



# Efficiency Vermont Perspective: *C&I Lighting Program Results & Plans*

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# Efficiency Vermont Background

Efficiency Vermont is a **state-wide energy efficiency utility** that encourages the adoption of energy efficient products and practices.

Efficiency Vermont is administered by **Vermont Energy Investment Corporation (VEIC)**, an independent nonprofit energy services organization.

Current Efficiency Vermont *electric* funding totals **\$37M per year**.

# Current C&I Lighting Program Overview

Prescriptive rebate offerings for high efficiency **fluorescent** (HPT8, T5/T5HO, CFL), **interior LED** (12 categories), **exterior LED** (6 categories), and **controls** (interior, exterior, cooler case)

## 1 FLUORESCENT LIGHTING

### 1.1 High-Performance T8 (HPT8) Linear Fluorescent

#### Eligibility Requirements

- HPT8 system = high-lumen or reduced-wattage lamp(s) +
- Lamp and ballast combinations must be listed on the Co or Reduced-Wattage T8 Qualifying Products List availab
- An additional **\$10 / Fixture** rebate applies when installed

Code	Description	
1.1a	Relamp / Reballast T12 to HPT8 <b>low BF</b>	<ul style="list-style-type: none"> <li>• Must be an up</li> <li>• Must use low t</li> </ul>
1.1b	Relamp / Reballast T8 to HPT8 <b>low BF</b>	<ul style="list-style-type: none"> <li>• Must be an up</li> <li>• Must use low t</li> </ul>
1.1c	New HPT8 <b>low BF</b> Fixture	<ul style="list-style-type: none"> <li>• Includes any H</li> <li>• Must use low t</li> </ul>
1.1d	New or Retrofit 2 Lamp HPT8 High Efficiency Troffer <b>low BF</b> Fixture	<ul style="list-style-type: none"> <li>• Fixture effici</li> <li>• 2 lamp fixture</li> <li>• Must use low t</li> </ul>
1.1e	New HPT8 High-Bay Fixture with High Ballast Factor	<ul style="list-style-type: none"> <li>• Fixture effici</li> <li>• 4, 6, or 8 lamps</li> </ul>

## 2.1 Interior LED Products

### Eligibility Requirements

- Product must be DLC or ENERGY STAR qualified for **Premium Rebates**. Standard rebate products must be registered with Lighting Facts and meet the Efficiency Vermont performance criteria.
- Visit [www.encyvermont.com/ledrebates](http://www.encyvermont.com/ledrebates) for more information about qualifying products.
- Rebates cannot be combined with any other offer, including LED instant coupons available at some lighting retailers.

### Looking for Screw- or Pin-Based LED Replacement Lamp Rebates?

- Instant rebates for LED replacement lamps are available through the SMARTLIGHT program. For more information, or to find participating distributors, visit [www.encyvermont.com/smartlight](http://www.encyvermont.com/smartlight).

Code	Type	Specification	Premium Rebate (DLC / ENERGY STAR)	Standard Rebate (Lighting Facts)
2.1a	Recessed & Surface / Pendant-Mounted <b>DOWNLIGHT</b> Fixtures		<b>\$40</b> ENERGY STAR	\$32
2.1b	<b>TRACK</b> Lighting Fixtures	<ul style="list-style-type: none"> <li>• Screw- and pin-based products are not eligible.</li> </ul>	<b>\$60 per head</b> DLC	\$48 per head

# Current C&I Lighting Program Overview

“SMARTLIGHT” **upstream rebate program** for replacement lamps – **screw base LED**, reduced-wattage fluorescent, reduced-wattage metal halide

## SMARTLIGHT ELIGIBLE PRODUCTS

Valid January 1, 2012 - December 31, 2012

Last Updated: 01/9/2012



### Screw- and Pin-Based LED Replacement Lamps

Item	PREMIUM Rebate Eligible Products	Premium Rebate <sup>1</sup>	STANDARD Rebate Eligible Products	Standard Rebate <sup>1</sup>
PAR30/38, BR30	<a href="#">ENERGY STAR</a>	\$35.00	<a href="#">Lighting Facts EE Program</a>	\$28.00
MR16, PAR20		\$25.00		\$20.00
A, Globe		\$25.00		\$20.00
Decorative		\$15.00		\$12.00

<sup>1</sup> All sales require a minimum customer contribution of \$5 per LED product, exclusive of sales tax.

### Reduced Wattage Linear Fluorescent T8 Lamps

Item	Eligible Products List	Rebate
25/28 Watt Reduced Wattage T8 Lamps	<a href="#">Consortium for Energy Efficiency (CEE)</a>	\$2.00




# Current C&I Lighting Program Overview

LED product rebates offered in two tiers:

- **Premium** (DesignLights Qualified, ENERGY STAR)
- **Standard** (Using the Lighting Facts EE Program Screening Tool)

## LED Eligible Products Guide

2012 Commercial 1/1/2012 – 12/31/2012



Efficiency Vermont rebates are available for high-performing LED products qualified through ENERGY STAR® or the DesignLights™ Consortium (DLC). Additionally, many more LED products are eligible for rebates – those meeting the Efficiency Vermont performance criteria and listed with Lighting Facts®. **ENERGY STAR and DLC qualified products are eligible for a 25% rebate premium vs. products qualified through Lighting Facts.**

PREMIUM Tier LED Products	STANDARD Tier LED Products
<ul style="list-style-type: none"><li>• ENERGY STAR® qualified, or</li><li>• DesignLights™ Consortium (DLC) approved</li></ul> <p>Premium tier LED products are eligible for a <b>25% Premium</b> over standard rebates, as shown below.</p>	<ul style="list-style-type: none"><li>• Lighting Facts® registered products that meet the criteria shown in the Photometric Performance Requirements Table on page 4.</li></ul> <p>Standard tier LED products are eligible for the standard rebates shown below.</p>

# Current C&I Lighting Program Overview

“RELIGHT” program rewarding comprehensive **lighting design** when working with qualified lighting professionals.

## 3 Efficiency Vermont RELIGHT Rebates

The **RELIGHT Audit & Design Rebate** is intended to offset a portion of the Lighting Designer's fees associated with required RELIGHT deliverables, as defined in section 4. The rebate is payable to either the customer or the lighting designer within 45 days of Efficiency Vermont's receipt of all required RELIGHT deliverables and designer invoice. The Audit & Design Rebate is structured as follows:

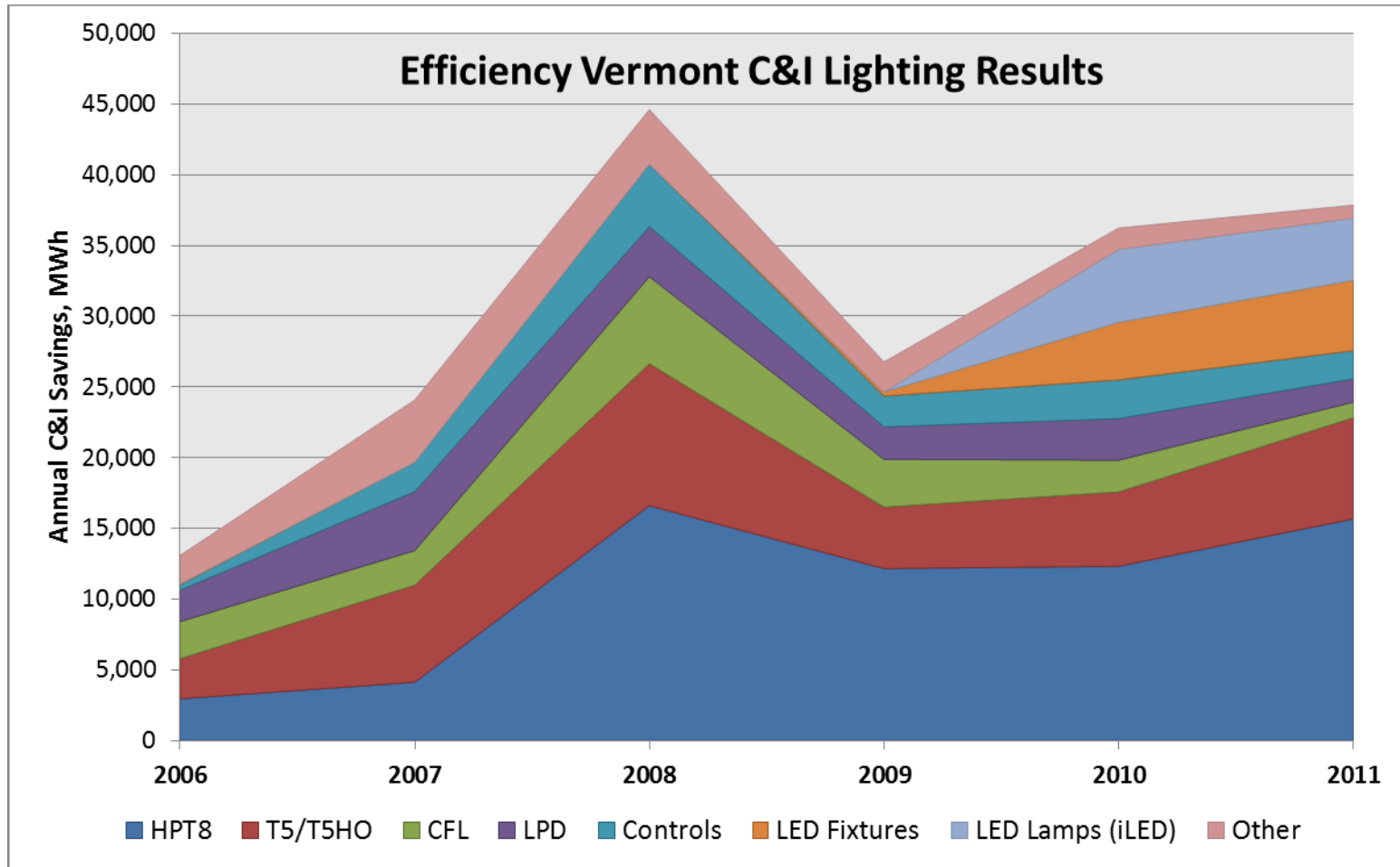
Building Type	Audit & Design Rebate Amount	Project Area (ft <sup>2</sup> )	Calculate Rebate
K-12 schools	\$500 + 3 cents per ft <sup>2</sup>		\$
All other commercial buildings	\$500 + 1.5 cents per ft <sup>2</sup>		

Audit & Design Rebate shall be paid to:  Customer  Lighting Designer Customer Initials:

The **RELIGHT Performance Rebate** is intended to reward exceptional and comprehensive lighting design that achieves energy savings beyond the RELIGHT target baseline. The rebate is payable to the customer within 60 days following project completion. The Performance Rebate is structured as follows:

Performance Rebate Amount	Energy Savings Threshold
\$500 + 1 cent per kWh	First 25% savings beyond RELIGHT target baseline
+ 2 cents per kWh	Savings 25-50% beyond RELIGHT target baseline
+ 3 cents per kWh	Savings 50-75% beyond RELIGHT target baseline
+ 4 cents per kWh	Savings 75%+ beyond RELIGHT target baseline

# Recent C&I Lighting Program Results

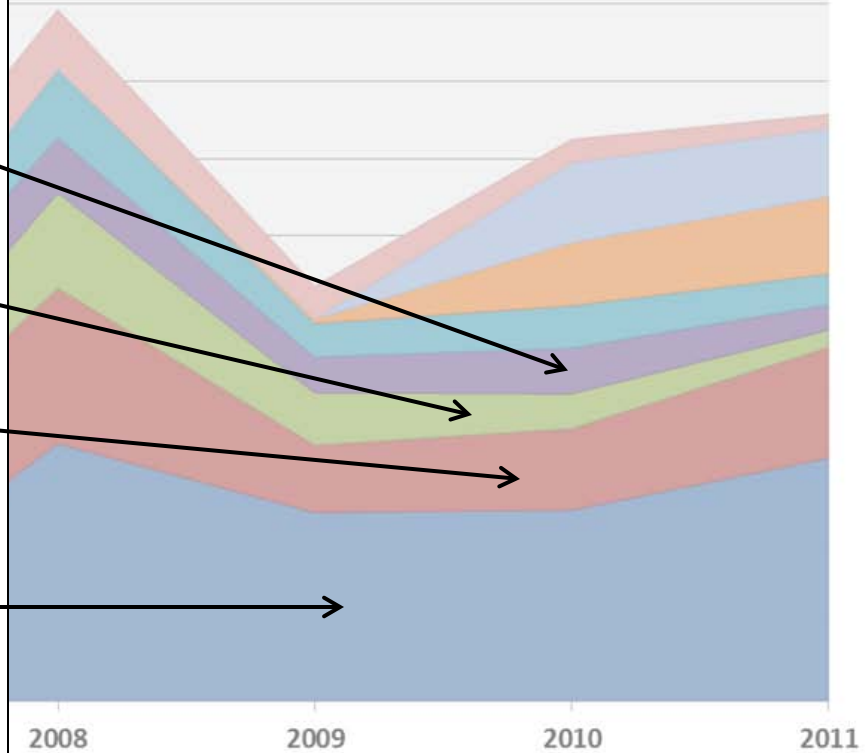


# C&I Lighting Program Considerations

50,000

Efficiency Vermont C&I Lighting Results

- LPD:** Increasingly stringent code baseline
- CFL:** Decreasing NTG (Free Rider & ISR)
- T5HO:** Decreasing NTG (Free Rider), PS MH baseline
- HPT8:** Decreasing NTG (Free Rider), transition away from T12, ballast standard?



■ HPT8 ■ T5/T5HO ■ CFL ■ LPD ■ Controls ■ LED Fixtures ■ LED Lamps (iLED) ■ Other

# C&I Lighting Program Plans – 2012 & Beyond

**T12 baseline** – negotiated with regulators a one-year free rider extension (through 12/31/2012) and a delay in the baseline adjustment (2015)

- Basis: availability of compliant and exempt T12 lamps, useful life remaining on installed T12 base, RE phosphor issue

**Comprehensive lighting** – increased focus on...

- Lighting design & deeper LPD savings
- Advanced lighting controls
- LED

**Partner reliance** – introduction of partner rewards encompassing sales incentives, education (technology & sales), certification

# Comprehensive Lighting – Design

## Lighting Design – “RELIGHT”



or



- Promote the use of **lighting design professionals** to identify and pursue significantly **increased savings** on lighting retrofit projects
- Provide expert advice on equipment, layout, light levels, controls
- Despite limited participation (20 completed projects in 2011), the results have been excellent.
  - 80% increase in MWh per project compared to custom lighting retrofits.
  - Similar \$/MWh cost even when including design rebates.
- Long lead time to results, 10-12 months. Consider laying the groundwork now!

# Comprehensive Lighting – Controls

## Education!

- In a summer 2011 survey of Vermont lighting partners, **education** was indicated as the #1 barrier to lighting controls. (n = 77)
- Lighting Controls Association offers on-line education and credits. EVT plans to reward partners for each credit earned through LCA.

## Advanced Controls

- “Advanced” control systems – those using daylight dimming, occupancy, high end trimming, scheduling, etc. – present program challenges. How do we **screen** them? What amount of **savings** is realistic? **Cost?** **Baseline?**
- CEE is considering the need for a nation-wide study to assist programs with TRM development & custom program savings.

# Comprehensive Lighting – LED

## Quick adoption of LED categories within Rx Program

- Since 2009, EVT has offered Rx LED rebates **before market demand** existed. In doing so, the framework (TRM, forms, etc.) is in place and ready to react to a fast and unpredictable LED market
- New Rx categories 2012: **2x2/2x4/1x4** panels, **high-bay, flood**

## Education

- **Partner** education – statewide workshops, annual conference, partner specific newsletter, pilot projects, DOE resources
- **Customer** education – website, newsletters
- **Staff** education – frequent vendor lunch & learns, “technical solutions group,” DOE resources

# Comprehensive Lighting – LED (cont.)

## Partnerships

- **DesignLights Consortium**, **ENERGY STAR**, and **DOE** (Lighting Facts, CALiPER, GATEWAY, TINSSL) all are invaluable resources
- **Local partners** – upstream rebates, sales incentives, etc.

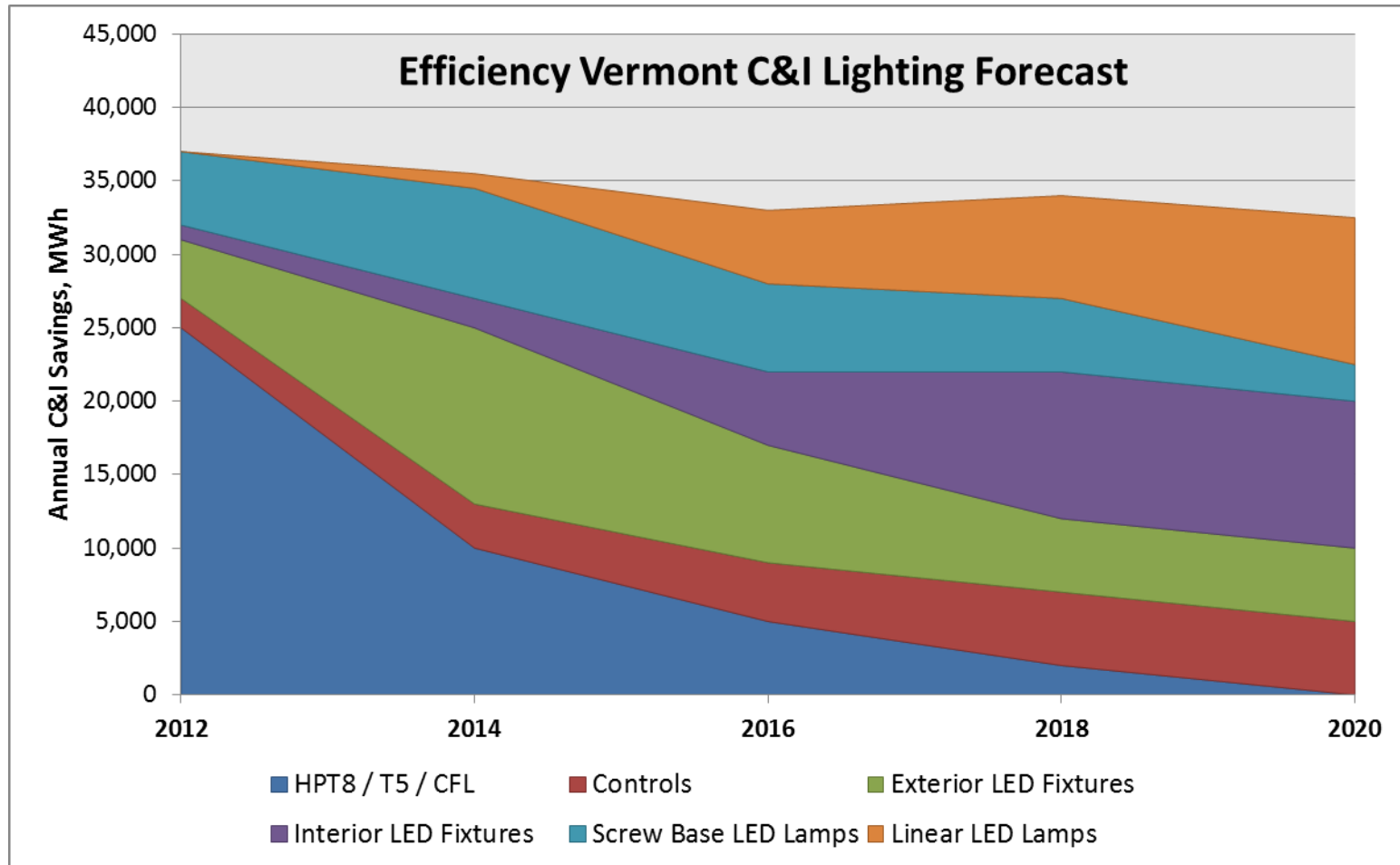
## Challenges

- Application issues – dimming, early failures due to heat, etc.
- Cost – EVT initially set LED rebates at a high level to “**prime the pump.**” 2010: \$0.35/kWh 2012: \$0.20/kWh
- Program abuse

## Results

- **25% of C&I lighting savings** have come from LED in 2010 & 2011!

# Long Range C&I Lighting Forecast



# Can LEDs Replace Historical HPT8 Savings?

Consider the **delta watts** from a typical HPT8 *retrofit* project:

- 3 lamp F34T12 w/ EEMag 110W
- 3 lamp HPT8 w/ low BF 72W ( $\Delta W$  27 after 0.7 FR)

Consider the **delta watts** form a typical HPT8 *Rx project*:

- 3 lamp F32T8 w/ normal BF 88W
- 3 lamp HPT8 w/ low BF 72W ( $\Delta W$  16)

Potential LED delta watts?

- Blended F32T8 & HPT8 baseline 80W
- Best in class LED 2x4, 110 LPW 36W ( $\Delta W$  44)
- Future potential LED 2x4, 220 LPW 18W ( $\Delta W$  62)
- Current EVT TRM LED 2x4 54W ( $\Delta W$  34 vs. 88W base)

# Key Takeaway

Despite an increasingly difficult and complex climate for lighting programs...

**C&I lighting savings opportunities  
are not going away any time soon!**

# Thank You. Questions?



## Contact Information:

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