Comments on DEEP's Draft Weatherization Definition for Single Family Homes

August 28, 2015

Introduction and Background

Acadia Center thanks the Connecticut Department of Energy and Environmental Protection ("DEEP") for the opportunity to submit written comments on the draft weatherization definition for single family homes issued by DEEP on August 4, 2015.

Acadia Center is a non-profit, research and advocacy organization committed to advancing the clean energy future. The organization is at the forefront of efforts to build clean, low carbon and consumer friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy and problem solving through innovation and collaboration.

Weatherization of our residential housing stock will be critical to achieving an affordable clean energy future in Connecticut. Done effectively, it can provide many important benefits to our residents and the statewide economy, such as:

- Dramatically improved energy performance in our residential buildings;
- Reduced energy costs and exposure to price volatility for residential customers;
- Reduced dependence on out-of-region, imported fossil fuels; and
- Reduced greenhouse gas ("GHG") emissions from the residential sector.

Seeking to capture these significant energy, economic, and environmental benefits, the Connecticut General Assembly in 2011 required the state's Conservation and Load Management Plans ("C&LM Plan") to "include steps that would be needed to achieve the goal of weatherization of eighty percent of the state's residential units by 2030."[1]

DEEP, the Energy Efficiency Board, and stakeholders worked together in 2011 and 2012 to produce a draft definition of "weatherization" that would allow the state to measure progress towards the 2030 weatherization goal. DEEP issued the first proposed definition for public comment on November 7, 2012. This draft definition endorsed three possible approaches for defining a building as weatherized: a prescriptive approach, a performance approach, and a scoring approach (using the U.S. Department of Energy's Home Energy Score). After taking public comment, DEEP did not issue a final determination.

Over two and a half years later, DEEP has now issued a revised draft weatherization definition. Acadia Center has concerns about this latest proposal. It is far weaker than the first one – for instance, lessening the number of required elements under the prescriptive approach and also selecting a Home Energy Score value that may allow as much as 60% of existing homes to qualify as weatherized. Worse, under the revised prescriptive approach, a

[1] *Connecticut General Statutes* § 16-245m(d)(1) (part of the governing statutory section for the state's primary energy efficiency planning document, the C&LM Plan; the statute does not define the term "weatherization").

home with no wall or ceiling insulation could be considered to be weatherized, even though those two building elements are typically viewed as fundamental weatherization treatments. All of these changes to the draft definition make it likely that nearly all existing homes in Connecticut could qualify as weatherized.

As we discuss in more detail below, DEEP needs to strengthen the definition to ensure that the weatherization standard ultimately adopted by DEEP is meaningful, effective, and complies with the General Assembly's intent in setting the 80% weatherization goal.

Discussion and Recommendations

Recommendation #1: DEEP Should Establish a Weatherization Standard

DEEP indicated at the public information meeting on August 13th that it may decide not to establish a definition, or standard, for the weatherization of single family homes. Acadia Center recommends against that option. DEEP needs to establish a weatherization standard so that regulators, policymakers, the General Assembly, stakeholders, and the public can track and measure our progress over time towards the 80% weatherization policy goal. Also, without a standard, it will not be possible for the state's energy efficiency programs to determine whether they are, in fact, taking the necessary "steps" in each three-year C&LM planning cycle to achieve the weatherization goal by 2030.

We should note, however, that no standard would be preferable to any standard – such as the one proposed most recently – that is so weak that it implies there is no need for additional work to be done improving the efficiency of residential buildings.

Recommendation #2: DEEP Should Use a Modeling Approach as the Standard

DEEP's August 4th draft weatherization definition allows for the use of three different standards: a prescriptive or checklist approach (the presence of any five building elements on the checklist means the home is weatherized), a performance or modeling approach (compares the energy performance of the home against an equivalent modeled home), or a score of 5 or better on the DOE's Home Energy Score (which uses an asset modeling approach).

Acadia Center recommends against using all three. Having three separate standards for "weatherization" will likely lead to poor results and confusion among policymakers, homeowners, and the housing market. Although this is certainly not the intent, this "pass any one test" method looks like a way to be able to maximize the number of homes that pass without regard to their actual performance. For the 80% weatherization goal to have tangible impact, the standard DEEP adopts must require the state's residential housing stock to actually improve its energy performance above the existing baseline. It is also easier to measure and communicate about progress if one common "yardstick" is used.

We therefore recommend that DEEP adopt a modeling standard as the best approach. A modeling approach that estimates the energy to heat and cool a home makes much more sense than a prescriptive or checklist approach. A checklist can lead to widely different results for homes that use about the same amount of energy because it does not account for the improved performance from exceeding individual items on the checklist. A "pick any X" approach to a checklist – as recently proposed by DEEP – makes even less sense because the individual items on a checklist invariably all have a different relative value in terms of contribution to energy use in a home. A modeling approach driven by a "pick any x" checklist makes the least sense, since it will lower the performance of the modeled standard as well. We do not recommend a checklist, but the use of a "pick any x" checklist to increase flexibility absolutely should not be the basis for a modeled standard.

Acadia Center also does not recommend that DEEP adopt a modeled standard (or any standard) that aims for minimum performance at the "median" of the existing housing stock, as suggested by DEEP at the August 13th public meeting. This does not seem in line with what the General Assembly intended with the weatherization goal. It is also a major departure from the prior draft definition, which first sought a reasonable level of performance for the weatherization goal and then considered how many homes currently met it.

We find that modeled approaches offer the best alignment with the legislative goal – a good level of energy performance in the state's residential buildings (as opposed to a high level; we are not suggesting that all homes should be high performing). Either the DOE Home Energy Score or another modeled standard can be used to more accurately assess and achieve this. Choosing a reasonable performance threshold is what is most important for establishing a weatherization standard. The tool or method to measure against that threshold is secondary.

Recommendation #3: If DEEP Uses the Home Energy Score, the Appropriate Score Needs To Be Determined.

The Home Energy Score may offer the easiest approach to assessing the modeled energy consumption of a home. Yet care must be taken with how it is applied in the Connecticut context. While DEEP has suggested that a score of 5 should be the performance threshold, it has offered no supporting evidence as to why this should be the case. If homes in Connecticut had an equal distribution of scores, which is unlikely, 60% of homes would already meet this standard, since DEEP is suggesting that 6 of 10 scores be considered passing (5-10) and 4 of 10 (1-4) be considered failing. This once again gives the appearance that DEEP is attempting to set the bar low and make the goal either easy to meet, or already met.

The Home Energy Score needs to be assessed with respect to the existing Connecticut residential building stock to calibrate the appropriate score for passing. The representative sample of single family homes measured for the NMR Single-Family Weatherization Baseline Assessment[2] offers the opportunity to do just that. That sample could be run through the Home Energy Scoring tool to determine the distribution of scores for those buildings, and thus the distribution of scores for all homes in the state with statistical significance.

Recommendation #4: If DEEP Uses the Home Energy Score, Adjustments or Accommodations for Larger Homes Should Not Be Made.

During the August 13th public meeting, DEEP stated that large homes do not fare as well in the DOE Home Energy Score system, and thus may need another mechanism for measurement. It is worth noting, however, that the Home Energy Score approach is comparing a modeled home to a single value for energy consumption, not a value of how an individual home would perform if it was built with good energy performance elements. The DOE has also modified its Home Energy Score methodology to address this issue with large homes.[3]

In addition, while larger homes score lower, the converse is also true – smaller homes score better. Since the score is based on something close to a typical or average home, any reduction in score for large homes should be balanced by a corresponding increase in scores for smaller homes. Adjustments for large homes should only be done in conjunction with similar adjustments for smaller homes.

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[2] The final report is available here: http://www.energizect.com/sites/default/files/R5-Connecticut%20Weatherization%20Baseline%20Assessment-FINAL%2006-04-14.pdf.

[3] *See* http://energy.gov/eere/buildings/home-energy-score-research-and-background.

We think those two things are likely to balance out in a system of accounting towards a state weatherization goal, but if DEEP is concerned about this issue, the solution should be to use a different modeling system than the Home Energy Score for this purpose.

Recommendation #5: DEEP's Weatherization Standard Should Be Used for Policy Tracking Purposes Only.

Acadia Center firmly believes that any weatherization definition adopted by DEEP should be used for tracking purposes only – in other words, to measure progress towards a policy goal, but not to enforce compliance on homeowners. We do not believe that the General Assembly intended for any weatherization standard to be a customer-facing compliance mechanism. Building rating systems, such as the Home Energy Score, are much more appropriate and useful as an educational tool for helping customers make decisions regarding energy improvements to homes, not as a regulatory tool. Customers should be encouraged to pursue cost-effective energy efficiency and weatherization upgrades to their home regardless of any definition of weatherization.

We further recommend that DEEP measure progress towards the 80% weatherization goal on a periodic basis using a representative sample of homes in Connecticut. Attempting to measure every single home that passes through the utility-administered energy efficiency programs will likely add unnecessary costs and will not automatically produce more accurate results.

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