



UIL HOLDINGS CORPORATION

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

April 2, 2014

Lisa Skumatz, Ph. D.
Skumatz Economic Research Associates (SERA)
762 Eldorado Drive
Superior, CO80027

**Re: UIL Review of the Draft “Impact Evaluation of the Connecticut Small Business Energy Advantage Program”,
KEMA, Inc., March 19, 2014**

Dear Ms. Skumatz:

The United Illuminating Company (“UI”), Connecticut Natural Gas Corporation (“CNG”) and The Southern Connecticut Gas Company (“SCG,” and with UI and CNG, the “Companies”), hereby submits the following comments on the **“Impact Evaluation of the Connecticut Small Business Energy Advantage Program”** Draft Report by KEMA, Inc., and dated March 19, 2014. The draft was submitted to UI on March 19, 2014 with a request for comments to be provided by April 2, 2014.

The Companies feel that the evaluation vendor has presented a draft report that is organized and general meets the stated goals of:

- 1) Develop SBEA Program level electric gross energy savings estimates targeted to achieve ± 10 precision at the 90% level of confidence
- 2) Develop SBEA Program electric energy demand savings coincident with summer on-peak and seasonal peak periods targeted to achieve ± 10 precision at the 80% level of confidence (to allow bidding into the capacity markets)
- 3) Provide inputs to update the current Program Savings Document (PSD) as appropriate with findings from the study, including metering results, installation results, and other parameters.

The Companies feel this evaluation provides results that can be used to improve future program performance, and that can be taken into consideration during the next PSD update cycle.

Specific comments to the evaluation are provided below:

Conclusion #1: Based upon the M&V impact results, it is apparent that the 2011 SBEA Program generated significant energy and peak demand savings. The estimate of annual energy savings is 33,874 MWh and the seasonal summer peak demand savings is 6,093 kW.

The Companies agree with the evaluators’ comments.

Conclusion #2: Based upon the M&V impact results, we conclude that the CT PSD used to develop the tracking estimates of savings is producing very reasonable estimates of SBEA energy and summer seasonal peak demand savings. The realization rate (or ratio of PSD generated tracking savings to study savings) is 96.2% for energy and 89.9% for summer seasonal peak demand. Despite this, we do provide some specific recommendations for PSD improvement and adherence later in this section.

The Companies agree with the evaluator’s comments. Please see additional comments on specific recommendations. The Companies would like to acknowledge that precisions of ± 18.5 and ± 20.2 were reached for the on-peak and seasonal-peak estimates at the 80% confidence interval.

Conclusion #3: We do not believe the SBEA Program is a good candidate for program level billing analyses given its current state due to uncertainty around the relationship between accounts and program treated spaces. The performance of



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another billing analysis on the SBEA Program should be undertaken only if the program administrators are fully confident that all billing data associated with each participant's treated area has been identified and available.

Recommendation #3: To the extent the EEB desires a billing analysis as an evaluation method for the SBEA Program, we recommend that program vendors and implementers establish a system of ensuring the acquisition of all meters and accounts associated with each treated premise.

The Companies understand the importance of collecting required data for all program evaluations. However, the billing of a customer for utility revenue purposes is a dynamic situation. Billing adjustments, metering, and collecting customer information occur as a normal course of business. Section 3.2 describes in detail the criteria used to eliminate data points from the billing analysis. While Program Administrators (PA) will work to ensure we can match program participants with their usage, billing data will always contain sites that have changed accounts, show extreme usage values, negative values, and exhibit long and short read intervals. An alternative to billing analysis is to specifically meter the energy efficiency measure, thereby eliminating the difficulties described above, and increase the precision of the measurements.

On page 4-20, the evaluators state their belief that impact M&V results are more reliable in evaluation program performance than billing analysis. In addition to the aforementioned factors, many commercial sites have multiple meters or accounts and ensuring 100% meter acquisition accuracy would add complexity and costs to the program. In the meantime, the Companies request the UI portion of the data sample so we can better evaluate where disparity exists and improve program adherence.

Conclusion #4: In the M&V site work, when the PSD formulas were used to calculate summer demand and annual energy savings, the results were consistent with the estimates in the tracking system (99.6% and 98.2% realization rates, respectively). When the PSD formulas were used to calculate winter and connected demand savings, the results suggest that the tracking system estimates for these parameters are grossly underestimated (136.1% and 165.6% realization rates, respectively).

There were three sites in the sample that had tracking winter demand savings estimates of zero. When the PSD formulas were applied, the total winter demand savings for these sites was 64.52 kW. Likewise, there were four instances where the tracking connected demand savings estimates were zero and the total PSD calculated value for these sites was 73.11 kW.

Recommendation #4: Although we do not believe that connected demand or winter demand are important metrics for CT filing or ISO-NE FCM purposes, we recommend that the sponsors take steps to more closely follow the PSD in calculating these values in the tracking system.

The winter demand is important and actively reported for ISO-NE purposes by The Companies.

Since 2011, the Companies have increased attention and focused on improving winter demand savings reporting. Additionally, The Companies request the UI portion of the data that had the largest discrepancy between estimated savings and tracking savings.

Conclusion #5: While the overall annual energy savings results were very good (96.2% realization rate), the interactive savings applied to lighting retrofits in the tracking system appear to be slightly overestimated; causing a 7.5% reduction in lighting savings. Some of this overestimation is due to applying the cooling credit to spaces that were not found to be cooled during the on-site visits. Additionally, a review of the PSD formula used to apply interactive savings to lighting retrofits found the cooling system COP (coefficient of performance) assumption to be less efficient than the COP of the units typically found on-site.

Recommendation #5: We recommend that the cooling credit calculation only be applied to lighting retrofits that occur in spaces that are mechanically cooled. We also recommend that consideration be given to assuming an interactive COP that is more consistent with the cooling systems used in small businesses today. The current COP assumption of 2.4 is a dated assumption that is cited from an ASHRAE journal article from 1993. During the on-site visits, most of the cooling systems observed in the sample were packaged systems with estimated COP's of 2.9. As such, we recommend that consideration be made for adjusting the PSD COP assumption to 2.9 to calculate interactive savings for small business lighting retrofits that occur in cooled spaces.



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The Companies request the United Illuminating portion of the sample data where lighting interactive savings occurred in the absence of mechanical cooling. The Companies currently utilize a value for COP = 3.5 in the 2014 PSD. Since the companies have already changed the COP in the PSD, we request a recalculation of the overestimated savings to reflect the adjusted COP' which should reduce the reduction in savings.

Conclusion #6: One of the larger adjustments experienced in the electric non-lighting realization rate was that of documentation adjustment. This adjustment had a negative 11.5% impact on the final savings result. The primary measures where the documentation adjustment was particularly problematic were electrically commutated motors and cooler curtains.

Recommendation #6: We recommend that a renewed effort be undertaken to calculate savings for ECMs and cooler curtains per the PSD. We think such an effort would not need to be time consuming and once established it would greatly improve the accuracy of tracked savings for these measures.

The Connecticut PSD is the source of savings calculations and assumptions for tracking program savings. The PSD is constantly evolving to reflect new findings and studies in its calculations and parameters. These measures have been updated since the 2011 PSD. The Companies will take this recommendation under advisement for the next PSD update cycle.

Thanks you for the opportunity to provide these comments.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Jason Gray', written over a light blue horizontal line.

Jason Gray
Lead Engineer
UIL Holdings Corporation