

## Massachusetts C&I Evaluation Contract Project Summary: Impact Evaluation of PY2015 Massachusetts C&I Upstream Lighting Initiative

Project Timeframe: Jan 2016 – Nov 2017

Research Area: Impact Evaluation

**High-level Study Objective:** To quantify the electric energy savings and demand reduction attributable to the Massachusetts C&I Upstream Lighting Initiative

### Key findings

We calculated the Upstream Lighting Initiative's final realization rates by product category. For measure categories 2 (stairwell kits), 3 (retrofit kits), and 4 (A-lines and decoratives), realization rates were notably low. While category 1 (TLEDs) had a high realization rate, this was driven largely by a delta watts tracking estimate that ended up being too small. For category 5 (G24s), the high realization rate was driven by the observed hours of use being higher than the assumed hours of use.

We also found installation rates to be low for all categories except category 1, with site auditors finding a significant quality of the products to be not installed. Despite these low installation rates, all categories saw some savings (though much lower than anticipated), and category 5 still saw substantial savings. Low installation rates were the result of various factors including products being stored onsite, customers removing or returning defective products, products being sent to alternate locations, or customers exchanging products for which there was no associated tracking information.

### PA application of results

For retrospective application of results (PY2017), we recommend that the PAs apply the results in the table below. Due partly to precision that is sub-optimal at the category level for category 3 individually, the PAs should use the combined categories 3, 4, and 5 results in addition to category 1 and category 2.

Savings Parameter	Category 1 TLEDs	Category 2 Stairwell kits	Categories 3, 4, 5 Combined
Gross Energy Realization Rate	195.20%	46.99%	48.55%
<i>Relative Precision (Precision at 90% Confidence)</i>	$\pm 28.1\%$	$\pm 20.2\%$	$\pm 18.7\%$
Connected kW Realization Rate	148.60%	53.93%	54.07%
<i>Relative Precision (Precision at 90% Confidence)</i>	$\pm 13.5\%$	$\pm 16.2\%$	$\pm 13.9\%$

For prospective application of results (PY2018 and beyond), we recommend that the PAs replace tracking system factors with evaluated system factors. This will enable the PAs to update results after an installation rate study is conducted in 2018.

### Initiative process recommendations

- In their new address validation process, the PAs' vendor should include a flag for customers that have key account managers. The PAs could use this flag to compare the purchase details with any other current or planned PA initiatives the customer could participate in, and direct those customers to the initiative that best fits the customer's needs. This would help close the gap between vendor-driven and key account-driven initiatives in cases where this is warranted.
- The PAs' vendor should record and track any customer follow-up activity relating to initiative products in the new inspection tracking system. The PAs' vendor should actively check in with the PAs to confirm any direct contact the PAs have had with a customer and any changes to product sales based on that activity are reflected in the tracking data. This will help ensure that when the PAs are contacted by a customer directly and work with that customer to return or exchange any products received through the initiative, this activity gets tracked and saved, to be retrievable later.
- The PAs' vendor should add data validation to tracking data entries so that returns cannot be entered without linking sales to support the return. Initiative tracking data associated with a site can include a negative sales quantity. A negative sales quantity can also be a correction made to the tracking database if the third-party QC contractor cannot find the lamps at the site. In order to more easily verify lamp returns made by customers and to avoid possible keying errors, negative sales entries should be linked to the sale in the tracking database. The PAs' vendor should record their follow-up on QC contractor results and how those results were reflected in their tracking system.

For full report see: Impact Evaluation of PY2015 MA C&I Upstream Lighting Initiative Final Report on the EEAC website, <http://ma-eeac.org/studies/>

# Impact Evaluation of PY2015 Massachusetts Commercial and Industrial Upstream Lighting Initiative Report Summary (cont.)

## Comprehensive findings and recommendations matrix

Recommendations		
PA application of results	Recommendation 1	For retrospective application of results (PY2017), we recommend that the PAs apply the results in the table on the previous page. Due partly to precision that is sub-optimal at the category level for category 3 individually, the PAs should use the combined categories 3, 4, and 5 results in addition to category 1 and category 2.
	Recommendation 2	For prospective application of results (PY2018 and beyond), we recommend that the PAs replace tracking system factors with evaluated system factors. This will enable the PAs to update results after an installation rate study is conducted in 2018.
Initiative process recommendations	Recommendation 3	In their new address validation process, the PAs' vendor should include a flag for customers that have key account managers. The PAs could use this flag to compare the purchase details with any other current or planned PA initiatives the customer could participate in, and direct those customers to the initiative that best fits the customer's needs. This would help close the gap between vendor-driven and key account-driven initiatives in cases where this is warranted.
	Recommendation 4	The PAs' vendor should record and track any customer follow-up activity relating to initiative products in the new inspection tracking system. The PAs' vendor should actively check in with the PAs to confirm any direct contact the PAs have had with a customer and any changes to product sales based on that activity are reflected in the tracking data. This will help ensure that when the PAs are contacted by a customer directly and work with that customer to return or exchange any products received through the initiative, this activity gets tracked and saved, to be retrievable later.
	Recommendation 5	The PAs' vendor should add data validation to tracking data entries so that returns cannot be entered without linking sales to support the return. Initiative tracking data associated with a site can include a negative sales quantity. A negative sales quantity can also be a correction made to the tracking database if the third-party QC contractor cannot find the lamps at the site. In order to more easily verify lamp returns made by customers and to avoid possible keying errors, negative sales entries should be linked to the sale in the tracking database. The PAs' vendor should record their follow-up on QC contractor results and how those results were reflected in their tracking system.
Future research	Recommendation 6	Conduct a study in 2018 of initial install rates for very recent projects, to assess whether the rates have increased in response to the most recent upstream initiative changes made by the PAs.

Findings	Recommendations					
	Recommendation 1	Recommendation 2	Recommendation 3	Recommendation 4	Recommendation 5	Recommendation 6
For categories 2, 3, and 4, realization rates were notably low.	x	x				
Category 1's high realization rate was driven by a low delta watts estimate.	x	x				
Category 5's high realization rate was driven by observed HOU being higher than assumed HOU.	x	x				
Installation rates are low for all categories except 1.	x	x	x	x	x	x
All categories saw some savings, with category 5 seeing substantial savings.	x	x				
Low installation rates were due to various factors including products being stored onsite, customers removing/return defective products, products being sent to other locations, or customers exchanging products for which there was no associated tracking information.			x	x	x	x