Retrofit Lighting Overview

In-depth on Three Lighting Tiers

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EVERSOURCE

CNG SCG UI

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We look forward to hearing from you

Please put all your questions into the questions section with this icon.

Q&A

Agenda

1. Summary of Changes
2. Retrofit Lighting Tiers Overview
3. Lighting Designer Incentive
4. Pre-Qualification Tool
5. New Controls Savings
6. In-depth on Three Lighting Tiers

Summary of Changes

1. **Energy Independence and Security Act (EISA)**
   Efficiency requirements concerning General Service screw-in 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**	$0.25 / kWh/year OR $1,000/ summer kW	25% of Installed Cost

* 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

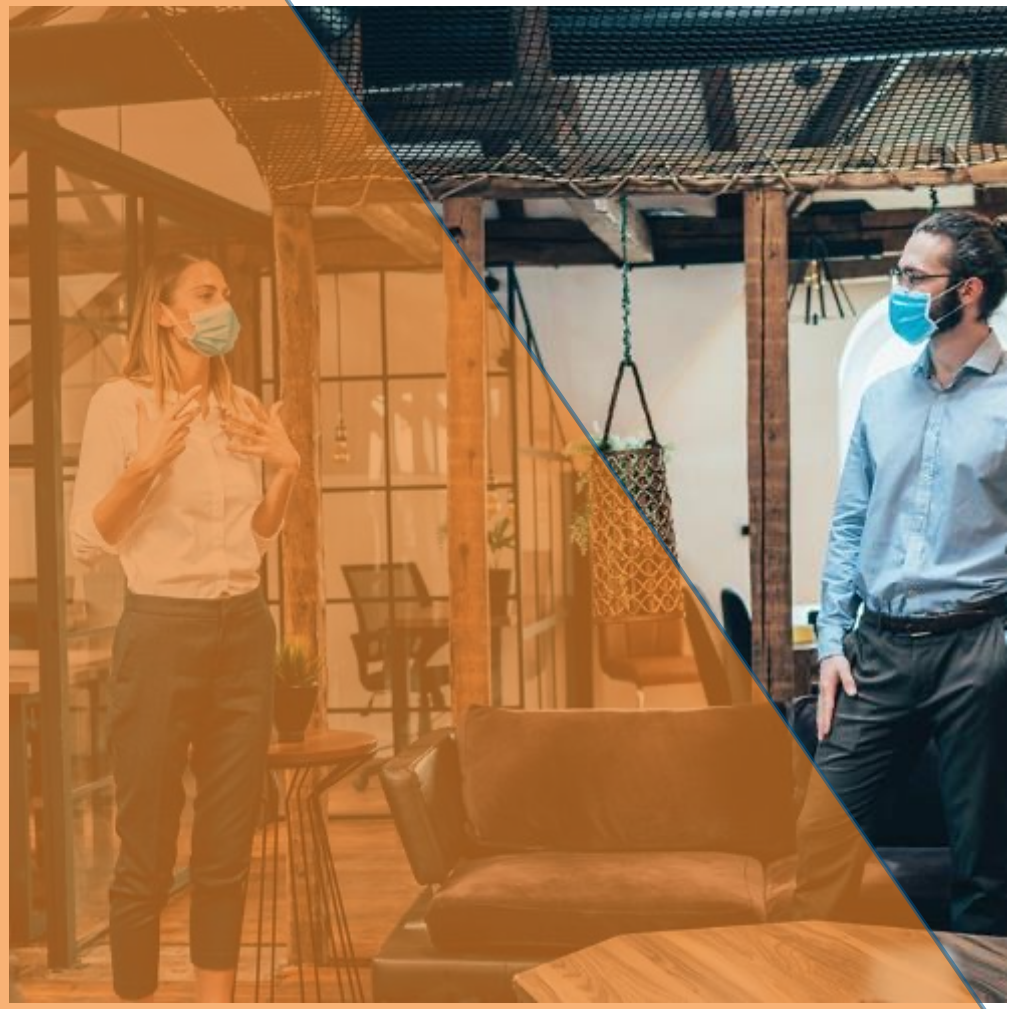
Use lighting designer with valid LC, CLEP, CLD, or IALD Professional credentials; who must design, engineer, or install lighting (not just sell the LEDs)

Maintain recommended light levels per IESNA* Guidance

Generate and deliver lighting layout diagram and foot-candle distribution information for design (max:min illuminance, uniformity)

**Illuminating Engineering Society of North America*

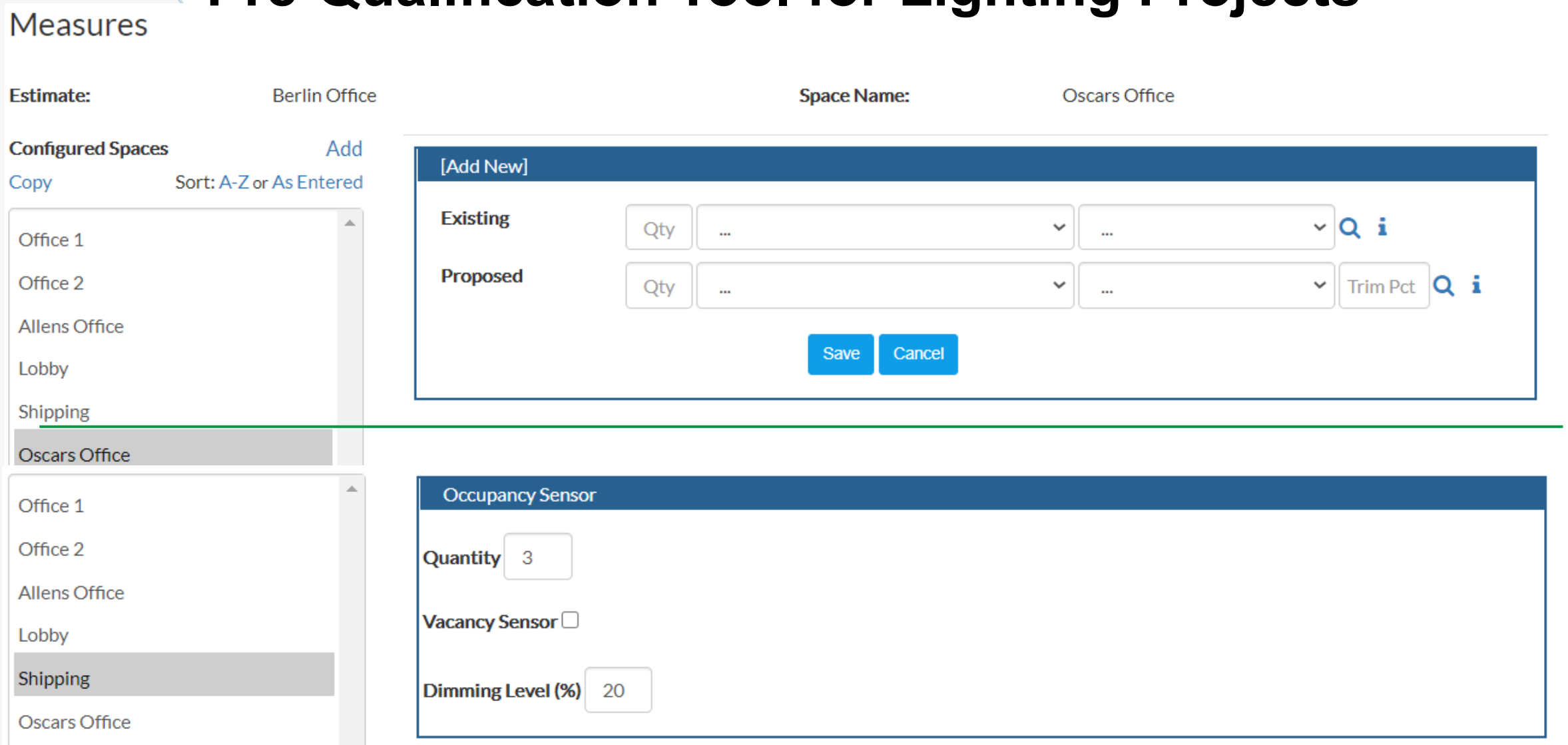
Pre-Qualification Tool for Lighting Projects



Eversource Only

Traditional Approach	Database Approach (online portal)
• Use Data Collection spreadsheet • Attach DLC screen shots • Attach product spec sheets	• Use pre-qualification tool (currently Amplify) is highly recommended • For access to the tool, email commercial@eversource.com Benefits: • Pull from database of DLC/Energy Star listed products • No DLC screen shots or specs needed • Reduces error • Faster turnaround

Pre-Qualification Tool for Lighting Projects



Revised Lighting Instructions

"Description Before"	***For existing LEDs being replaced: List the LED manufacturer and model number.***	
	Examples:	***Acme LED Co. - 24ABC Troffer***
"Annual Hours Before"	***If the area has existing occupancy sensors, reduce hours to reflect the current "on" time.***	
"Item Type"	**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. *Must be networked and commissioned*. **Default LLLC Fixtures** - New fixture (or retrofit kit) which includes LLLC capability. The system will not be networked and commissioned.	

Lighting Controls Factors

Controls Technology	Savings Factor
Networked Lighting Controls (NLC)	49%
Networked & Commissioned Luminaire-Level Lighting Controls (LLLC) – *provide evidence*	49%
Default Luminaire-Level Lighting Controls (LLLC) – *no networked or commissioning evidence*	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
• Networking of Luminaires and Devices • Occupancy Sensing • Daylight Harvesting/Photocell Control • High-End Trim • Zoning • Luminaire and Device Addressability • Continuous Dimming • Cybersecurity	• Energy Monitoring – 6 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
Example Site	*8am-6pm*	*25,000*	*17.5 kW*

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 <=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 Midstream or Rebate form where applicable.
Types A, B, C TLEDs allowed in Midstream or Express Rebate.

Eversource CT	UI
TLED Type A & B Not allowed in large C&I	**TLED Type A** Not allowed in large C&I
TLED Type C Allowed in large C&I	**TLED Type B & C** Allowed in large C&I Hybrid A & B allowed in B configuration

Questions

Thank you

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