

February 14, 2014

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

RE: CL&P Review of the Energy Opportunities Impact Evaluation

Dear Ms. Skumatz,

The Connecticut Light and Power Company (CL&P) is pleased to submit these written comments with regard to a draft evaluation report: *Evaluation of the Energy Opportunities Program: Program Year 2011*, (“Study”), December 17, 2013, Energy Market Innovations (“evaluators”). The draft Study was submitted to CL&P on December 17, 2013 with a request for comments to be provided by February 14, 2014.

The primary purpose of the Study for Connecticut was to provide DEEP, the EEB, and the electric utilities (“the Companies”) with energy and demand estimates for the Energy Opportunities program and provide recommendations for program improvement.

Overall, CL&P is pleased with the Study, including its content, organization and level of detail. CL&P will review these findings and incorporate them into future planning efforts and the Connecticut Program Savings Document (PSD).

CL&P would like to offer its constructive comments and recommendations pertaining to the Study for consideration:

Timing of Issuing Draft Study on 2011 Project Activity

CL&P suggests that the evaluation team investigate ways to shorten the timeframe to release the initial draft report and site reports. This draft report was released almost two years after the close of the 2011 program year, and such a long time period between activity and evaluation inherently results in recommendations that have already been implemented by the companies or are otherwise dated.

Forward-Looking Realization Rate

In addition to the historical evaluation of program year 2011, the Study provides a forward-looking evaluation rate explicitly for use in future program years, which acknowledges improvements already made to the Connecticut Program Savings Documentation (PSD). CL&P appreciates this additional effort and requests that a table detailing the revised lighting, existing non-lighting, and revised overall realization rates be included in the Study, so that future editions of the PSD can directly reference these values. In addition, the evaluators may wish to make this result more prominent by including it in the Executive Summary.

Statistical Methods

Given the critical importance and cost of this evaluation, more detail on the sampling strategy would be valuable. In particular, the precision seems to be calculated based on the assumption of a **simple randomized sample**, but the documentation indicates that a stratified sample was taken of at least lighting measures. Outstanding questions include:

- Why the precision calculation does not account for stratification
- Why non-lighting measures were not stratified based on size¹
- Whether stratified ratio estimation was used to provide results
- Reasoning for or against selection of a census stratum

The Study mentions that sample design was “similar” to the 2010 EO evaluation conducted by KEMA. However, the sample design of the Study appears to differ in key regards, notably the lack of stratification among non-lighting projects. Additionally, while the detail provided in the 2010 evaluation is still insufficient to evaluate the sample design, it appears to utilize cumulative root frequency stratification boundaries with uniform allocation. This method may not be appropriate for the highly skewed populations typical of large commercial and industrial energy efficiency programs, because it assumes the finite population correction can be ignored and poorly accounts for any census strata.

CL&P appreciates that extreme variability of results and limitations in tracking system data are significant impediments to sample design. The use of a census stratum may not be warranted if there is significant risk that all sites will not be sampled. However, this heightens the importance of optimized stratified sampling and the need to document methodology, particularly in light of the Study objective to “emphasize high impact measures that account for a majority of the program savings”. CL&P recommends a well-documented and optimized sample design for all major evaluations.

Little can be done about the sample design at this stage of the Study. However, if a stratified sample was taken of lighting measures, it is critical that the final precision reflect that stratification, rather than use a simple formula inapplicable to the actual Study design. This is especially important because the Study failed to meet its design goal of 10% precision at the 80% confidence level, despite the use of a sample twice the size of that used in the 2010 evaluation. CL&P asks that evaluators reexamine the precision calculation, particularly with respect to the lighting stratification, and provide further detail on the sample design.

¹ The Study states that “non-lighting measures were too diverse to target for stratification with available evaluation resources”. This is an understandable reason not to further stratify by measure type, but does not explain why measure size was not used as a stratification variable.

Variability of Results

The Study describes extreme variance in realization rates, particularly for demand realization rates and for non-lighting projects. The ex-ante error ratios assumed by the evaluators appear to be reasonable, conservative, and consistent with past evaluation, and although the observed error ratios adversely affected the Study design goals, CL&P does not fault the evaluators for this discrepancy in results. However, CL&P would appreciate any guidance the evaluators can provide on the reasons for this discrepancy between the 2010 and 2013 evaluations, the normality of these error ratios relative to those of other large C&I retrofit programs, and any steps the Companies and future evaluators can take to deal with this variability. The Evaluation Recommendations provided by the evaluators are very helpful in this regard, and additional descriptive statistics related to this variation beyond coefficients of variance would be useful to have for both future evaluators and program staff.

Restated Demand Realization Rates

The evaluators provide minimum bounds for the demand realization rates at 80% confidence to show that these realization rates remain above 100%. CL&P appreciates this effort. However, since these realization rates must be applied to demand savings values before they are reported to ISO-NE, it would be more useful to offer alternative realization rates which offer equivalent downside precision to the 80/10 criterion. For example, the evaluation provides a 127% realization rate with 15% relative precision for summer demand savings and a minimum 112% realization rate at 80% confidence. If the evaluators believe in this case that use of a 122% realization rate for ISO-NE purposes would provide 80% confidence that savings exceeded 112% of ex-ante savings, documentation of that belief in a table would be very helpful. Because CL&P performs precision calculations on a portfolio basis and use of this realization rate may not be necessary to meet precision requirements, these rates should not be presented as the official realization rates or the official ISO-NE realization rates, but their presence would be helpful.

Site Reports & Specific Data

It is immensely helpful for the utilities to have reference to specific but non-confidential data which identifies projects, such as project numbers, especially in reference to projects where evaluators identified significant discrepancies. For example, page 30 of the Study identifies a project CL&P needs to investigate, but does not provide any identifying information to allow that follow-up. More helpful still are the site reports, which allow a site-by-site analysis of successes, failures, and lessons learned. CL&P understood that site reports would be provided to the Companies as they were available, but has not yet received them. Comments made by CL&P on this evaluation without having access to the site reports, which contain most of the work done by evaluators, must be considered incomplete. CL&P hopes that evaluators will be able to provide site reports and project numbers for all referenced projects before the final version of

this evaluation is released. CL&P requests the opportunity to comment on the site reports once they are released. For future evaluations, CL&P requests that site reports be released with the evaluation whenever possible, as they provide critical insight and program feedback.

Program, Project, and Customer Assignment

The Study cites four measures on pages 31-32 as likely involving replacement of equipment past their useful life, and failing to meet the program requirement of 25% of useful life. CL&P notes that these measures were, in fact, Energy Conscious Blueprint (ECB) measures, claiming ECB savings based on a lost opportunity baseline, not a retrofit baseline. CL&P pursues a “program-blind” comprehensive approach in order to drive deeper savings for customers, including the combination of lost opportunity measures with retrofit measures. In fact, CL&P specifically encourages this bundling among customers and trade allies in order to help overcome payback hurdles on projects like chillers and RTUs, which may otherwise be unsolvable problems. Occasionally, this results in ECB measures being included under EO-majority projects which receive EO designations in our tracking system. CL&P understands how this could be confusing, and appreciates the opportunity to explain this discrepancy.

Response to Recommendations

In general, CL&P appreciates the work done by evaluators in this process evaluation. However, the long lag time between the projects in question and the release of this evaluation (two to three years) means that many if not most of the concerns raised are outdated or already addressed. CL&P will continue to work with evaluators and the Evaluation Committee to shorten the loop on process evaluations and ensure that they contain timely, relevant, and actionable data.

CL&P also highlights the note by evaluators that “some evaluations may not be reasonable depending on the cost analysis of implementing them”.

The evaluation team recommends that the program administrators investigate the feasibility of offering qualifying organizations some form of subsidized energy audit.

CL&P has investigated the feasibility of subsidized energy audits in multiple programs, including Energy Opportunities as well as the Retro-commissioning and Operations & Maintenance. Under current program guidelines, this is a permissible measure.

CL&P notes that the paper² cited by evaluators as a basis for this recommendation does not compare energy audit programs to programs without energy audits, but a single evaluated energy audit program to other energy audit programs. CL&P feels that energy audits have value and help some customers build confidence, but emphasizes that they need to be reviewed for cost-

² Paper presented at the 2013 International Energy Policies & Programmes Evaluation Conference (IEPEC) by Jonathan Maxwell, Satyen Moray, and Rebecca Reed Gagnon titled, “Auditing Audits: Big Savings Found in Long-Term Assessment.”

effectiveness and offered with a reasonable expectation that they will lead to a completed project.

Offering energy audits and site assessments, even under a cost-share arrangement, needs to be balanced against program implementation budgets and general program activity, which has recently been very heavy.

The evaluation team recommends that the PAs consider expanding the timeframe for determining which energy efficiency projects qualify for the added comprehensive projects incentive.

CL&P continually works to refine its guidelines for comprehensive project incentives, which are a key part of the program and contribute to the high levels of comprehensive projects in Connecticut. Many comprehensive projects currently span multiple years and multiple phases, and program staff do a great deal of work ensuring that comprehensive projects meet program guidelines and can be properly considered for all applicable program incentives. Timeframes are always discussed with customers at time of compiling the LOA (i.e. contract). Historically, there have not been reasons for denying any customer a multi-year time frame to complete a set of measures in any given LOA. In fact, CL&P and YGS extend LOA expiration dates based upon input from the Customer.

CL&P notes that expanding the timeframe for this incentive has cost-effectiveness implications. Additionally, having a limited window is an important way to encourage the adoption of the full comprehensive package. Even with the addition of the comprehensive bonus, a single non-lighting measure may not pass an internal payback period hurdle if delayed into a future year because there is no penalty for doing so.

In addition, there exists an inherent gap in only evaluating one calendar year of EO projects, as a significant number of projects span multiple years. Thus, the measures that the evaluator sees may only be the first set of many or the last set of many measures in a comprehensive LOA project, which may skew the evaluator's perspective of what was done in that year compared to the total number of measures in the LOA.

The evaluation team recommends that the PAs continue to improve vendors' awareness of the comprehensive project incentive.

CL&P conducts frequent vendor training sessions and believes that there is strong awareness among many vendors of comprehensive incentives. As noted by the Study, however, many vendors do not see a competitive advantage to installing energy efficiency equipment outside their strategy, and may therefore be less aware of available comprehensive project incentives. Simply educating these vendors about incentives may not be sufficient encouragement for them to change their business model, although CL&P will continue its strong focus on vendor education.

Again, past years have met budget constraints for EO. While it sounds like a good idea to educate the entire universe of vendors, the work flow needs to be in balance with the available

budget. The other balance that needs to take place is that of cost rates, which are typically found to be much higher for comprehensive projects than for single-measure projects.

First, the evaluation team recommends that program designers and implementers should reconsider whether increasing uptake in ESPC should be a goal in its own right.

CL&P agrees with this recommendation, and notes that the current plan does not include such a metric. The reason for this is that since 2010 and 2011, there has been significant attention given to ESPC by the utilities and by the State of CT itself, by way of Lead by Example (or LBE). Please reference the work that CT has done in direct collaboration with the utilities: http://www.ct.gov/deep/cwp/view.asp?a=4405&Q=489980&deepNav_GID=2121%20

However, the evaluation team recommends that the PAs continue to support the “Lead by Example” ESPC program that targets municipalities and state agencies.

CL&P has been extremely collaborative and very helpful with the Lead by Example program led by CT Department of Energy and Environmental Protection (or DEEP), with incentives and program staff, and will continue to do so in the future.

The evaluation team recommends that the PAs provide additional marketing of the utility sponsored financing in order to raise awareness of this specific program component.

CL&P has continued to market and refine these programs since the 2011 program year and increase awareness of utility financing options. The energy efficiency financing landscape in Connecticut has changed significantly since the 2011 program year. CL&P is hopeful that the pending market research highlighted by evaluators will better illuminate what gaps currently exist in financing and how best to fill them. Currently, 2013 Evaluation Scoping Documents C10, C11 & C17 will better evaluate what financing barriers currently exist, if any, for medium sized C&I Customers, in the range of 75 to 750 kW.

The evaluation team recommends that the PAs provide educational materials designed to raise customers’ awareness of the benefits of strategic energy planning.

CL&P continues to work in the Energy Opportunities program, as well as the Business Energy Sustainability (BES) programs, to raise awareness of strategic energy planning, through direct communication as well as distribution of education materials such as case studies.

The evaluation team recommends that the PAs consider straightforward methods for supporting customers to benchmark their buildings and operations.

CL&P notes that this is no longer an explicit performance goal for the current programs, but CL&P recognizes the importance of energy benchmarking, and continues to work in the Energy Opportunities program, as well as the Business Energy Sustainability (BES) programs, to support that aim.

Set clear guidance on when vendors should use the PSD and what inquiries and assumptions that should be used in different circumstances.

CL&P guides vendors to use the PSD in all circumstances. While custom calculations are sometimes used, these calculations must be guided by the assumptions and general algorithms of the PSD. As noted by evaluators, a long-term goal of the evaluation process is to provide some deemed values for incorporation into the PSD, and to update PSD savings calculations to better concur with these estimates, but CL&P reviews vendor savings calculations for compliance with the PSD.

Require sufficient project documentation from vendors as a condition of payment.

CL&P always requires project and savings documentation from vendors as a condition of payment. However, given the enormous amount of data provided, some of this documentation may have been overlooked by CL&P or evaluators. CL&P notes that this was by a significant margin the largest evaluation data request ever handled by the programs, with many thousands of pages from over a hundred projects scanned in by hand and a corresponding volume of electronic data, including electronic versions of documentation whenever available. Evaluators repeatedly returned for more data on backup sites which CL&P strived to provide in a timely fashion. The data request for this evaluation was fully twice the size of the previous Energy Opportunities data request, asked for files from years prior, and took place during a changeover to electronic archiving. CL&P has strived, and will continue to strive, to provide evaluators with all data necessary to conduct evaluations, and appreciates the significant effort made by evaluators to process this documentation.

In addition, during 2013, CL&P worked to convert an old legacy Tracking System (aka Custom Tracking) to a web-based database (aka CLMTRS2) driven by a front-end module, making the process of enhancing the tracking and monitoring of data simpler and quicker. Further, the CLMTRS2 system allows the ability to attach files as back-up, making the process of transmitting project files much more straight-forward and less burdensome on evaluator staff.

Consider improvements to program processes for application review to mitigate documentation errors.

CL&P has refined its processes for the Energy Opportunities program repeatedly in the past and is currently executing another such review to further standardize program submissions, including several new checks to prevent the submission of erroneous data beyond those already implemented.

Consider ‘Pay for Performance’ for at least part of incentive on larger complex projects.

CL&P has considered “Pay for Performance” as a part of incentive payments. CL&P notes that the risk involved in this option makes it highly unpopular with customers, who view incentive payments as a way to reduce the risk of energy upgrades, and frequently enter into arrangements such as ESPC in order to mitigate risk. However, CL&P does maintain a rigorous inspection and verification program, including the use of both program staff and independent third parties.

Require documentation on EMS projects that includes the programming for controls and implementation.

CL&P works to obtain all possible documentation on EMS projects. In many cases, as noted in the 2013 Retro-commissioning and Operations & Maintenance evaluation, controls are set or reset by customers after installation and initial implementation. While CL&P supports efforts to document the initial state of controls, and works to ensure that control programming is clearly understood by customers, customers ultimately have control over these settings. CL&P appreciates the work by evaluators in examining these projects so that implementers can better understand performance and persistence of EMS control savings.