Applied Public Policy Research
APPRISE
Institute for Study and Evaluation

MEMO

DATE: April 15, 2015

TO: CT EEB

FROM: Jackie Berger and Lori Lewis

SUBJECT: C11 Barriers to Program Participation Response to Report Comments

This memo provides a list of comments, responses to those comments, and notes on changes that were made to the report.

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EEB Financing Consultant Comments			
Executive Summary	ES-iii	**Financing**: The report states that "financing did not appear to be a key solution" for barriers faced by survey respondents (p. ES-iii). It is recommended that this conclusion be revised, based upon survey responses, to indicate that responses were somewhat "mixed" with regard to the importance of financing.	Page ES-iii provides the following support for the statement that "financing did not appear to be a key solution". We have expanded the discussion to add more clarity to the fact that financing on its own is not a key solution. For example, while 57 percent of small manufacturing customers stated that zero or low-interest loans would make them more likely to take on energy efficiency improvements, only three percent stated this and did not have any of those four barriers. (The four barriers discussed previous to this paragraph were lack of staff resources, competing priorities, did not plan to stay long enough in property, and inability to share property costs with tenants.) ADDED: In other words, if financing were offered to small manufacturing customers without other program interventions or the firm did not solve their reported logistical barriers, only three percent of these customers could use financing to overcome all of their barriers to adopting energy efficiency. The best case for financing to overcome all of the barriers was for the small general C&I market and that could reach less than 30 percent of the

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			market. At least one quarter of each nonparticipant group except small manufacturing (13 percent) stated that they were not interested in outside financing.
V-Challenges and Barriers	30	Table V-2 on p. 30 of the report indicates that 28 – 57% of respondents in various categories pointed to “lack of capital for investment” as a significant or very significant barrier, including over 50% of both dropout groups and over 50% of the large C&I group.	This comment statement alone is misleading since the results show that most customers have multiple barriers. Analyses across questions are required to understand how complicated the mix of problems that need to be overcome in order to get much greater adoption of energy efficiency. Only three percent stated this and did not have any of those four barriers. (The four barriers discussed previous to this paragraph were lack of staff resources, competing priorities, did not plan to stay long enough in property, and inability to share property costs with tenants.)
VI-Opportunities	35	Table VI-7A on p. 35 of the report indicates that a significant percentage of respondents in various categories stated that certain financing options would make them likely or significantly more likely to take action on energy efficiency improvements. For instance, 41% - 66% of customers expressed this view with regard to on-bill financing, while 32% - 77% expressed this view with regard to zero or low-interest loans.	Many of those who stated that they would be very likely to take action on energy efficiency if one of these offerings were available had barriers that the energy efficiency programs are unlikely to address. These significant barriers that were analyzed and included in the table below were Lack of staff resources (e.g., time) for implementation, competing priorities taking precedence, do not plan on staying long enough in the property, inability to share capital costs of energy improvements with tenants Table VI-7B shows that a much lower percentage of customers stated they would be likely to improve energy efficiency but did not have one or more of the four barriers listed.

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General		These responses paint a more mixed picture than indicated in the report of the potential value of financing in general, and specific financing options in particular. It is therefore recommended that: The language on key findings be revised to reflect these "mixed" responses. The report note that the importance of financing in general and specific financing options in particular could present valuable opportunities for further research in future studies.	It is important to review the responses to the financing questions in conjunction to the other barriers that show financing alone will not lead to project implementation.
Throughout		**Payback vs. Project Financials:** The report uses the term "payback" throughout the narrative to refer to a type of information that could be provided to customers to encourage program participation. However, it appears that a broader term such as "project financials" would be more appropriate in a number of cases. For example: Page 9 of the text indicates that "Payback Information Opportunities" refers to "Reduced Energy Bills," "Reduced Maintenance Cost," and "Return on Investment," none of which are directly related to payback. Table VI-9 on p. 37 indicates that 35-60% of respondents highlighted ROI as an investment criterion used by their firm when considering energy efficiency investments, but only 6 – 19% cited simple payback. The distinction between "payback" and "project financials" (or other financial criteria) is important, given that projects with a short payback period are not always the most comprehensive, though comprehensiveness is one goal of the programs. It is therefore recommended that: The term "payback" be replaced, where appropriate, with a more accurate term such as "project financials." The term "payback" be preserved where appropriate, as in the discussion of payback vs. other investment criteria. The report note that further exploration of which aspects of project financials are most	Agree. We have reviewed the report and made changes where appropriate using the term project financials as suggested.

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		important to customers could be a valuable area for further research in future studies.	
Executive Summary	ES-vi	The report note that further exploration of which aspects of project financials are most important to customers could be a valuable area for further research in future studies.	This recommendation for future research was added to the Executive Summary.
Executive Summary VII-Program Dropouts VI-Opportunities	ES-vi 43-44 35	**Dropouts:** The Executive Summary of the report notes that the vast majority of drop-outs stated there was nothing more the program could have done to encourage participation among drop-outs (p. ES-vi and p. 43). However, while this statement accurately reflects the response to one particular question (see Table VII-6 on p. 44), in other questions, large majorities of dropouts indicated there were indeed options the program could have offered that would have helped them move forward. Table VI-7A on p. 35 indicates that large majorities of both dropout groups cited a wide range of options that would have made them likely or significantly more likely to take action on energy efficiency improvements. Among the top eight options in this list, between 57% and 86% of the smaller dropouts and between 61% and 78% of the larger dropouts indicated that the options listed would have made them more likely or significantly more likely to take action. It is therefore recommended that: The "vast majority" language in the Executive Summary be re-characterized to clarify that while large majorities of dropouts in one question indicated there was nothing the program could have done to help them move forward, large majorities in other questions did indicate that a wide range of options would have made them more likely or significantly more likely to move forward.	The barriers and opportunities questions asked of drop-outs were referring to future energy efficiency projects, not the project for which they were a "drop-out". The one referenced question in the comment is the only one relevant to the drop-out project. The report further states that many of those who stated that they would be very likely to take action on energy efficiency if one of these offerings were available had barriers that the energy efficiency programs are unlikely to address. These significant barriers that were analyzed and included in the table below were as follows: lack of staff resources (e.g., time) for implementation, competing priorities taking precedence, did not plan on staying long enough in the property, and inability to share capital costs of energy improvements with tenants. Table VI-7B shows that a much lower percentage of customers stated they would be likely to improve energy efficiency but did not have one or more of the four barriers listed.
Executive Summary	ES-vi	The report note that further research on what, if anything, programs can do to help drop-outs move forward could be a valuable topic of focus for future studies.	This is added to the Executive Summary.

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Executive Summary	ES-vi	**Further Research.** It is recommended that the report highlight certain key topics that could present good opportunities for further research in future studies, either because the responses from this study raised additional questions, or because they were not specifically addressed within the scope of this study. Key topics might include the following: Project financials (see above): Further probing on key investment criteria and specific aspects of project financials that are important to customers. Financing (see above): Importance of financing/"capital availability" overall, given "mixed" responses noted above; importance of/preference for internal vs. external capital; attractiveness of specific features related to financing products (e.g., cash-flow-positive arrangements and guaranteed savings). Drop-outs (see above): What, if anything, programs can do to help drop-outs move forward. Market Barriers not Covered: Additional probing on certain specific market barriers not covered in this study, such as split incentives between building owners and tenants. Non-Energy Benefits: Value of energy vs. non-energy benefits in motivating various groups to move forward (e.g., fixing deferred maintenance, reducing O&M costs, increasing health & safety, reducing vacancy rates, increasing productivity, improving aesthetics).	This is added to the Executive Summary.
United Illuminating Company Comments			
General		The Companies request the findings of the report not be diluted by conflating the various different financial concerns into one larger "finance" issue as was discussed at the C&I committee.	Section VI provides the tables with the detail as in the survey questions. Not sure what change is being recommended for the report given the detail already provided there. Perhaps the presentation was less clear than the detailed report.
PowerPoint		The Companies are also concerned the draft report findings in the draft report are not adequately reflected in the PowerPoint presentation. As such, this presentation should not be considered an alternative document.	The PowerPoint presentation will not be considered an alternative document.
III-Methodology	20-21	Please provide further detail on how data for non-participants and drop outs was obtained.	Additional detail on the data has been added to the report.

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V-Challenges and Barriers	29	Please break down Table V-1 and the accompanying paragraph to make it less confusing.	Additional tables are added as V-1A and V-1B. The additional tables provide the previous questions about awareness of programs and types of assistance. Table V-1 is renumbered as Table V-1C.
VI-Opportunities	32	What does "not asked due to recoding" in Table VI-3 mean and how does it factor into the outcome?	Respondents were asked "Please tell me what you recall about the types of help or assistance that the Connecticut energy programs offer businesses like yours". If their open-ended response was coded as "Incentives for energy efficient equipment" or "Financing or loans for energy efficient equipment", they were asked the question "Did your business consider taking advantage of the incentives or financing offered by the program". Some customers responded (to the first question) something that was put in the "other" category by the telephone centers, and therefore were not asked if they considered taking advantage of the program offerings. The "other" responses were recoded into appropriate codes by more knowledgeable APPRISE staff. Some were coded to the responses that showed the respondent should have been asked about whether they considered participating. These respondents were put in the category "not asked due to recoding" because we did not have a response even though they should have been asked this question.
VI-Opportunities	34	In Table VI-6, what does "new strategic energy plan" actually mean? Is there any type of an indicator that suggests there will be a substantial push back on the idea of strategic energy management?	If the company had a new strategic energy plan, they may consider an energy efficiency project in the future. This is the question that was asked and no more information on this topic is available. There was only one manufacturing participant and one dropout who provided this response.

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VI-Opportunities	35	In Table VI-7a, regarding drop-outs was there any attempt to correlate the fact that the Dropouts did not move forward with their projects despite the Group receiving some portion of the top five items.	The barrier and opportunities questions were asked about potential future energy efficiency projects for drop-outs as were asked for other nonparticipants. They did not relate to the project for which they were a drop-out. Questions about the drop-out project were specifically asked of drop-outs and are presented in Section VII of the report. Language has been added to the report to clarify this difference in future versus drop-out project inquiries for this population.
VI-Opportunities	35	In Table VI-7a, was there any disclosure as to the definition of rapid payback?	The question was worded as shown in the table and the instrument in the report appendix. This could be an area explored in future research. Other reviewers asked for a small section on future research be added to the Executive Summary and we include further investigation regarding project financials.
VI-Opportunities	36	In TableVI-7b, why are the numbers so low in the 10-200kW size ranges especially when the four barriers are removed.	This was the response to the questions as asked.
Connecticut Green Bank Comments			
General		The survey questions and overall survey logic were designed in such a way that respondents were first asked about their level of awareness or familiarity regarding energy efficiency opportunities/programs/decision making and then asked detailed follow-up questions, regardless of the diversity in their ability to make informed responses.	We agree that there is diversity in ability to provide response. It is very difficult to obtain cooperation in a nonparticipant survey and the numbers of respondents were small. Therefore, it would be difficult to further parse this information.
V-Challenges and Barriers VI-Opportunities	29, 32	For example, Table VI-3 and V-I suggest low levels of awareness of programs. Why then were these participants included in the subsample for all subsequent questions regarding program design?	Even if customers are not aware of specific program offerings, they may be able to provide information on the types of assistance that could be beneficial. The programs generally want to reach and affect all non-participants not just those that have already heard about the programs. Additionally, it would be difficult to further parse this information because of the small number of respondents who were aware of program offerings.

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Appendix A	A-3	Table A3 suggests that many survey participants are a facilities manager, but Table A11 suggests that facility managers are much less frequently involved in investment decisions. Why then are these participants included in sample for questions related to financing decisions?	The screening for the survey asks for the person who is most knowledgeable "your company's decision-making process for building energy efficiency improvements". This is typical for almost all surveys in this field. If not, we learn almost nothing about energy efficiency decisions. The decisions most often involve several individuals serving in different roles. Table A9 shows that the respondents are all (but 1) involved in the decision process for capital investments. In fact, they have quite a few multiple roles beyond being part of the decision process (Row 1 in Table A9). Table A11, on the other hand, is asking who is typically involved and not surprising the business owner/franchise owner is involved. In that same table you notice the Chief Financial Officer & Finance Manager are seldom involved (at all), while the earlier table shows that the Facility Manager is involved and does so with many different influential roles (such as "Identify Needs, Research Options, Make Recommendations, and Perform Analysis).
VI-Opportunities	38	The surveyor's conclusions were often inaccurate and/or misleading. For example, the survey states "The majority of nonparticipants stated that financing was only of moderate or lower importance in their decision to move forward with an energy efficiency project." This is based on Table VI-10, where if the percentages in each answer category are added, the aggregate responses for "moderate importance to no importance at all" are nearly identical to the aggregate response for "moderate importance to very important.' It is clearly difficult to make a 'majority' conclusion here.	The responses to all the Likert scale "1 through 5" are consistently treated. This is very important for barriers and opportunities to be treated equally so the full story can be ascertained by including these responses together. Throughout the energy efficiency field and many others, summing responses 4 & 5, which are clearly directional and not neutral (such as "3") is the common practice. Using the custom of "3" as the neutral in the scale, the two 2 responses ("4" and "5") are not clearly the majority compared to the bottom 2 responses ("1" and "2"). Then these opportunities must be laid against all the barriers a customer faces in order to invest in energy efficiency. We believe that this is the key finding, especially when coordinated with additional barriers that are faced to energy efficiency projects.

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VI-Opportunities	38	Several questions were poorly worded. For example, questions like: "On a scale of 1 to 5 where 1 means "not important at all" and 5 means "very important", how important would outside financing be in your decision to move forward with an energy efficiency project?" are confusing because "outside" isn't defined.	We agree that a definition could have improved this question. However, compromises need to be made between added many definitions and keeping the survey to a reasonable length. A commonly accepted wording was used & reviewed by several survey experts. In general practice business management sees the distinction between outside financing (outside the firm) versus internal financing. Given survey length this general term was used. The survey instrument was then also put out for review for the entire C&I Committee and the Evaluation Committee at their request.
VI-Opportunities	38	Potential responses to these types of questions also seem particularly poorly worded: For example, the responses to the question "Now, I am going to list some of the ways businesses might finance energy efficient investments. Please tell me what you think your business' level of interest in them would be on a scale of 1 to 5 where 1 means 'not interested at all' and 5 means 'very interested'" are not displayed as ranked answers, but single percentages corresponding to types of financing.	Each respondent is given the opportunity to answer 1 to 5 for each type of financing. As you know, a Likert scale is not a normal scale where 2 = 2*1 or twice as important. We also do not think that the policy options are only choose one. If so, there might have been some justification to ask each respondent to order the type of financing. Either way, we get more/better information by having separate 1 to 5 for each type. If the respondent thinks one is slightly better than another but both are very interested – they can give those two types a score of "5" or if different enough in value in their mind they could provide a score of "4" for one and a "5" for the other. Consistently with all the other analysis of Likert scales 1-5 the analysis is using responses "4" and "5" and very interested and more than moderately interested. Then the reader can get a ranking of financing types from the percentage (%) of respondents that selected "4" or "5". To better see this ranking, the table is organized with the highest % on top (rather than the order of the questions). We welcome additional feedback and discussion on question wording if additional studies are undertaken.

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General		Most critically, the inconsistent, poor quality or complete lack of definitions of response options to survey questions acutely challenges the utility of the survey results and in some cases suggest a strong survey bias. One example of a lack of definitions is "lack of capital". The survey acknowledges that "lack of capital" – one of the biggest barriers cited – is not adequately defined, thus making it unclear whether respondents meant "internal corporate capital" or "outside financing" (or something else entirely). Given this conclusion, it is curious that the surveyors did not also acknowledge that "outside financing" itself was not defined, as it is equally unclear what unique type of financing this phrase conveys.	We agree that a definition could have improved this question. However, compromises need to be made between added many definitions and keeping the survey to a reasonable length. The survey questions are the same or similar as used in this field. Each survey can be unique in its specific goals or question wording and use in analysis. This work has undertaken much more thorough analysis then is often done, drawing upon the interactions between barriers and opportunities. This shows a complex mix of multiple barriers and opportunities. It does show that needed actions are complex and can be sobering in the number of customers having barriers that are not typically addressed in energy efficiency programs and may not be possible to be addressed. The true situation needs to be known and understood to do a better job in designing what may be complicated packaging of program offerings & matching customers to solutions that meet their needs. It also may mean that economic potential may be considerable different than what we can actual expect a cost-effective program is able to achieve. Not what we want to hear, but we do not find a bias given the type of analyses performed.
General		Equally challenging was the imbalance in how funding options were displayed and defined. Financing structures like C-PACE were consistently compared against concepts unrelated to financing like Performance Contracting and marginally related processes like 'Simplified and Expedited Loan Application Process'. Investment decision metrics like ROI were used without important complementary metrics like NPV. Financing options were compared without inclusion of rates, terms, project eligibility constraints, program caps, and loan caps. Certain financing options such as 'On Bill Financing' were described by surveyors as "Your utility or the Connecticut energy efficiency programs would finance the project up front, and you would repay that loan through your monthly utility bills. All other conditions being equal,	We welcome additional feedback on question wording if additional studies are undertaken.

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		your monthly utility bill would not increase, e.g., the financing costs would be at least offset by the energy savings" whereas others, such as C-PACE were described as "building owners to finance qualifying energy efficiency and clean energy improvements through placing a voluntary assessment on their property tax bill. Property owners pay for the improvements over time through this additional charge on their property tax bill and the repayment obligation transfers automatically to the next owner if the property is sold." The 'On bill' definition suggests projects are fully financed and repaid through energy savings, whereas the C-PACE definition (which also contains these features, see above) does not include this important information. This imbalance is important beyond how useful the survey results are. The survey fundamentally misconstrues the options available to customers and pits incentive-based programs against financed-based based programs that in fact, work in a complementary fashion to help customers achieve greater levels of energy savings in a cost-effective manner and with increasingly efficient use of ratepayer dollars. Throughout the survey, participants are asked to compare (internal) capital reserves and 'outside financing' against 0% interest or below market rates. Why is this question asked when state public policy is not to have ratepayer funds distort the private markets (DEEP final decision on the C&LM Plan)? It seems evident that customers will choose free money and 0% financing over market driven incentives and market rate financing. It is further counter intuitive to frame 0% financing against market driven incentives with market rate financing when the Connecticut Green Bank has evidence through its residential solar investment program that incentives can be reduced and market rate private capital for loan-lease financing can lead to a dramatic increase in the deployment of clean energy.	

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			Additional research through focus groups may shed light on these issues. The goal stated is one often cited overall or as a political goal. Using more private capital instead of ratepayer incentives does not necessarily mean this is the most cost-effective option. Research and analysis could include trying to determine the balance of greatest induced energy and demand savings and cost-effectiveness.
General		The survey suggests that was it most needed within CEEF membership and the market generally, is a greater amount of information regarding funding options and more effective messaging of how customers can harness and optimize available programs to achieve the stated goals in the survey: reduce energy bills, reduce maintenance cost, and achieve good return on investment. This will require clear emphasis on how incentive and financing programs can be used to achieve deep energy retrofits with no money down and immediate cash flow back to the building. Additional, strategically designed research could shed more light on how existing financing programs, including SBEA, EO, and C-PACE could be improved through process improvements, technical validation, turn-key packaging, etc. as well as which customers are not served by these programs. Our collective goal should be to reduce the amount of ratepayer incentives paid out per kWh of clean energy produced or MMBtu of energy saved by replacing public capital with more private capital so that the marketplace can achieve its potential.	A major contributing factor for cost-effectiveness is what the consumer would do without the intervention, whether it is education, technical assistance, rebate, financing, installing, management, quality assurance, etc., the counter-factual. For example, a lower incentive per bill savings may mean that only customers that would have made that energy efficient investment anyway take part in the program. In this extreme case the funding per customer is lower but no net energy savings is actually being obtained. On the other extreme is providing all costs, installation and quality control. In this case, many more customers would adopt energy efficiency than would do so otherwise but it is also very expensive. Getting all the data, particularly when these programs cannot use experimental design, is expensive and the analyses are complicated. There is at least theoretically an actual benefit-cost estimate that could be assessed and compared in each case. But it is not clear without this which is most cost-effective or where in between are the best options for CT as a whole. We agree that future research could be very useful. As stated earlier we have added a small section with these and with other suggestions for future research. One of the ideas we heard from the C&I Committee that appears innovative and needed would be to conduct 2 different types of focus groups regarding C-PACE. We think it is a concept not well known or

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			understood. That makes it one difficult to get the best information from a survey as was conducted. One focus group could provide only a minimal definition of C-Pace (as in the survey) and then discuss their reactions and opinions (with a trained focus group facility who knows that to correct or educate focus group members during their discussion). These results would be compared to a focus group with a true and significant C-PACE educational component and case studies. This 2nd group would have a discussion being posed the same leads/questions for discussion as the first group. The comparison could tell us the difference further education can make and start the path of finding the most effective ways to get that to happen and get non-participating customers to engage in these learning experiences.