

Illinois Statewide Residential LED Hours of Use Study Additional Results

To: Ameren Illinois Company and Commonwealth Edison
 From: Opinion Dynamics Evaluation Team
 Date: April 2, 2018
 Re: Illinois Statewide Residential LED Hours of Use Study – Additional Results

In this memorandum, Opinion Dynamics provides additional results from the Illinois Statewide Residential LED Hours of Use (HOU) study. Namely, we provide hours of use (HOU) and coincidence factor (CF) results broken down by standard vs. specialty light bulb categories and by utility.

The key goal of the HOU study was to develop statewide estimates of LED HOU and peak coincidence factors (CF), both summer and winter, to use in future estimation of energy and demand savings impacts for residential lighting measures.

Table 1 summarizes the additional results. As can be seen in the table, the overall statewide average daily HOU for standard LEDs are considerably higher than for specialty LEDs (2.98 vs. 2.09). This pattern is reversed in **Ameren Illinois (AIC) territory** where average daily HOU for specialty LEDs is higher than the HOU for standard LEDs (3.43 vs. 3.06). Conversely, average daily HOU for specialty LEDs in **ComEd's territory** is lower than the HOU for standard LEDs (1.94 vs. 2.96). CF differences follow the same pattern as the HOU, both at the statewide and utility level.

Table 1. HOU and CF Estimates by Utility and Product Type

Category	Number of Homes	Number of Loggers	Average Daily HOU	Average Daily HOU Relative Precision	Summer Peak CF	Summer Peak CF Relative Precision	Winter Peak CF	Winter Peak CF Relative Precision
Statewide								
Standard LEDs	113	282	2.98	9%	0.128	13%	0.144	10%
Specialty LEDs	48	71	2.09	14%	0.109	20%	0.096	15%
Total	137	350	2.68	7%	0.122	11%	0.127	8%
AIC								
Standard LEDs	56	130	3.06	12%	0.126	17%	0.144	13%
Specialty LEDs	18	20	3.43	26%	0.138	33%	0.163	17%
Total	67	150	3.13	11%	0.128	15%	0.148	11%
ComEd								
Standard LEDs	57	152	2.96	12%	0.129	18%	0.144	13%
Specialty LEDs	30	51	1.94	16%	0.106	24%	0.088	19%
Total	70	200	2.58	10%	0.120	14%	0.123	11%

Table 2 compares the results from the study to the HOU and summer peak CF values recommended in IL-TRM V6.0. As can be seen in the table, HOU values from for standard LEDs from the study are higher than the IL-TRM V6.0 recommendations, both at the statewide level as well as for the two utilities. HOU values for specialty LEDs, on the other hand, are lower than the IL-TRM V6.0 recommendations at the statewide level and for ComEd, but higher for AIC. Summer peak CF results from the study are higher than the IL-TRM V6.0 recommendations across LED types as well as utilities.

Table 2. Comparison of HOU Estimates to IL-TRM V6.0

Bulb Type	IL Statewide Residential HOU Study Results			IL-TRM V6.0
	Statewide	AIC	ComEd	
Annual HOU				
Standard LEDs	1,089	1,118	1,081	759 ^a
Specialty LEDs	763	1,250	707	847 ^b
Summer Peak CF				
Standard LEDs	0.128	0.126	0.129	0.071 ^c
Specialty LEDs	0.109	0.138	0.106	0.081 ^d

^a HOU is for residential and in-unit multifamily

^b HOU for generic specialty light bulbs. HOU for specialty products range from 639 for globes to 2,475 for exterior light bulbs (exterior reflectors, bug lights, and post lights)

^c CF for interior single family or unknown location or multifamily in-unit

^d CF for generic specialty products. CF for specialty products ranges from 7.1% for high lumen standard spiral products to 27% for exterior light bulbs (exterior reflectors, bug lights, and post lights)