

MEMORANDUM

To: Massachusetts Program Administrators (PAs) and Energy Efficiency Advisory Council (EEAC) Consultants

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Subject: Net-to-Gross Estimates Based on Self-Report in Massachusetts and New York

Date: April 2, 2015

This memorandum describes the steps taken to develop a 2013 NTG value based on self-reported bulb purchases taken during on-site saturation visits in Massachusetts (MA) and New York (NY). The evaluation team conducted these on-site lighting saturation surveys in both states in 2013 and 2015. In 2012 NYSERDA ended its support for standard CFLs, other than selling through bulbs supported in 2011, and had limited support for specialty CFLs and LEDs through 2014. The evaluation team had intended to develop a NTG ratio only for standard CFLs, since NY continued supporting specialty CFLs and LED bulbs. However, since support for these bulbs was drastically reduced beginning in June 2014, the team decided to utilize respondent estimates from the past six months preceding the onsite visit, as opposed to the past year, and provide a NTG estimate for all CFLs and LEDs as well.

This method leads to NTG estimates for 2013-2014 of 31% for all CFL bulbs, 55% for standard CFLs, 0% for specialty CFLs, and 218% for all LED bulbs.

This approach has the following advantages: The evaluation team has prior saturation estimates (2013), and as such, can assess trends over time. NY also discontinued support for standard CFLs in 2012, which makes it not only an interesting but also a conceptually robust comparison area, a claim that is strengthened by the fact that saturation levels in MA and NY in 2013 were very similar. The estimates from the current approach are also specific to residential applications as they do not include commercial and industrial respondents or sites. Finally, NY is one of the most demographically similar states to MA in the US.

The disadvantages of this approach include the fact that the data only cover the last six months of 2014, are dependent on respondent recall about when they purchased bulbs, and are based on a small sample size in NY. The possibility of non-response bias is also heightened in NY because of lower response rates overall. Further, while NY is comparable to MA demographically, no comparison area provides a perfect match or counterfactual.

Calculation and Estimates of Net-to-Gross

The market-level NTG calculation relies on the equation:

$$NTG = \frac{\text{Massachusetts Market Sales} - \text{NY Area Market Sales}}{\text{Massachusetts Residential Program Sales}}$$

Table 1 presents the estimated market-level purchases and program sales by product and state. It also lists the stored bulbs for MA by product, which are used in concurrent research to calculate net energy savings.

Table 1. Net-to-Gross Inputs

Bulb Type	Purchased/Obtained within the Past Six months		MA Stored Bulb Obtained in Past 6 months	MA Direct Install in Past 6 months	NY Direct Install in Past 6 months
	Massachusetts (All Visits)	New York			
Total # of CFL	5,197,276	4,286,042	1,644,565	1,476,368	46,043
Total # of CFL bulbs	5,123,290	4,215,166	1,644,565	1,471,541	46,043
# of Twist/Spiral + A-line CFLs	4,435,128	2,993,505	1,547,952	1,155,319	46,043
# of Specialty CFLs	688,161	1,221,661	96,612	316,222	0
Total # of CFL Fixtures (actual)	73,987	70,875	0	4,826	0
Total # of all LEDs	3,095,760	928,112	430,511	990,057	0
Total # of LED bulbs	2,841,156	882,069	430,511	990,057	0
# A-line LEDs	1,201,947	521,820	215,459	391,942	0
# Other LEDs (mostly spot/flood)	1,639,209	360,250	215,051	598,114	0
Total # LED fixtures	254,604	46,043	0	0	0
All Products	8,293,037	5,214,154	2,075,075	2,466,424	46,043

Table 2 presents all of the calculated NTG ratios, although those for all CFLs and all LEDs are the focus of this research.

Table 2. Estimated NTG Ratios

Product	Based on NY
All CFL bulbs	31%
All LED Bulbs	218%
All CFLs (including fixtures)	30%
Standard CFLs	55%
Specialty CFLs	-159% (0%)
CFL Fixtures	3%
All LEDs	198%
All LEDs Bulbs (including fixtures)	218%