mr. Neil Beup welcomed Ms. Sherwood to the team. Mr. Beup also commended Mr. Reed on his contribution to Connecticut's programs and efforts over the last decade.

E. Technical Consultant and Executive Secretary 2022 Workplans and Budgets

Mr. Glenn Reed shared the combined Consulting Team, i.e, the Technical Consultants and Executive Secretary, 2022 Workplans and Budgets, seeking approval from the Board. The workplans were developed by the teams in specific work areas and with input from the respective Committee Chairs.

Mr. Reed highlighted staff changes: Mr. Jeff Schlegel will not be part of the team in 2022. Mr. Schlegel had most recently played a key role in the board's engagement on avoided energy supply cost study that was ongoing in New England and was Lead Consultant for close to 20 years. Mr. George Lawrence and Mr. Richard Faesy will continue their roles as Team Lead for the C&I and Residential Teams, respectively. Ms. Emily Rice will continue in her role as Executive Secretary.

Board members were provided the Workplans and Budgets ahead of the meeting. The Consultants and Executive Secretary do their best to predict hours based on the coming year's objectives, though Mr. Reed noted it's impossible to be 100% accurate given the scope of the EEB work. The total proposed budget for 2022 is approximately \$700,000, representing 3,700 personnel hours. Overall, there is an increase in 195 hours (5.5%) compared to the 2021 approved Workplans and budgets. For the Technical Consultants, the proposed increase is 134 hours from 2021's approved Workplan. The Executive Secretary proposed hours include an additional 61 hours to assist with RFP processes and website updates, - specifically working to increase the accessibility and transparency of Plan and Program related documents on the Energize CT website.

Mr. Reed explained that developing priorities like Heat Pumps and Electrification, working with the new DEI Consultant position, responses to feedback during the Plan development process, and onboarding the four Board vacancies will require increased hours. Regarding the Board vacancies, the Consultant Team will be working to formalize the onboarding process. Mr. Reed noted that both the Evaluation Administrator and the Technical and Consultant positions will be going out to bid later next year, which will also require assistance from the Executive Secretary.

In total the proposed 2022 budget is \$56,000 (8.6%) higher than 2021. This includes a 3% hourly rate increase, which was part of both the Technical Consultants and Executive Secretary's initial bid to the Board. It has been assumed that travel will not resume until July 2022. The total proposed Consulting Team budget represents 0.3% of the total C&LM Program budget.

Ms. Amanda Fargo-Johnson shared that the Consultant Committee thoroughly reviewed the Workplans and Budgets, including some back-and-forth. Ms. Fargo-Johnson indicated that the Consultant Committee is comfortable presenting these to the Board for review and a vote. Mr. Neil Beup entertained a motion to approve the 2022 Consulting Team Workplan and Budgets.

Mr. John Wright motioned to approve; Ms. Amy McLean seconded the motion. The motion passed 6-0, with DEEP abstaining. There was no discussion.

F. Public Comments

There were no public comments.

2. Programs and Planning

A. 2022-2024 C&LM Plan Approval Process and Schedule – DEEP

Ms. Kate Donatelli reviewed the C&LM Plan Process and schedule, accompanied by slides. The Companies filed a Plan with DEEP on November 1st, DEEP issued requests for information November 3 and the Companies responded November 12 and 16. Three public meetings were held in November; two Technical Hearings and one a Public Input Session. The Technical Hearings generally consisted of presentations from the Companies and other experts, stakeholders, with opportunities for questions from DEEP and public comment. Ms. Donatelli thanked those that presented and participated.

During the public meetings, DEEP identified a couple areas for follow-up and on November 30 DEEP issued a second request for information. DEEP opened a public comment period and more than 100 written comments were received by December 3. DEEP is considering all comments made during the Public Input Process, and their review of the Plan. Next steps will entail: (1) DEEP will draft a Determination on the 2022-2024 C&LM Plan, (2) DEEP will seek public comments, and (3) DEEP will issue a Final Determination which may or may not include compliance conditions.

Ms. Donatelli reviewed some additional steps that will happen in the New Year with respect to Plan Budgets and PMI. PURA has no more than 60 days from DEEP's approval of the budget to approve the CAM. To allow for this approval to happen, DEEP may issue separate decisions on the Plan, Text and Budgets, depending on the timeline. There will be a process in March for updating the current year budgets for revenue forecasts and prior year spending. And around this time the Companies will file PMI results for the prior year.

Mr. Neil Beup asked what the timeline for DEEP's Final Determination is. Ms. Donatelli said DEEP doesn't have an exact timeline and can't speak to exactly when the Draft and Final Determinations will come out at this point.

B. Key Takeaways from DEEP's 2022-2024 C&LM Technical Hearings – Consultants

Mr. Glenn Reed stated that there was very significant turnout at the Technical Hearings that DEEP held last month regarding input on the Three-Year 2022-2024 Plan. Hearings were held over three days, 16, 17, and 18 of November, with pretty much full day hearings on Tuesday the 16th and Thursday the 18th, as well as an evening Public Input Session on Wednesday the 17th. There were multiple presentations by parties, including the Companies, the Board Consultants, the Office of Workforce Strategy, and several stakeholders also did presentations over the two plus days.

Mr. Reed provided a mid-level summary of takeaways from the hearings; many themes echoed those from the Board's Public Input process during the Plan development. For example, the desire to increase promotion and uptake of heat pumps and electrification efforts and to eliminate incentives for fossil-fuel fired equipment. As part of the Three-Year Plan, Mr. Reed

noted the Companies are committed to assessing whether gas-fired heating incentives should be restricted to situations where the prior equipment had been non-condensing equipment.

During the Hearings, there was discussion regarding the Companies role in developing a preferred contractor network to promote heat pumps, similar to Massachusetts. The Companies provided multiple presentations at the hearings which provided useful context for the Plan's budget, savings, and programmatic detail being proposed. The presentations highlighted Plan priorities and changes to the programs; evaluation, demand response, education, workforce development, outreach and cost-effectiveness. During the Evaluation Administrators' presentation, there were some questions from DEEP and comments regarding challenges to data access for evaluation activities faced by the Evaluation Administrators.

One area that drew considerable attention was workforce development. The Commercial Contractor Consortium and the CT Industrial Energy Consumers provided useful presentations and raised questions having to do with HVAC replacement efforts and proposed HVAC modernization efforts as to what constitutes savings calculation baselines. Contractors also raised questions about implications related to approval wait times for the SBA and mid-stream programs. Mr. Reed noted these are topics of discussion within the C&I Committee.

Some questions on the issue of determining who can or should perform savings calculations for complicated process projects; specifically, could staff at the facility handle them. The Companies and contractors talked about issues of aligning incentive caps with actual account contributions to the efficiency funds. Some vendors were advocating for enhanced incentives for bundling measures. There were also suggestions regarding adjustments that account for inflation and material cost increases related to weatherization work as a result of the pandemic.

More details can be found in Mr. Reed's presentation located in the [Box folder](#).

C. Board Discussion of Revised Annual Legislative Report Outline – Companies and Board

Mr. Neil Beup commented that he got a preview of the outline and encouraged Board members to provide input. Mr. Stephen Bruno thanked the Board for its feedback at the last meeting. Mr. Bruno noted that the Companies and Consultants brought this topic to both the Residential and C&I Committees. Mr. Bruno outlined the ALR, suggesting it include a letter from the Chairs addressing new Board members added following the 2021 legislative session, public engagement throughout Plan development, and reference DEEP's equity proceedings and the new DEI Consultant position.

Mr. Bruno shared additional topics to include in the report: decarbonization, addressing climate change, and residential savings impacts. Mr. Bruno suggested the report address the need to continue customer education efforts focused on comprehensive projects. The report could continue to highlight the growing active demand response portfolios.

An Executive Summary will accompany the cover letter, addressing the significance of energy efficiency, the Board's work, and supporting the needs resulting from the pandemic. It can highlight awards, recognition and ratings as well as performance metrics (savings, workforce numbers, and GHG reductions). The report can include efforts to address equity and parity, market segmentation, the Community Partnership Initiative, and financing partner information (CT Green Bank). The Committees also suggested more case studies, infographics and

information on net zero buildings, multi-family initiative, and landlord roundtables.

In addition to the performance metrics, the back of the report will include a summary of Program incentives by town. On the cover, key information or talking points (jobs numbers, etc.) will be provided. Generally ensuring the language is palatable and not too technical was another suggestion.

More details can be found in Mr. Bruno's presentation located in the [Box folder](#).

Ms. Amy McLean asked what kind of feedback is provided by legislators. Mr. Bruno indicated they hone in on the town pages because they want to know how they are doing. Ms. McLean added that the report can demonstrate the impact the Board makes on people's lives and connect its work with broader issues of public concern (GHG emissions, climate). Mr. Beup echoed Ms. McLean's comments and added that the document should reflect who "we are as a Board and how we make decisions." Mr. Beup indicated that we want as much input from the Board as possible so the document should continue to reflect the Board and remain relevant. Ms. McLean added that the Board often relies on the legislative body to pass laws enabling objectives the Board defines, and this document can help inform them of the significance of the work, the impact it makes, etc.

Mr. Bruno noted that the ALR is printed in February.

D. Results from Future Focus Area Poll – Consultants

Mr. Glenn Reed provided the results from the Deep-Dive Focus Area poll, which will shape the content of presentations from the Consultants throughout 2022. A full list of the topics surveyed and the results can be found in Mr. Reed's presentation located in the [Box folder](#).

Mr. Reed noted that Consultants will work with Board leadership to develop a proposed 2022 calendar for focus area presentations. Mr. Reed asked if any Board members wanted to hear of particular topics that rated highest first. Mr. Beup noted that the priority can be iterative and can evolve, and anticipates the Board will continue to come back and visit the list.

Mr. Beup added a topic to the list: fuel switching. With heat pump technologies and various applications, Mr. Beup believes this is something the Board should consider. This is something the CIEC group raised.

E. Heat Pump Focus Area – Consultants and Companies

Mr. Beup introduced the topic, noting that it had spurred the conversation around fuel switching years ago. Given advancements in technology and public interest, this is a significant topic for the Board to learn more about. Mr. Glenn Reed noted that this presentation is to provide an overview. Mr. Reed added that discussion of fuel switching requires some consideration of heat pumps, but there are many fuel switching applications beyond just heat pumps.

Mr. Reed's presentation included an overview of heat pumps and heat pump water heater operation and technology. For all intents and purposes, a heat pump is an air conditioner that can work backwards. Mr. Reed's discussion focused mostly on space heating applications, though not exclusively. There are air source heat pumps and ground source heat pumps; ground

source heat pumps use open or closed loop systems. Distribution systems can be air-to-air or air-to-water (hydronic), though air-to-water systems are less prevalent in the US. Systems can be ductless or ducted. There are many variables in terms of equipment placement, mounting, etc. that must be considered to tailor the system to the needs of the facility.

Heat pump water heaters can be connected to solar. There are variety of commercial and multi-family scaled heat pump water heaters solutions and some configurations are easier to install and applicable for retrofit projects. Heat pumps systems are versatile and can be designed to effectively serve commercial spaces with varying heating and cooling needs within the same facility. Packaged terminal heat pumps and air conditioners can be adapted to use heat pump technology for distribution through the space.

Cold climate heat pumps are effective for heating and cooling; however, efficacy and performance are impacted by lower temperatures. Heat pumps do have a low carbon footprint, which can be even lower when paired with solar PV. For most heating system applications, depending upon the baseline fuel, heat pumps can provide cost-effective heating and cooling from both a utility perspective and from a customer perspective. Upfront costs tend to be higher than conventional systems, with some exceptions. The economics compared to natural gas are not favorable from a customer's perspective. Mr. Reed noted that the Companies have been promoting heat pumps as an efficient technology and as a replacement for electric resistance heat. Some contractors are not fully comfortable with the technology. Another benefit is that integrated controls for partial replacement enable better control and savings potential. As with any high efficiency equipment, if not operated in ways to maximize savings the benefits that otherwise would accrue can be diminished.

Mr. Reed highlighted heat pump performances metrics. Heating seasonal performance factor (HSPF) is a heat pump-specific efficiency metric defined by the DOE and it typically ranges from 7-14. Coefficient of performance (COP) is essentially energy output over energy input. Heat pumps typically have a high COP. COP can vary by outdoor temperature. For cooling, heat pump efficiency is measured by the seasonal energy efficiency ratio (SEER). It's important for consumers to select equipment designed for the local climate; Mr. Reed noted that Companies require cold climate heat pumps to qualify for incentives. ENERGY STAR[®] provides cold climate specs.

Mr. Reed reviewed heat pump replacement/displacement scenarios. There are 100s of different combinations of fuels, technologies, sizes, displacement, etc. Many factors must be considered when selecting and designing heat pump systems. The economics are vastly different depending on the displaces fuel. Mr. Reed referenced the Rock Mountain Institute's study on the economics of heat pumps and residential new construction in the Boston area. Its conclusion was that because of some of the capital cost savings that occur when you've put heat pumps into a new home, as well as not needing to bring gas from the street, that even against gas, heat pumps can compete cost-effectively in the residential new construction applications.

Mr. Reed shared a comparison of residential heating operating system costs by fuel in Massachusetts. Natural gas was the lowest cost, oil the highest. Dcutless (?) heat pumps and ASHP are slightly more expensive than natural gas, though ground-source heat pumps are less expensive than natural gas.

Mr. Reed highlighted the Companies' HP and HPWH incentives and 2022-2024 Program

activities. There are heat pump water heaters with a couple different incentive levels depending on the volume of the water heater. There are also financing options through CT Green Bank and the Heating Loan Program. Eversource has made a document available that provides guidance on the application of heat pump water heaters in multi-family settings.

Mr. Reed shared results from a few regional case studies from New York and compared Connecticut's incentives with those offered in Vermont.

Mr. Reed provided preliminary CT residential heat pump analysis results. The Consultants performed two sets of cost-effectiveness tests, the total resource cost test and a modified utility cost. The TRC is more difficult to pass because it considers the costs from a combined utility and customer perspective. The Consultants modeled several scenarios, using analyses that was originally developed for Massachusetts and adapted for Connecticut using weather data and fuel rates. As previously discussed, the economics vary by displaced fuel and partial displacement vs. full displacement. In all scenarios, heat pumps are favorable against propane. Mr. Reed's presentation includes multiple slides with detailed specifics on these results.

Mr. Neil Beup noted that the Board will need to come back to the heat pump analysis results. Mr. Beup asked to what extent auxiliary electric resistant heat is used in Connecticut facilities and whether the heat pump technology requires an auxiliary heating component. Mr. Richard Faesy responded that cold climate systems do not and none of the systems they've seen going through the Programs are utilizing electric resistance heat as backup.

Mr. Reed reiterated that there are many permutations and combinations, but that the Consultants may perform a sensitivity analysis that could discover at what cost gas would need to be in order for a gas to heat pump conversion to pencil out for a customer. The Consultants will be working through the Committees and Companies to determine how best to do this. The four sets of tables Mr. Reed provided on cost-effectiveness and customer economics, the particular displacement scenarios, and the fuel being displaced are key considerations.

Mr. Beup stated that he is curious to know how many homes actually have ductwork and central air; adding that, like the information Mr. Reed provided on market penetration by fuel source, any insight we can get on that would be really helpful. Mr. Beup added that having an idea on the number of installations each year would help in setting expectations.

Ms. Donatelli asked about the fuel prices used for modeling and whether they reflected current pricing, referencing a deviation between a presentation shared at the Technical Hearings. Ms. Donatelli asked how the assumptions for 2021 and historical fuel prices came out in the modeling. Mr. Reed noted that he would circle back and get more information, but added that for the sensitivity analysis the models could factor customer rates as well as avoided supply costs.

F. Potential uses of Infrastructure Funding to support Energy Efficiency and Demand Response – DEEP

Ms. Kate Donatelli provided a high-level overview on behalf of Ms. Vicki Hackett to tee up more extensive discussion in the future. American Rescue Plan Act funding includes support for the weatherization barriers remedial program, and the Affordable Housing Retrofit program. The structure of the weatherization program is underway and the RFP for a Director has been

released. One of the major steps for the Affordable Housing Retrofit program is hiring an Office Director to lead that effort. In addition to the ARPA funding, there's also potential for additional federal infrastructure funding through a bipartisan infrastructure bill that was passed by Congress in November, and which included several different provisions to expand access to energy efficiency and clean energy programs. DEEP is closely reviewing and following updates as it progresses so that they are ready when additional funding may come our way. This includes ensuring that DEEP is coordinating with other state agencies, and that any federal funding is coordinated with our existing efforts.

For any new initiatives that may come out, or additional federal funding, DEEP will hold public processes to collect input.

G. DEI Consultant and Weatherization Program Operator RFP Updates – DEEP

After the November Board meeting, the Board received the final iteration of the DEI Consultant RFP to review and approve. The RFP was published November 17. Ms. Donatelli said there was an initial deadline of December 3 for respondents to submit their intent to bid and as of the deadline on Friday they did receive four intents to bid. Ms. Donatelli noted that submitting these is optional, so anyone who didn't submit an intent to bid can still submit a proposal by that final deadline. There was also a deadline of December 3 for questions on the RFP, but after some internal discussion with the Consultant Committee, that deadline for questions was extended to December 17 to give people a little bit more time. The Consultant Committee has received a few questions so far, and it will work to develop answers to them as they come in.

The final deadline for proposals is going to be January 5, after which the Consultant Committee will conduct interviews and review those submissions in January and February with the goal of making a selection in February. Ms. Donatelli thanked the Board for reviewing the RFP and Ms. Amanda Fargo-Johnson for moving things forward. Ms. Fargo-Johnson suggested Board members help distribute the RFP notice; referring to the email Board members previously received from the Executive Secretary.

3. Closing Public Comments

Ms. Amanda Fargo-Johnson asked about the 2022 Board calendar. Mr. Neil Beup asked the Executive Secretary to tee this up for the next Board Leadership call for consideration. Mr. Beup said that a calendar would be provided.

Ms. Amy McLean asked about in-person meetings and whether anyone had given this some thought. Mr. Beup noted that he had and posited whether the Board had to adhere to state guidelines outside of state facilities. Mr. Beup suggested Board Leadership discuss this and get back to everyone, adding that he would prefer to get back to in-person meetings. Ms. Amanda Fargo-Johnson noted that the Consultant Committee considered this when developing 2022 Workplans and Budgets, stating that through the Governor's Executive Order the Board didn't have flexibility in terms of using DEEP buildings.

Ms. Amy McLean thanked everyone for all their work this year, acknowledging how much was accomplished. Mr. Beup indicated it has been a challenging year and echoed Ms. McLean's sentiments, thanking everybody for their perseverance and input.

4. Adjourn

Ms. Amanda Fargo-Johnson motioned to adjourn and Mr. John Viglione seconded the motion. The motion passed 7-0.