October 14, 2014

Craig Diamond
Executive Secretary, CT Energy Efficiency Board
10 Franklin Square
New Britain, CT 06051

RE: CL&P Review of the Single Family Potential Study (R15)

Dear Mr. Diamond,

The Connecticut Light and Power Company (CL&P) is pleased to submit these written comments with regard to a draft evaluation report: *Single-Family Potential Study (R15),* ("study"), September 5, 2014, NMR Group, Inc. ("Evaluator"). The draft study was submitted to CL&P on September 11, 2014 with a request for comments to be provided by October 14, 2014.

The primary purpose of the study for was to provide DEEP, the EEB, and CL&P with estimates of potential energy savings in single-family homes in Connecticut. The study examined four scenarios of energy savings: technical, cost-effective, achievable and fuel-switching.

Because the results of potential studies have far-reaching implications from public policy and program planning perspectives, underlying assumptions inherently embedded in these studies must be rigorously researched, unbiased and reliable. The results of potential studies guide and support energy policy by providing estimates of economic impacts and environmental benefits from energy efficiency. Potential studies also help program design and optimization by providing critical data that can be used to determine realistic goals and funding levels and help guide segmentation efforts. Because of these important uses, these studies require a high level of transparency with all critical assumptions and calculations clearly articulated. This study fails to consistently meet all of these criteria and therefore should be considered incomplete at this time.

With appreciation of the work that went into this study, including the evaluators generating over 3,000 building simulation files, CL&P requests that additional documentation and supporting data be included. Critical assumptions within the study appear to be undocumented, not included in the study at all, or not well supported. Therefore, CL&P is unable to conduct a thorough review of the study results, its findings, conclusions or recommendations. Once further data is provided and the study is completed, CL&P requests the right to provide additional comments on the assumptions and findings.

CL&P urges that the EEB Evaluation Consultants direct the Evaluators to provide additional data, analysis, and documentation for the study, including but not limited to the following areas:

- **Ductless Heat Pumps**. Ductless heat pumps (DHPs) have the greatest overall energy savings and were installed in 100 percent of homes (for the technical feasible scenario)

according to the study. While CL&P believes that DHPs are an effective measure in many circumstances, this does not appear to be a plausible development of the HVAC market in Connecticut, which utilizes several different technologies. CL&P requests that the evaluators provide supporting documentation on the study's assumptions about DHPs, including information on savings per unit, cost per unit, heating and cooling efficiencies, unit sizing, fuel savings, customer dollar savings, benefit-cost testing, etc.

- **Solar Technologies**. Solar technologies accounted for 42 percent of the overall technical savings for electricity. The energy savings assumes a 60% penetration rate based on "interviews with several solar contractors". CL&P requests additional detail on this survey and/or supporting documentation for this assumption for both photovoltaic and solar thermal systems. Also, the evaluators should include other relevant parameters of these systems including size, cost, output, savings, benefit-cost testing, etc.
- **Growth Rates.** It is unclear whether growth rates accurately account for the effect of energy efficiency. For example, energy efficiency savings in the study are deducted from the growth rate for natural gas of 0.7%, but current energy efficiency programs are already reflected in the modeling generating that figure. CL&P requests that evaluators assess whether energy efficiency is being accounted for in the source, in the study, or in both.
- **Fuel Switching.** CL&P is concerned that the results of this section are based on several general assumptions that may not be fully developed. For example, the upfront cost of fuel converting and the monetary customer savings were not assessed in this study, although these are critical considerations to customers. Therefore, it is impossible to validate whether the results of the fuel switching section are reasonable based on anticipated customer cost and savings. CL&P requests that evaluators include all relevant assumptions including customer cost and payback information, and provide additional supporting evidence for the assumed penetration rates.
- **Benefit-Cost Screening and Measure Detail**. One explanation for the mismatch in this Study between achievable potential and current program activity might be that the study does not screen measures for cost-effectiveness in a manner consistent with Connecticut statute and regulations. Detailed information on measures and benefit cost results should be presented for all measures and scenarios including assumed costs for measures, expected energy savings, peak savings (where applicable), measure life, non-energy benefits, etc. CL&P understands that this information may be somewhat voluminous and suggests that it could be included in an appendix as a supplement to Chapter 5 of the study. This information would help support some of the recommendations in the study, such as providing incentives for foundation wall insulation and water heater insulation.
- **Achievable Potential Savings**. Achievable potential is estimated at approximately 7 percent and is calculated from the "likelihood of energy upgrade adoption" (based on a penetration rates for various measures). Paradoxically, the savings potential is currently lower than the savings currently yielded through the C&LM portfolio. The evaluators

should provide analysis and justification for the penetration rates of measures, program savings, program funding levels, codes and standards savings, etc. Additionally, the study should consider presenting a "maximum achievable" scenario and a "most likely" achievable potential consistent with other potential studies.[1]

CL&P appreciates the opportunity to respond to this study with constructive feedback. CL&P will be willing to discuss these recommendations in person with the evaluator (through the current EEB Evaluation Road Map process). CL&P looks forward to receiving an enhanced draft of the study and reserves the right to comment and provide additional feedback on the methodology and results once that study is completed.

Very Truly Yours,

Joseph Swift

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[1] For example, see: www.aceee.org/files/proceedings/2008/data/papers/5_297.pdf