

Retrofit Lighting Overview

In-depth on Three Lighting Tiers

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In-depth on Three Lighting Tiers

Summary of Changes

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Energy Independence and Security Act (EISA)

- Efficiency requirements concerning General Service Lamps.

2

Commissioning of Controls

3

TLEDs – Differences between Eversource & UI

Retrofit Lighting Tiers

	Tier	Requirements (see Incentive Cap Sheet full details)	Incentive Greater of	Incentive Not to Exceed
Best	High Performance (Tier 3)	Networked Lighting Controls *	\$0.65 / kWh/year OR \$1,000/ summer kW	65% of Installed Cost
Better	Enhanced (Tier 2)	LED** with Wirelessly Accessible Digital Controls	\$0.45 / kWh/year OR \$1,000/ summer kW	45% of Installed Cost
Good	Standard (Tier 1)	LED**	\$0.20 / kWh/year OR \$1,000/ summer kW (\$0.25/kWh / \$1,000/kW for SBEA)	20% of Installed Cost (25% for SBEA)

* System must be on DesignLights Consortium Networked Lighting Controls qualified products list (QPL)

** Product must be on DesignLights Consortium Solid State Lighting qualified products list (QPL) if covered

Lighting Designer Incentive (LDI) Energy Opportunities (Retrofit)

Lighting Retrofit Tier	LDI Incentive	Maximum Project LDI Total \$ Cap*
Tier 3 (High Performance)	\$0.06 / lighting kWh saved/year	\$5,000
Tier 2 (Enhanced)	\$0.04 / lighting kWh saved/year	\$5,000
Tier 1 (Standard)	\$0.02 / lighting kWh saved/year	\$5,000

* LDI is calculated and capped separately from the core lighting scope of work that uses lesser of \$/kWh OR % of cost

LDI Requirements

- Use LED products rated/listed by DesignLights Consortium and/or EnergyStar
- Use lighting designer with valid LC, CLEP, CLD, or IALD Professional credentials; who must design, engineer, or install lighting (not just sell the LEDs)
- Maintain recommended light levels per IESNA* 10th Edition Handbook or Design Guides
- Generate and deliver lighting layout diagram and foot-candle distribution information for design (max: min illuminance, uniformity)



Pre-Qualification Tool for Lighting Projects



Eversource Only

Traditional Approach

- Use Data Collection spreadsheet
- Attach DLC screen shots
- Attach product spec sheets

Database Approach (online portal)

- Use pre-qualification tool (currently Amplify) is highly recommended

Benefits:

- Pulls from DLC Qualified Products List (QPL)
- No DLC screenshots or specs needed
- Reduces error
- Faster turnaround

Pre-Qualification Tool for Lighting Projects

Measures

Estimate: Berlin Office

Space Name: Oscars Office

Configured Spaces Add

Copy Sort: A-Z or As Entered

- Office 1
- Office 2
- Allens Office
- Lobby
- Shipping
- Oscars Office

- Office 1
- Office 2
- Allens Office
- Lobby
- Shipping
- Oscars Office

[Add New]

Existing	Qty	<input type="text" value="..."/>	▼	<input type="text" value="..."/>	▼	Q i
Proposed	Qty	<input type="text" value="..."/>	▼	<input type="text" value="..."/>	▼	Trim Pct Q i

Save Cancel

Occupancy Sensor

Quantity

Vacancy Sensor

Dimming Level (%)

Revised Lighting Instructions

"Description Before"	<i>For existing LEDs being replaced: List the LED manufacturer and model number.</i>	
	Examples:	<i>Acme LED Co. - 24ABC Troffer</i>
"Annual Hours Before"	<i>If the area has existing occupancy sensors, reduce hours to reflect the current "on" time.</i>	
"Item Type"	<p>New Fixtures w/ LLLC or NLC – New unit which includes Luminaire-Level Lighting Control (LLLC) capability or is controlled by Network Lighting Controls (NLC) system. <i>Must be networked and commissioned.</i></p> <p>Default LLLC Fixtures - New fixture (or retrofit kit) which includes LLLC capability. The system will not be networked and commissioned.</p> <p>Non-Eligible – Products that do not meet program criteria such as DLC requirements, as well as general service lamps with ANSI bases, E26 screw-in LED bulb replacement in existing fixtures, downlights, and track lighting.</p> <p>The screw-In fixture type was removed from the list of "item types" for 2024.</p>	

Lighting Controls Factors

Controls Technology	Savings Factor
Networked Lighting Controls (NLC)	49%
Networked & Commissioned Luminaire-Level Lighting Controls (LLLC) – <i>provide evidence</i>	49%
Default Luminaire-Level Lighting Controls (LLLC) – <i>no networked or commissioning evidence</i>	38%
Combination of Occupancy and Daylight Sensors *	38%
Combination of High-End Trim and Daylight Dimming *	35%
Combination of High-End Trim and Occupancy Sensors *	33%
High-End Trim *	27%
Daylight Dimming *	28%
Occupancy Sensors *	24%

* Technology type does not automatically correlate to a specific incentive level.
Savings Factor is taken from proposed LED wattage after retrofit (% kWh savings on LED)

High Performance Lighting



Network Lighting Controls

DLC NLC Requirements	Additional Utility Program Requirements
<ul style="list-style-type: none">• Networking of Luminaires and Devices• Occupancy Sensing• Daylight Harvesting/Photocell Control• High-End Trim• Zoning• Luminaire and Device Addressability• Continuous Dimming• Cybersecurity	<ul style="list-style-type: none">• Energy Monitoring – 3 months data• Load Shedding (Demand Response)

High Performance Energy Monitoring Report

Energy Report Format

Building Summary

Site Name	Business Hours	Gross Floor Area	System kW
<i>Example Site</i>	<i>8am-6pm</i>	<i>25,000</i>	<i>17.5 kW</i>

Energy Data Table

Time Period	Area Name	Zone Name	Quantity of Luminaires in Zone	Max Power Without Controls	Hours On	kWh in Time period	High End Trim	Occupancy Sensor	Daylight Harvesting
			#	Watts	Hours	kWh	%	Y/N	Y/N

Enhanced Performance Lighting

Minimum of:

One Control Strategy
per Fixture

Two Control Strategies
across the Whole
Project

Possible
Control
Strategies:

Occupancy
Sensors

Daylight
Harvesting

High End
Trim

Enhanced Performance Lighting – Requirements

Tier 2 – Enhanced Performance Lighting

Controlled LEDs need digital control & wireless accessibility to initialize, configure, & commission

All LED products used must be on DesignLights Consortium (DLC) Qualified Products List (QPL)

80% of project load must be controlled LED fixtures

Group LED fixture control acceptable; individual fixture control optional
(Reminder LLLC needs evidence of commissioning & networking to make 49% savings claim;
otherwise LLLC savings are 38%)

Group maximum size guidance of 300W connected LED luminaire load within the same physical space and/or control zone $\leq 1,000$ sq. ft. controlled as a group

Enhanced Performance Lighting – Control Features

Digital Control & Wireless Accessibility to Initialize, Configure, Commission

Variety of digital & wireless control systems/layouts can qualify; use “remotes” or “apps” etc.

Access to: set daylight threshold/sensitivity; standby dim level; hold/delay time; etc.

Can be “individual fixture level” access; using LEDs with LLLC or other means

Can be “room/group level” access; e.g. use some form of “room controller” for wireless

May have option now/later to scale to multi-room network with router/gateway/bridge

LLLC Savings (49% if network/commissioned evidence; 38% if none)

Luminaire Level Lighting Controls (LLLC) Networked & Commissioned Evidence

OPTION #1: Formal lighting control commissioning report with sufficient detail on all control zones/ settings

OPTION #2: Combined set of factors/ details provided as follows in all below rows:

-- Screen shots from app AND Show control zone / fixture grouping

-- Control Zones: projects with 1-9 zones, show settings for each; for >9 zones, show representation of all

-- NOT all spaces at factory default, otherwise that strongly indicates no setup/commissioning

----- High End Trim: Values for zones need to match project spreadsheet

----- Occupancy Control: Show time out period (reasonably align with IECC 2021 guidance)

----- Daylight: Show parameters for daylight level and dimming

Standard Lighting



No Controls Requirement



Use Instant Rebate Program or Express Rebate Form
Where Applicable*

Eversource	UI
TLED Type A & B Not allowed in large C&I Not eligible for Instant Rebate as of April 1	TLED Type A Not allowed in large C&I Not eligible for Instant Rebate as of April 1
TLED Type C <i>Allowed</i> in large C&I Not eligible for Instant Rebate as of April 1	TLED Type B & C <i>Allowed</i> in large C&I Not eligible for Instant Rebate as of April 1

*Non-controlled products will be removed from the Instant Rebate Program as of April 1.

Instant and Express Rebate Changes

Instant Lighting Changes	Express Rebate Changes
<ul style="list-style-type: none">• High and Low Bay category separation• Lighting installation guideline changes <ul style="list-style-type: none">• Effective April 1st, 2024: All LED Fixtures without integral controls will no longer be eligible for incentives in the Energize CT Instant Lighting Program. <p>MidstreamLightingCT@CLEAResult.com</p>	<ul style="list-style-type: none">• High and Low Bay category separation• All screw-based LED bulbs and downlights will no longer be eligible <ul style="list-style-type: none">• Introduction of LLLC / NLC commissioning bonus. <p>ExpressLightingCT@CLEAResult.com</p>



Questions

Thank you

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