

January 15, 2016

Scott Dimetrosky  
Apex Analytics, LLC  
1525 Spruce Brook Street, Suite 200  
Boulder, CO 80302

**RE: Eversource Review of Connecticut HES Air Sealing, Duct Sealing, and Insulation Practices Report (R151)**

Dear Mr. Dimetrosky,

Eversource Energy (“Eversource”) is pleased to submit these written comments with regard to a draft evaluation report: *Connecticut HES Air Sealing, Duct Sealing, and Insulation Practices Report* (“Report”), December 23, 2015, NMR Group, Inc. (“Evaluator”). The objective of the Report was to identify opportunities for the Home Energy Solutions (“HES”) Program to increase savings related to air sealing, duct sealing, and insulation. Eversource recently received the report with a request to provide comments by January 15, 2015.

HES was developed in 2006 in response to the growing need for a residential statewide program that provided reliable and predictable energy savings. Since that time, it has grown into a nationally recognized program delivering fuel blind, comprehensive savings through a contractor network that now totals more than 40 vendors. Eversource is committed to a process of continuously improving its status as an energy efficiency leader. For example, Eversource has recently added additional inspection resources and increased the number of field inspections to ensure that vendors are adhering to HES program guidelines including the pursuit of all cost effective savings opportunities in homes. To that point, this Report provides invaluable information that will be proactively used by Eversource to make positive changes to the program including increasing vendor training and further enhancing QA/QC processes.

Eversource would like to provide the following constructive comments and suggestions for consideration in the final Report. Eversource generally agrees with the findings in the Report, specifically that there are clear opportunities for HES to deliver additional savings in customers’ homes. Eversource believes that the value of the Report as a tool will be greatly improved by incorporating these comments and recommendations into the final Report.

- Recommendation 1 states that five other leading HES-type programs provide loan products which provide limited funding to support remediation of substantial health and safety issues. Eversource requests that the Evaluator provide additional information on these programs including the amount of funding available, the source of the funding, interest rates, and what types of remediation work can qualify for these loan products. Also, it would be informative to know whether these programs quantify these improvements and are able to include them as part of their benefit cost testing (as non-energy benefits).

- Recommendation 4 states that the HES program should promote the use of two-part spray foam to fully cover rim joists in basements and consider paying incentives based on its insulating value. Eversource agrees that spray foam can be an effective air barrier and can be used in certain situations (e.g. older homes) in lieu of sealing individual penetrations. As such, vendors are compensated for the use of spray foam to reduce infiltration. However, Eversource believes that the Report should clarify under which situations spray foam should be used, and should *not* be used, to provide insulating value. For example, insulating the rim joists without also insulating the concrete walls of an unconditioned basement (a common practice) provides a miniscule insulation benefit. In addition, the Report should also note that spray foam is generally considered a relatively expensive material for insulating purposes, and that once air sealing is accomplished, it may be more cost effective to choose less expensive insulating materials (e.g. properly installed fiberglass batts) for the purpose of adding additional R-value.
- Recommendation 5 states that the program may want to consider additional incentives for any additional leakage reduction that takes place when attics are encapsulated with spray foam insulation (e.g. attic rafters and eaves are insulated with foam rather than the more conventional process of insulating the attic floor). Eversource believes that this recommendation is misleading because it implies that there is additional energy savings with encapsulated attics. While it may be true that encapsulated attics may lead to reduced leakage, part (if not all) of this savings may be offset by the larger surface area and the lower R-value (typically R30) of the spray foam insulation that is used. Eversource recognizes that there is merit to this strategy in certain situations however, this Report recommendation should provide an objective and balanced assessment of attic spray foam insulation.
- Recommendation 6 (air sealing) and recommendation 7 (duct sealing) both state that the program should consider whether opportunities being left on the table are acceptable. This recommendation is impossible to act upon because the Report does not provide sufficient detail on the opportunities that were observed. For example, large air sealing opportunities may have been observed (e.g. an attic duct chase) and air sealing opportunities that provide diminutive, if any, impact<sup>1</sup> may have been observed. Likewise with duct sealing, the Report does not provide sufficient detail on the types and severity of the leakage observed. While the evaluation provides statistics on air sealing and duct sealing opportunities (e.g. 46% of accessible attics are not sealed), the Report does not attempt to quantify the impact of these missed opportunities, describe their characteristics or severity, or identify whether they are cost effective. Rather all missed opportunities, whether minor or large, cost effective or not, appear to be lumped together within the Report and simply labelled as missed opportunities.

Eversource requests that complete and detailed data is included in the report that provides descriptions on the types of air sealing and duct sealing missed opportunities that the Evaluator uncovered. Absent this level of detail, it will be difficult for Eversource to act

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<sup>1</sup> For example, sealing a small (¼ inch x ¼ inch) hole would result in a CFM reduction of approximately 1, well below the accuracy of a blower door.

upon these recommendations and to properly evaluate whether these missed opportunities are acceptable and/or cost effective. Eversource understands that the Evaluators did not conduct testing on these homes to quantify the impact of these missed opportunities or to assess their cost effectiveness. However, Eversource believes that the Report should include detailed descriptions on a house-by-house basis, of all the observed missed opportunities (e.g. categorize the observed missed opportunities as large attic duct chases, insignificant pin-holes, top plates etc.), and areas with inadequate quality of workmanship (e.g. incomplete air sealing around a plumbing penetration). This data should also describe the accessibility of these opportunities (e.g. was the attic floored, were ducts readily accessible, etc.), a qualitative assessment of their cost effectiveness, and situations where air sealing or duct sealing may not have been completed because it was not allowed under program rules<sup>2</sup>.

- In order to maximize the usefulness of this Report, Eversource requests that the Evaluator provide an appendix that identifies the homes that were included in the site visits (by job numbers) and the detailed findings for all homes. This information will enable Eversource to conduct a follow up analysis on the Report including comparing the findings with its own tracking data, identifying possible trends, and implementing appropriate follow-up actions.
- Lastly, the photos in Appendix C are a very useful component of this Report. Eversource requests that job numbers be included on these photos. Also, Eversource requests that any photos that were taken that were not included in this Report be provided (along with descriptions and job numbers for identification). A complete labelled library of these photos will serve as a training aid for vendors and enable Eversource to better follow up on the Report results.

Eversource thanks the Evaluator for providing a very thorough and candid draft Report and appreciates the opportunity to provide comments. To help ensure efficient and timely completion of a final Report that provides utmost value, Eversource encourages clarifying questions from the Evaluator (via the established evaluation protocols) on these comments.

Sincerely,

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<sup>2</sup> For example, duct sealing is not allowed if the duct test shows low air flow rates in the duct system. In a similar fashion, air sealing is only allowed if the home is above the minimum ventilation guideline (MVG).