

Appendix E
Commercial Lighting Baseline

E-1: Staff Testimony

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**By Laura Martel
10-12-2021**

Introduction

1. What is the purpose of this testimony?

This testimony describes the Efficiency Maine Trust's (the Trust's or EMT's) application of the attached Commercial Lighting Analysis to the Triennial Plan V.

2. Who is introducing this testimony?

The testimony is provided by Laura Martel, Research and Evaluation Manager at the Trust.

3. Ms. Martel, please state your name, title, and business addresses.

My name is Laura Martel, and I am employed by EMT as the Research and Evaluation Manager. My business address is 168 Capitol Street, Suite 1, Augusta, ME 04330.

4. Please summarize your educational and professional experience.

I have a Bachelor of Science degree in Ocean Engineering from Florida Atlantic University and a Master of Engineering degree in Acoustics from Pennsylvania State University. I have over 21 years of technical leadership, project management, and research and evaluation experience. I was hired by EMT in 2014 to design and implement impact and process evaluations for energy efficiency programs. Prior to joining EMT, I was with Lockheed Martin in Manassas, Virginia, where I served in various engineering, management, and technical leadership roles of increasing responsibility.

Background

5. Why was this study undertaken as part of the Trust's research for Triennial Plan V (TPV)?

A baseline study of non-residential lighting, completed in 2018, estimated a cost-effective lighting savings opportunity of 380 million kWh/year in Maine (Cadmus, *2018 State of Commercial & Industrial Lighting in Maine*, September 14, 2018). Having completed four years of program activity since that time, EMT set out to understand what opportunity remains and what the Trust might have to do differently to acquire it and commissioned this study for that purpose.

6. How was the research conducted?

The authors of the 2018 study estimated the cost-effective, non-residential, efficient lighting opportunity in Maine by developing a statistically significant sample of commercial and industrial (C&I) lighting in the State of Maine. They then conducted on-site surveys noting fixture type, wattage, and square footage to determine the current baseline characteristics of C&I lighting in the State. This opportunity assessment also took into account price trends, technology updates, and changes in the market. The results of the site-specific findings were extrapolated by facility type and square footage to a statewide opportunity.

The 2021 update by Ridgeline Energy Analytics extended the 2018 analysis, taking the intervening program activity and market changes into account. The study estimated the remaining potential for lighting upgrades by studying program activity over time, factoring in the perspective of lighting industry representatives and subtracting recent program activity. Interviews with contractors, building owners, distributors, and manufacturers provided additional context on the remaining opportunity and how it might be acquired.

Findings

7. What did the current study find about the Trust's lighting program activity since the last study conducted four years ago?

The study backcasted opportunity to the beginning of the transition to LEDs and found that roughly 28% of commercial lighting remains to be upgraded. The study estimated that the Trust could acquire roughly the same percentage of remaining opportunity each year resulting in declining activity year-over-year.

8. What is the remaining inefficient commercial lighting opportunity in Maine, and how much might the Trust expect to acquire during the TPV period?

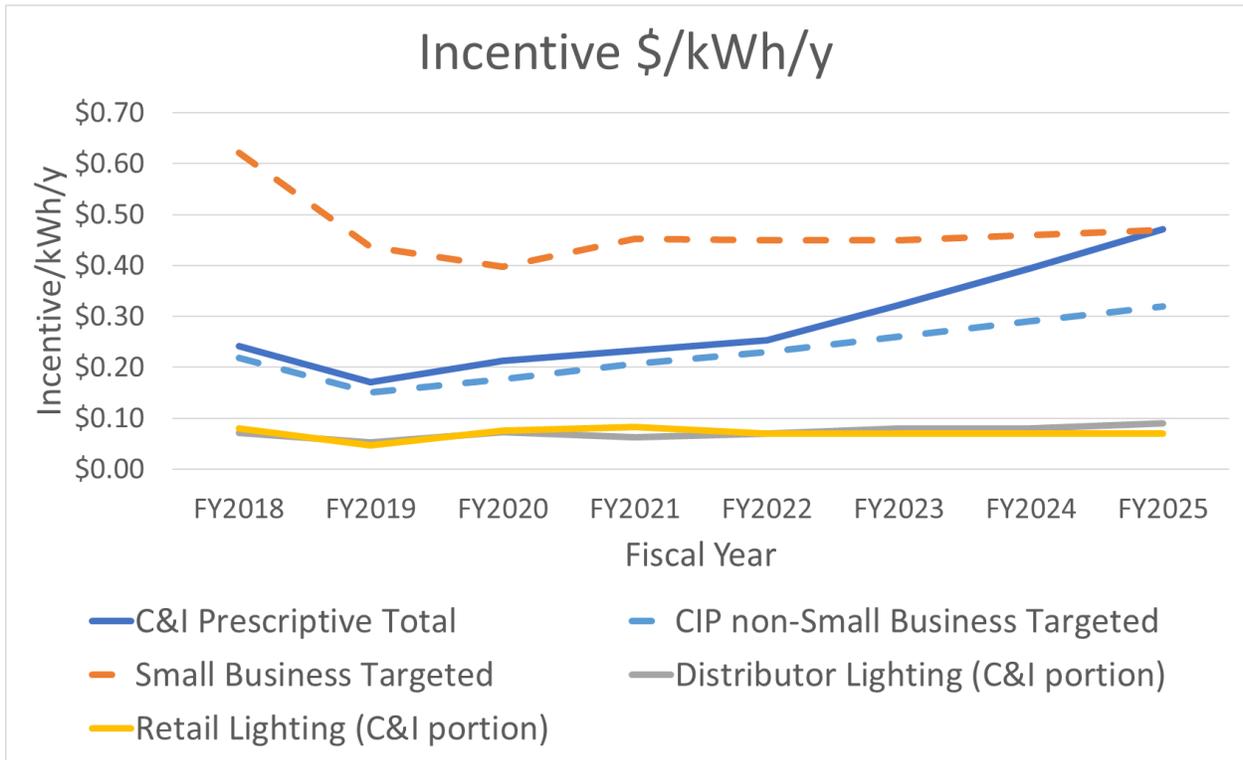
The study estimates that 156 million kWh/year of cost-effective commercial lighting savings opportunity will remain at the end of FY2021. Assuming that the Trust's programs succeed in capturing 20% of that remaining opportunity in FY2022, this leaves 125 million kWh/year of savings at the beginning of Triennial Plan V. If the Trust's programs continue to capture 20% of the remaining opportunity each year, 65 million kWh/year in savings will be acquired from the sum of three years of program activity that the Trust proposes to implement during Triennial Plan V.

9. Will the Trust modify programs or incentives in order to acquire this remaining inefficient lighting?

The Trust anticipates that the trend of increasing incentive amounts per kWh/year of savings seen over the last few years will continue in order to acquire 20% of the remaining potential as it declines each year. The lighting incentives for C&I Prescriptive Initiatives and Distributor Initiatives were forecasted using a linear regression analysis of FY2019-FY2021 incentive levels. The lighting incentives for Retail Initiatives are held flat at the average value of FY2019-FY2021. The historical and forecasted incentive levels for FY2023 through FY2025 are presented here in Figure 1.

While the Small Business Initiative has been a geotargeted initiative for several years, the Trust plans to transition it to a statewide program during the Triennial Plan V period. The Trust also plans to pursue targeted, market-based initiatives focused on specific sectors or hard-to-reach markets. These include initiatives where the Trust may offer enhanced incentives or technical support for a specific technology or customer sector. The Trust anticipates that these program changes will help acquire the remaining, hard-to-reach opportunity.

Figure 1: Incentive per kWh/year Savings History and Forecast



10. Did this study address any indoor horticultural lighting opportunity?

No, but a separate assessment conducted by Applied Energy Group (AEG) on opportunities in the custom program assessed new opportunities in the indoor horticulture industry. Please see [Appendix F-1](#) to the Triennial Plan for more information.

11. What is the projected program activity?

Historic and projected program incentive levels for C&I lighting across all programs are presented graphically in Figure 2. The proposed incentive budgets and total program budgets (factoring in program delivery costs) for C&I Prescriptive lighting during the period covered by Triennial Plan V are presented tabularly in Table 1.

Figure 2: Historic and Projected Incentive Budgets by Program

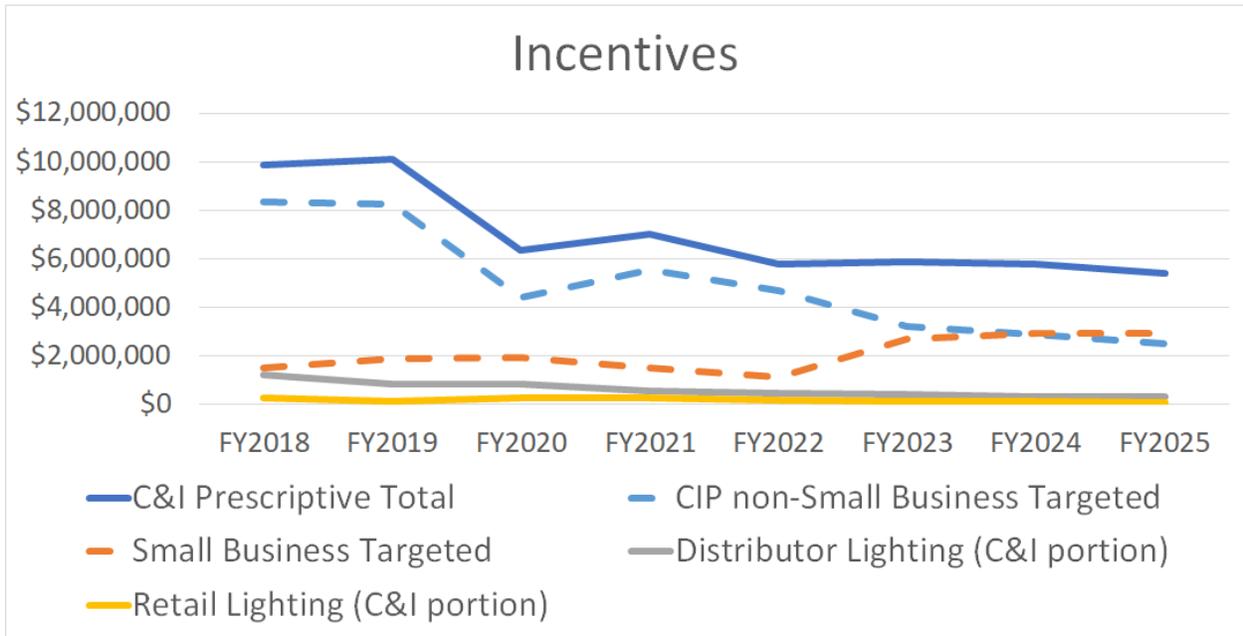


Table 1: C&I Prescriptive Lighting Budgets

Budget Line Item	Incentive Budget (\$M)			Total Budget with Program Delivery (\$M)		
	FY2023	FY2024	FY2025	FY2023	FY2024	FY2025
C&I Lighting Total (including SB Targeted)	\$5.9	\$5.8	\$5.4	\$6.9	\$6.8	\$6.4
Small Business Targeted	\$2.7	\$2.9	\$2.5	\$3.2	\$3.5	\$3.5

12. Does this conclude your testimony?

Yes.