ComEd Comments on Plan Year 2 Evaluation Report: Residential Energy Star Lighting (Draft 9/1/2010)

Evaluation concerns

1. Table E-2 (Page 4) lists changes to Average Displaced Watts and Average Daily Hours of Use as new Evaluation Verified values. The changes to these values and other assumptions are based on DEER 2008.2.05 – 09-11 Planning/Reporting Version of a summary of 2008 DEER Measure Energy Analysis Revisions. The recommendations from DEER were not meant to be national standards, and comparisons within DEER typically indicate differences between energy efficiency findings in California and other states. Changes of this nature should be reviewed with Stakeholder Advisory Group and ICC Staff for applicability within Illinois' energy efficiency framework. The ICC's Order for the 2008 -2010 plan (Order 07-0540, page 42) included the deeming of light bulb savings for the three year period to be re-evaluated using actual values for prospective use. The ICC Order would prevent adjustments to "verified values" used in the savings calculations for lighting.

2. ComEd has overall concerns that the Average Displaced Watts (Delta Watts) has been changed from a standard equivalency table of assumed incandescent wattage replaced by sizes of CFL wattage bulbs with a formula indicating that the expected replaced incandescent size is CFL wattage * 3.53, or the delta watts = CFL wattage * 2.53. In PY1, ComEd used a typical replacement range (standard equivalency table referenced in this Draft Report) and subtracted the suggested incandescent wattage to determine the delta watts. In PY2 to promote conservative tracking of delta watts, ComEd used a table from DEER 2008 which indicated specific incandescent replacement sizes for each size of CFL, which appeared to be smaller than the standard equivalency table recommendation. As indicated in Table 3-8, ComEd's PY2 methodology did produce results which are only 84% of those calculated using previous methods. However, the recommended method produced only 91% of these conservative savings.

   The suggested Power Reduction Factor formula, delta watts = 2.53 * CFL installed is based on a 2005 study which performed on-site visits to California homes to examine lighting and appliance saturation levels. CFL's installed were likely purchased in 2004 or before. One change since then has been the increases in lumens/Watt for ES certified CFL's. A newer CFL appears brighter and could be replacing a higher wattage incandescent than earlier models. For instance, examining ComEd program SKUs for 13W CFL's, show that our program bulbs are greater than 800 lumens. ComEd generally assumes this replaces a 60W incandescent, which produces around 850 lumens. Much of the report assumes the 13W CFL replaces a 40W incandescent which produces around 500 lumens. The proposed delta watts formula assumes the replaced bulb is 46W. ComEd's PY2 conservative approach assumed a 49W replaced bulb.

   ComEd had received comparisons of CFL programs from other states, via E Source, who had performed logger studies and found delta watt estimates ranging from 44.5

to 48.5 Watts. This range is below the 49.8 Watts calculated using the standard equivalency tables, but well above ComEd's conservative approach which resulted in a 41.7 Watt average. Absent better documentation, explanation and agreement for making the proposed changes to Delta Watts, the recommended change should not be applicable for use within the Illinois energy efficiency framework.

3. In Tables 3-2 and 3-3, the first column identifying program bulbs with incandescent replacement sizes in column 2, should be 12 watts or less for a 40 Watt replacement (row 1) and 13 – 17 for a 60W replacement (row 2). Also for standard bulbs sold, our information indicates that 60% of incandescents sold are 60W versus the predominance of 40W bulbs indicated in this table and Table 1-2. The top 3 SKUs sold under ComEd's program were 13 & 14 Watts and alone account for 51% of total sales. These tables suggest a far greater usage of 40W bulbs than realistically expected.

4. Assumed Hours of Use (HOU) was changed from an average of 2.34 to 2.96, but this change incorporates two components. The first impact is from evaluated findings that 10.3% of CFL bulbs sold were being used in non-residential applications with an estimated non-residential HOU of 10 hours/day. The second component is a change in HOU for residential bulbs from 2.34 hours/day to 2.16 hours/day. This change is also based on an ANCOVA model developed in California with the Evaluator using inputs reflecting ComEd customers (Page 49, 1st paragraph). However, important assumptions are based on California – average number of light sockets of 34.6 (Page 50, 1st paragraph) and the model coefficient of 0.212 used for Pacific Gas & Electric. Using this methodology, the California average HOU was 2.18 versus the ComEd calculation of 2.16 hours/day. It is uncertain what drives these close results, the model itself or the inputs representing ComEd customers.

   When ComEd reviewed HOU estimates from logger studies from other states (E Source provided data), it found non-California estimates to range from 2.4 – 3.2 hours/day. This entire range is above ComEd's current estimate of 2.34 hours/day for residential applications. The lighting logger study, originally envisioned for PY2 but deferred until PY3, would seem to better address this estimate when completed. Absent better documentation, explanation and agreement for making the proposed changes to Hours of Use, the recommended change should not be applicable for use within the Illinois energy efficiency framework.

5. Similar to HOU, the Peak Load Coincidence Factor (CF) to determine demand reductions was modified for PY2 residential installations from 0.081 to 0.062 based on California's ANCOVA model. Absent better documentation, explanation and agreement for making the proposed changes to Coincidence Factor, the recommended change should not be applicable for use within the Illinois energy efficiency framework.

6. In PY1, ComEd pointed out that the Lighting Evaluation did not adequately differentiate between the CFL bulb program and the CFL fixtures which have very different incentive structures. Again the main tables only indicate the combined

impacts, except Table 3-14, which provided separate values for displaced watts (57.6 Watts) and realization rate (89%) for fixtures. It should be noted it was ComEd's expectation that realization rates for fixtures would be closer to 100%. Table 3-20 shows a weighted NTG ratio of 0.77 with a table description indicating CFL fixtures from supplier surveys. This NTG value for fixtures is 90% greater than the similar value for bulbs.

For planning purposes, please provide the installation rate, realization rate, and NTG ratio that should apply to fixtures only, and the resulting values for CFL bulbs only. Please explain the reasons if fixture installation/realization rates are below 95%.

7. For Peak Load Coincidence Factor (page 19), estimates should be based on the PJM defined peak period for energy efficiency resources of 1:00 – 5:00 PM CPT, and not 1 – 6 PM as stated. If this period difference affects kW calculations, then all kW values should be recalculated and corrected throughout the document.

8. For sales trend in Figure 3-1, are the data based on goals tracker or invoices from Frontier?

9. In Table 3-14 (page 55), Total First Year Gross MWh Savings and Peak MW Savings are different than the values presented in Table E-2 (page 4). Please reconcile differences and correct to consistent values.

10. PY2 evaluation shows an increase in free-ridership which decreases the impact of our program on purchasers. Our implementer has detailed dates when incentives on key SKUs increased from $.50/bulb to $1/bulb, and the corresponding sales at Home Depot and Sam's Club increased 154% and 174%, respectively. This impact doesn't seem to be reflected in the evaluation. Has this been considered in development of NTG for PY2?

11. On page 57, survey results indicate that 70% of customers would have purchased the bulbs even if they were $1.00 more per bulb. ComEd is concerned that the $1 more a bulb may be misinterpreted to be $1 more per package. For a 4-pack, it would be $4 more per package purchased. The indifference to price seems to contradict respondents indicating that price is still the major barrier to purchase and the sales increase we saw when incentives were increased from $.50 to $1. How confident is the evaluator that these responses were accurate and what impact does this have on the final NTG value?

12. Another inconsistency regarding customer self-report information is found in Table 3-46. This table indicates 78% of program purchasers plan to take measures over the next few months to reduce their energy usage, but only 58% of the same group feels they cannot do much more to reduce energy usage. This seems to reflect overly optimistic views of customer's future "good" actions such as planning to buy CFL bulbs going forward. Should adjustments be made to compensate for self-report optimism in determining free ridership rates?

13. For Table 3-15 (page 57), please provide survey distributions for the # of bulbs or percentages for free rider scores from 0 to 1. These scores can be provided in decile groupings, i.e. 0.1, 0.2 up to 1.0.

14. Spillover results changed from 0.074 in PY1 to 0.06 in PY2. This reduction seems contrary to other observations: growth in shelf space for CFLs; approximately 11% of bulbs and 65% of fixtures were new to the program this year; and many retailers reduced their prices (analogous to providing their own incentives) to move bulbs. These type of movements toward market transformation should have a positive impact on spillover. Should these considerations be factored into the spillover determination?

15. Report indicates that out-of-store marketing campaigns having only modest effects, while in-store materials were more noticeable. The ES Lighting Program has intentionally only included bill inserts as its out-of-store marketing.

Typographical and style edits

1. In Executive Summary discussion of program achievements, comparisons to initial goals should be included in addition to revised/final goals. Many programs, such as ES Lighting, had to increase their internal goals mid-year, based on overall portfolio performance and PY1 results. A table would look like:

Parameter	Initial Goal	Revised Goal	EX Ante results	Ex Post Results
Net MWH	126,349	127,011	144,700	146,044
# Bulbs	4,176,565	7,790,490	8,212,136	8,212,136
# Fixtures	156,621	70,000	72,240	72,240

2. Since the program's incentive target is retailers, program description, page 8 – 2nd paragraph, should characterize ES Lighting as midstream versus upstream delivery.
3. For "Per Unit kWh Savings" equation on page 15, some brief definition of "Delta Watts" should be provided
4. Second paragraph under Lighting Manufacturers (page 30) seems misplaced as it discusses retailers.
5. Typo on page 40, bullet #4 should read, across all **sold** ~~installed~~ program bulbs
6. Typos on page 40, last sentence; "… upstream markdown) ~~he~~ program bulb~~s~~ sales have …"
7. On page 43, 2nd paragraph; the inference that better program management is the reasons for smoothing changes between PY1 and PY2, is incorrect and was more likely due to differences between launching and maintaining the program.
8. Top of page 110, should read "…evaluation findings is 90% Residential / **10%** ~~5%~~ Non-residential."