



UIL HOLDINGS CORPORATION

157 Church Street, New Haven CT 06510-2100
203-499-2000

January 15, 2016

Lisa Skumatz, Ph. D.
Skumatz Economic Research Associates (SERA)
762 Eldorado Drive
Superior, CO 80027

Re: R151 Draft Connecticut HES Air Sealing, Duct Sealing, and Insulation Practices

Dear Ms. Skumatz:

The United Illuminating Company ("UI") hereby submits the following comments on R151 Draft Connecticut HES Air Sealing, Duct Sealing, and Insulation Practices, dated December 23, 2015 with a request to provide comments by January 15, 2016.

The Company feels that the evaluation vendor NMR Group, Inc has presented a draft report that generally meets the stated goals:

- To provide a study that identifies new areas where energy saving opportunities for the program to increase savings related to Air Sealing, Duct Sealing, and Insulation.
- To provide data from five main areas:
 - energy-saving opportunities
 - participation patterns
 - vendor practices
 - quality assurance and quality control (QA/QC)
 - drivers, motivations, obstacles, and barriers

The report provides a variety of conclusions and recommendations. These support actions the Companies are already taking. Some comments follow:

Recommendation 1: Although the current program is not permitted to fund remediation for health and safety issues, the EEB and program staff should carefully consider whether or not the HES program can be amended to include additional incentives or other possible strategies to aid customers in addressing health and safety issues. Program staff should consider creative solutions that fall within the scope of services offered through the program.

The Company places the Health and Safety of its customers as the highest priority in the program, and this is reiterated to all vendors in trainings, meetings and the field implementation manual. Health and Safety issues require funding to remediate. The 2016-2018 Plan Text addresses the need to finance Health and Safety remediation



in HES homes, and The Company, and its vendors, refers customers to financing offered through our partner agencies to help cover the costs of these items. The Company believes that better financing options are needed to encourage more customers to remediate health and safety hazards and upgrade their home's energy efficiency.

Recommendation 2: The HES program should reinforce proper blower door protocols with HES vendors. Specifically, the implementation manual should state that finished or fully heated basements should be treated as conditioned space and included in the building envelope for testing purposes, in accordance with BPI and RESNET guidelines. To ensure consistency and comparability of results between vendors, the program could also require vendors to report on the physical characteristics of basement areas, including level of finish, insulation, and type of heating system present.

The Company requires that all lead technicians operating in the program have both BPI Building Analyst and BPI Envelope Professional Certifications. Additionally, in 2016, it is now required that lead technicians have at least 4,000 hours of industry specific experience. The purpose of the field implementation manual is to complement BPI protocols and provide clear and concise guidance on program specific requirements. It is the expectation of every lead technicians that BPI protocols are strictly adhered to, and this is monitored through a robust QA/QC process that has inspectors inspect 5-10% of all vendors' projects. Additionally, in 2016, the Company will be increasing the inspection percentage to up to 100% inspection rate for vendors that consistently receive poor inspection reports.

Recommendation 3: The HES program should strongly encourage the use of mastic, rather than foil tape, for proper duct sealing, and ensure that any tape is firmly adhered to clean surfaces.

The Company agrees with this recommendation. In 2015, the program rule was changed to require vendors to use mesh tape with mastic when sealing air ducts.

Recommendation 4: The HES program should promote the use of two-part spray foam to fully cover rim joists in basements, rather than targeted air sealing of penetrations. The program could also consider incentivizing HES vendors for this measure as it can also serve as insulation.

The Company recognizes that rim joists are potentially a major source of heat loss and air infiltration, particularly the rim joist area right above the foundation. This



measure is generally addressed through our add-on rebates and not through the core services to fully address these areas. These areas are pointed out to customers, and recommended as part of the Kitchen Table Sales Effort.

Recommendation 5: The HES program should consider incentivizing blown or spray-applied insulation materials rather than fiberglass batts. If homeowners choose spray-foam attic encapsulation, the program should also consider including additional incentives for any additional air leakage reductions that result.

Blown-in cellulose, fiberglass batts and spray foam insulation are all currently incentivized in the program. Cellulose is generally recommended for most customers. Insulation contractors are hired by our customers independently of the program, and although a blower door test conducted by a BPI certified technician is highly recommended, it is not currently required. The Company has considered making this a requirement; however, this would significantly reduce the availability of insulation contractors and raise insulation costs to customers, leading to fewer upgrades. Additionally, in certain applications and when properly installed, fiberglass insulation can be an extremely cost effective energy savings measure.

In most cases, BPI requires Blower Door tests should be performed prior to, and after, the installation of certain types of insulation in certain areas to ensure adequate air flow. Our vendors recommend this process, and the recommendation is also included on the HES insulation rebate.

Recommendation 6: The program should carefully consider if the amount of air sealing opportunities being left on the table, as shown in this evaluation, are acceptable. If not, the program should consider working with HES vendors and the QA/QC vendor to ensure that more air sealing opportunities are captured.

The Company has always, and will continue to work hard with vendors to locate any and all air sealing opportunities, and will continue to do so. The evaluators did not conduct any "in-progress" inspections, and only performed post-inspections of HES jobs. The evaluators did not run a blower door to determine the ACH of the home to determine whether further air sealing was feasible, or if the "opportunities" found through a visual inspection were actually significant sources of air leaks.

The Company is committed to capturing all potential savings, and our QA/QC process requires our inspectors to ensure that the "A,B,C's" (Attic, Basement and then Conditioned spaces) are being properly followed in accordance to BPI guidelines and basic building science principals.



The Company is disappointed that the results of this study do not provide a concrete calculation of the amount of air sealing being missed. Although the study would indicate that there are some missed opportunities, we can't determine if this is an acceptable level or not.

Recommendation 7: The program should carefully consider if the amount of duct sealing opportunities being left on the table, as shown in this evaluation, are acceptable. If not, the program should consider working with HES vendors and the QA/QC vendor to ensure that more duct sealing opportunities are captured.

The Company has always, and will continue to work hard with vendors to locate any and all duct sealing opportunities, and will continue to do so. The evaluators did not conduct any "in-progress" inspections, and only performed post-inspections of HES jobs. The evaluators did not run any diagnostic testing on the duct work to determine whether further duct sealing was feasible. Vendors must first determine whether the system has proper air flow to avoid damaging the systems.

The Company is committed to capturing all potential savings, and our QA/QC process requires our inspectors to ensure that all duct sealing opportunities are being adequately addressed.

The Company is disappointed that the results of this study do not provide a concrete calculation of the amount of duct sealing being missed. Although the study would indicate that there are some missed opportunities, we can't determine if this is an acceptable level or not.

Consideration 1: HES vendors should consider implementing a two-stage audit approach, where technicians perform an initial walk-through to identify any issues (including health and safety) that might prevent them from performing core services, along with potentially installing direct install measures, such as light bulbs and water conservation measures. During the initial walk-through, vendors can assess what specific resources may be needed to achieve the greatest savings in the home, and assign the appropriate resources to return to the home and complete all core services. The program could aid in this effort by making clear to HES vendors that such an approach is allowed and encouraged—perhaps by adding it to the HES implementation manual as a recommended best practice.

The Company does not understand why the vendors are having difficulty providing adequate services within the time constraints. In the case of air and duct sealing the vendors are paid based on CFM reduction, the only time constraints are put on by the vendors themselves. In order to capture more savings in less time the Company encourages the Vendors to ask the correct questions before visiting the home as to adequately assess the situation in order to budget their time conservatively.



Our “one-stop” audit approach is one of the most successful components of our program. It allows customers to receive many weatherization measures at the time of the initial service and then focuses on providing a comprehensive assessment to help the customers achieve deeper energy savings. The HES program consistently outperforms similar programs in other states in regards to achieving air and duct sealing in customers’ homes. This is due to the current process, and the Company believes that a two-stage audit would be detrimental to the success of the program.

Consideration 2: The program should consider adjusting the QA/QC scoring criteria such that the quality and completeness of the weatherization service, such as air sealing, is categorized via more than one metric, allowing the QA/QC vendor to more fully capture and judge the quality and completeness of the vendor’s work separately. The program could establish minimum thresholds for both quality and completeness.

This is addressed for both quality and completeness, and is specifically detailed in the QA/QC manual. The Company does not consider a job to be “quality” if it is incomplete; the two are linked. Having two metrics that covers each individually will allow vendors to make up for deficiencies in one category by efficiencies in the other. This process would actually lower the bar for air sealing quality and be counterproductive. For example, a vendor may install a door sweep and do nothing additional in the home. The door sweep may have been a “quality” installation, but the job is not complete. This is certainly not a strategy that the Company believes will benefit the program.

Consideration 3: Understanding that program staff are in regular contact with HES vendors, evaluators believe that the program may benefit from convening a panel of the program’s most active vendors to provide regular feedback on the program. This may be important given the upcoming changes planned for the program since it will provide a feedback loop to determine how programmatic changes are affecting vendors and the program.

The Company looks at vendor performance monthly and meets individually with vendors that are not achieving their goals, or receive poor inspection marks. We hold vendor meetings to address all vendors and provide notification of program changes. We do not show favoritism to certain vendors, and work with all vendors to ensure all vendors have access to the same information. When updates are being considered, the Company provides sixty (60) days’ advanced notice to ensure program compliance.



Consideration 4: The program should carefully consider whether the pricing structure is properly motivating vendors to go after all easily accessible and achievable air and duct sealing opportunities.

Incentivizing air and duct sealing pricing based on CFM reduction incentivized vendors to go after every possible area of leakage up to the MVG, to capture the maximum amount of savings without compromising indoor air quality. The more reduction obtained, the more the vendor is paid. This structure has significantly increased the CFMs captured in each home, and along with a robust QA/QC process and increasing experience and certification requirements of lead technicians will continue to improve the opportunities realized within the program.

Since there is no specific recommendation, it is unclear to us what pricing structure change might better accomplish this objective.

Specific comments to the evaluation are provided below:

Pg 8, 12, and 48, It might be coincidental but the exact same percentage (48%) of participants who said they engage in the HES program to save money, saved money. Regardless, the Company recommends utilizing other evaluation methods as more of a valid means to assess program energy saving effectiveness than surveying the customers.

Page 8, Also the study claims that the participants voiced strong satisfaction with the program and saw it as a great value but only 48% saw a decrease in their energy bill, this appears contradictory. It is not immediately clear what aspect made the participants satisfied with the program, clearly differentiate between satisfaction with energy savings and satisfaction with other parts of the program

Page 13, A chart would be an effective way of conveying the air sealing percentages listed

Page 24 and a few others, the bar color scheme on the side of the page linking the text to the data source is good however it would still be good to label the colored bar like page 23

Page 31 and many others, the study should provide more references to the back of the research paper where the relevant data is graphed/plotted.

Throughout the study it is not clear how the sample of homes and projects were chosen for analysis. The kickoff presentation stated that the study would target lower level performance for sampling, is this the case for these on-site inspections? If this is not the case at what point in time did the SOW change, and was the committee informed? These should be clearly addressed in the evaluation report. The Company requests that



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the evaluator provide a list of homes that were included in the site visits with details on the findings (including categorized missed opportunities) for each home.

Throughout the study, many recommendations have already been considered and addressed by the Company. It would be helpful for the evaluators to meet more regularly with program staff and analyze areas that have not been addressed to better improve the program.

Thank you for the opportunity to provide these comments.

Very truly yours,

A handwritten signature in cursive script that reads "Patrick McDonnell".

Patrick McDonnell
Director of Conservation and Load Management