

# Lutron Electronics, Inc.

Presentation to Capital Lighting & Supply EAct Seminar



Energy Tax Savers  
Charles R. Goulding  
[charles.goulding@energytaxsavers.com](mailto:charles.goulding@energytaxsavers.com)  
[www.energytaxsavers.com](http://www.energytaxsavers.com)

## Overview

- The opportunity
  - Energy Tax Incentives Act of 2005
    - Commercial building immediate tax deduction
      - Incentivized areas:
        - Lighting
        - HVAC and hot water
        - Building envelope
      - Also available for:
        - Rental properties 4 stories or above
        - Tenant owned lease-hold improvements
    - Includes retrofit or new construction

## Overview

- The Opportunity (continued)
  - All public buildings qualify!
    - How:
      - Primary designer, which can be architect, engineer, lighting specifier or contractor, gets the tax benefits
    - Includes:

<b>Eligible Agencies</b>	<b>Eligible Structures</b>
- Federal	- Laboratories
- State	- Convention Centers
- City – Town – Village	- Sports facilities
	- Schools
	- Libraries
	- Town Halls
	- Numerous Others

3

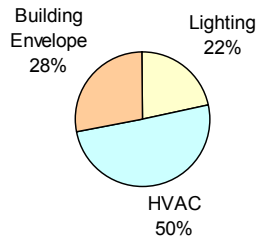
## Overview

- DOE Objectives
  - Make tax incentives performance based
    - The more energy you save, the more taxes you save
  - Maximize efficiency of conventional equipment and processes
  - Encourage alternative energy equipment and design

4

## Overview

### Building Energy Use



- Our view of DOE analysis on tax area
  - Difficult to reduce *building envelope* energy use after-the-fact
  - *Lighting* current low hanging fruit
  - Prospectively, *HVAC* may be biggest opportunity

5

Charles.Goulding@energytaxsavers.com

## Tax Deduction vs. Tax Credit

- A Little Tax Jargon
  - Deduction
    - To calculate your Savings you must multiply by your tax rate
    - Approximately 1/3
    - Applies to commercial building immediate deduction
  - Credit
    - A Dollar for Dollar Savings
    - Applies to federal solar tax credit

6

Charles.Goulding@energytaxsavers.com

## Commercial Building Immediate Deduction

- Mechanics
  - Deductions based on improvements over ASHRAE 90.1 2001
  - Energy efficient improvements must be depreciable assets
    - Converts 39 year depreciation to current deduction
  - Available for installations completed in 2006 & 2007
    - Can begin in prior years
  - Deduction amounts:
    - Lesser of total cost or:
      - \$1.80/sq.ft. Whole Building
      - \$0.60/sq.ft. Individual Systems
        - a. Lighting
        - b. HVAC
        - c. Building Envelope

7

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers)  
HVAC (Heating, Ventilation & Air Conditioning)

Charles.Goulding@energytaxsavers.com

## Commercial Building Immediate Deductions

### Potential Tax Savings for 300,000 sq. ft.

	Immediate Tax Deduction
Whole Building	\$540,000
Individual System Approach	
Lighting	\$180,000
HVAC	\$180,000
Building Envelope	\$180,000

Assumptions: 300,000 sq.ft. of facilities, Qualifying Energy Efficient improvements for entire space

**With Government Buildings these benefits go to the Primary Designer**

8

Charles.Goulding@energytaxsavers.com

## 5 ways to Capture Tax Deduction

### 1. Whole Building (\$1.80/ft<sup>2</sup>)

- 50% Energy Cost Reduction below standard

### 2. Interim Lighting Rules (\$0.30/ft<sup>2</sup>-\$0.60/ft<sup>2</sup>)

- 25% to 40% prescribed Light Power Density (LPD) reduction below standard

### Permanent Rules partial deduction (\$0.60/ft<sup>2</sup>)

- Overall Energy Cost Reduction of 16 2/3% below standard for:
  3. Lighting or
  4. HVAC or
  5. Building Envelope

9

Charles.Goulding@energytaxsavers.com

## Interim Lighting Rules

- Based on Use not Cost
- Joint committee report allows for bonuses for controls
- Deductions begin at 25% improvement over ASHRAE
- Additional \$0.02/sq.ft for each 1% over 25% up to \$0.60/sq.ft.

	2001 Standard (LPD, W/ft <sup>2</sup> )	25% Improvement	40% Improvement
Retail	1.9	1.425	1.14
Manufacturing Facilities	2.2	1.65	1.32
Office	1.3	0.975	0.78
Dining Facility	1.8	1.35	1.08
Fitness Center	1.4	1.05	0.84
Warehouse	1.2	50% required, 0.60	

% Improvement	25%	26%	27%	28%	29%	30%	31%	32%	33%	34%	35%	36%	37%	38%	39%	40%
Tax Deduction \$/sq.ft.	0.30	0.32	0.34	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.50	0.52	0.54	0.56	0.58	0.60

10

LPD (Light Power Density)

Charles.Goulding@energytaxsavers.com

## Benefiting from ASHRAE 2004

	2001	2004	Percent Improvement		2001	2004	Percent Improvement		
	ASHRAE Standard (LPD W/ft2)	ASHRAE Standard (LPD W/ft2)			ASHRAE Standard (LPD W/ft2)	ASHRAE Standard (LPD W/ft2)			
Automotive Facility	1.5	0.9	40%	x	Motion Picture Theater	1.6	1.2	25%	x
Convention Center	1.4	1.2	14%		Museum	1.6	1.1	31%	x
Court House	1.4	1.2	14%		Office	1.3	1	23%	
Dining: Bar Lounge/Leisure	1.5	1.3	13%		Parking Garage	0.3	0.3	0%	
Dining: Cafeteria/Fast Food	1.8	1.4	22%		Performing Arts Theater	1.5	1.6	-7%	
Dining: Family	1.9	1.6	16%		Police/Fire Station	1.3	1	23%	
Exercise Center	1.4	1	29%	x	Post Office	1.6	1.1	31%	x
Gymnasium	1.7	1.1	35%	x	Retail	1.9	1.5	21%	
Health Care Clinic	1.6	1	38%	x	School/University	1.5	1.2	20%	
Hospital	1.6	1.2	25%	x	Sports Arena	1.5	1.1	27%	x
Hotel	1.7	1	41%	x	Town Hall	1.4	1.1	21%	
Library	1.5	1.3	13%		Transportation	1.2	1	17%	
Manufacturing Facility	2.2	1.3	41%	x	Warehouse	1.2	0.8		
Motel	2	1	50%	x	Workshop	1.7	1.4	18%	

## How is the tax deduction calculated?

### Potential Tax Deduction for Different Levels of LPD

A) % of LPD Reduction beyond ASHRAE 90.1 2001	25%	30%	35%	40%
B) Max. tax deduction (per ft <sup>2</sup> )	\$0.30	\$0.40	\$0.50	\$0.60
C) Tax deduction for 100,000 ft <sup>2</sup> space	\$30,000	\$40,000	\$50,000	\$60,000
D) After tax savings (assuming 35% corp. tax rate)	\$10,500	\$14,000	\$17,500	\$21,000

## Commercial Building Immediate Deductions

- Proprietary Lighting Deduction Calculator
  - Shows
    - Tax reserve
    - Basic deduction
    - Controls enhanced deduction
  - Not exact (not room-by-room)
  - Available at [www.energytaxsavers.com](http://www.energytaxsavers.com)
- HVAC and Building Envelope calculators focused on eligible cost

13

Charles.Goulding@energytaxsavers.com

### Tax Deduction Estimator for Lighting Improvements

**A. Square footage of building or building space with Lighting Upgrade**  sq.ft.  
 Your Maximum Tax Deduction Reserve is: \$

---

**B. Cost of capital items**

<table style="width: 100%; border-collapse: collapse;"> <tr><td>Occupancy Sensor/Time Clocks</td><td><input type="text" value="0"/></td></tr> <tr><td>Dimming Ballast</td><td><input type="text" value="0"/></td></tr> <tr><td>Smart Ballast</td><td><input type="text" value="0"/></td></tr> <tr><td>Daylighting/Tuning</td><td><input type="text" value="0"/></td></tr> <tr><td>Personal Control</td><td><input type="text" value="0"/></td></tr> <tr><td>Load Shedding</td><td><input type="text" value="0"/></td></tr> </table>	Occupancy Sensor/Time Clocks	<input type="text" value="0"/>	Dimming Ballast	<input type="text" value="0"/>	Smart Ballast	<input type="text" value="0"/>	Daylighting/Tuning	<input type="text" value="0"/>	Personal Control	<input type="text" value="0"/>	Load Shedding	<input type="text" value="0"/>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Fixtures</td><td><input type="text" value="0"/></td></tr> <tr><td>Ballast</td><td><input type="text" value="0"/></td></tr> <tr><td>Reflectors</td><td><input type="text" value="0"/></td></tr> <tr><td>Other Controls</td><td><input type="text" value="0"/></td></tr> <tr><td>Light Shelves</td><td><input type="text" value="0"/></td></tr> <tr><td>Solar Shades</td><td><input type="text" value="0"/></td></tr> </table>	Fixtures	<input type="text" value="0"/>	Ballast	<input type="text" value="0"/>	Reflectors	<input type="text" value="0"/>	Other Controls	<input type="text" value="0"/>	Light Shelves	<input type="text" value="0"/>	Solar Shades	<input type="text" value="0"/>
Occupancy Sensor/Time Clocks	<input type="text" value="0"/>																								
Dimming Ballast	<input type="text" value="0"/>																								
Smart Ballast	<input type="text" value="0"/>																								
Daylighting/Tuning	<input type="text" value="0"/>																								
Personal Control	<input type="text" value="0"/>																								
Load Shedding	<input type="text" value="0"/>																								
Fixtures	<input type="text" value="0"/>																								
Ballast	<input type="text" value="0"/>																								
Reflectors	<input type="text" value="0"/>																								
Other Controls	<input type="text" value="0"/>																								
Light Shelves	<input type="text" value="0"/>																								
Solar Shades	<input type="text" value="0"/>																								
Other Daylighting Design <input type="text" value="0"/> Other Capital Items <input type="text" value="0"/> Labor for Installation of Above Items <input type="text" value="0"/>																									
<b>Total Cost:</b> \$ <input type="text" value="0"/>																									

---

**C. Please choose the type of space**  
 Baseline ASHRAE LPD:  Please Make a Selection ▼

**D. What is the light power density (LPD) of the new lighting?**   
(Utilize ASHRAE 90.1 calculation method)

1	2	3
Daylighting	Sq.Ft. not covered by "1" Manual Dimming w/Load Control	Sq.Ft. not covered by "1+2" Occupancy Controls (spaces<250sqft)

**F. Square Footage per Control Type**

**G. Potential Tax Deduction Without Control Enhancement\*\*:** \$

**H. Control Enhanced Potential Tax Deduction** \$

---

\*This is the maximum possible deduction. For a more specific estimate, please fill in the following information:  
 \*\*Tax deduction assumes meeting all provisions provided in instruction manual.  
 \*\*\*If you have purchased a Lutron product, you may be eligible for a bonus adjustment to your LPD

Energy Tax Savers  
 2006 and 2007  
 © Energy Tax Savers, 2006

## Interim Lighting Rules – Requirements

- Bi-Level Switching
  - At least 2 levels of light besides off
  - Potential Strategies
    - Dimming ballasts
    - Occupancy controls on every fixture or every other fixture etc.
    - 1st switch controls 1/3 of fixtures, 2<sup>nd</sup> switch controls 2/3 or 50/50 etc.

15

## Interim Lighting Rules – Requirements

- Meet all ASHRAE 90.1 2001 requirements
  - Automatic shut-off
    - Time of day or occupancy control
  - Individual control of spaces
    - Every 2,500 ft<sup>2</sup> if space is <10,000 ft<sup>2</sup>
    - Every 10,000 ft<sup>2</sup> if space is >10,000 ft<sup>2</sup>
  - Tandem Wiring – many exceptions exist
  - Other requirements please refer to ASHRAE 90.1 2001 Chapter 9
- Meet the Minimum light levels of IESNA Handbook 2000

16

## Permanent Lighting Rules

- Must reduce energy costs by 16  $\frac{2}{3}$ % as compared to a reference building built to ASHRAE 90.1 2001
- This reduction must be proven by certified modeling software
  - Occupancy controls and day lighting can be utilized in the models
  - Efficient fixtures require less cooling so some of the cost savings come from lower HVAC usage
- We estimate a 16  $\frac{2}{3}$ % cost improvement is equivalent to a 50% lighting performance improvement

17

## Advanced Lighting Systems Tax planning

- Lowest Hanging Fruit
- Potential for “free riding”
  - If required improvement already exists, use \$0.60 per square foot deduction for:
    - Lighting controls—Automation systems
    - Lighting portion of Building Management Systems
    - Daylighting design and systems

18

## Real World Examples

- 👍 Major Newspaper currently at 50% LPD reduction “free riding” to 60%
- 👍 Major School ripped out bi-level switching to install energy efficient lighting
- 👍 New National HDQ’s was told design was efficient. Only 16% improvement, sent back for redesign
- Investment bank’s new lighting system has only 50% coverage for bi-level switching settling for half a deduction
- 👍 2 lighting manufacturers testing EAct on their own facilities before rolling out to clients
- 👍 EAct helps justify photo sensing in 2 Atriums

19

## Lighting Retrofit Economics

- Lighting Retrofits usually range from \$1.00-\$2.00/sq.ft.
- Energy Savings is usually the main driver
- In some states, Utilities offer Rebates for energy efficient lighting Installations
- Tax Savings is the newest opportunity
- Capitalizing on all the incentives can bring payback for projects to below 2 years and in some cases less than 1 year

20

## Commercial Building Immediate Deduction

- HVAC
  - Deduction available for 16 ⅔% Energy Cost Improvement over ASHRAE 90.1 2001
  - We estimate a 16 ⅔% cost improvement is equivalent to a 25% HVAC performance improvement
  - Calculation Methods for HVAC and Water Heating may incorporate:

Natural ventilation; Design utilizing semi-conditioned spaces that maintain adequate comfort conditions without air conditioning or without heating	Evaporative cooling; Improved fan system efficiency, including reductions in static pressure
Advanced unloading mechanisms for mechanical cooling such as multiple or variable speed compressors	

21

Charles.Goulding@energytaxsavers.com

## A Comprehensive Tax Package is required

- Energy Reduction Plan
- Building Energy Model or Calculations
- Tax Deduction Calculation
  - Use ASHRAE 90.1 2001 as Base
  - Must meet CA software rules
- Owners Manual, highlighting energy saving features
- Post-Implementation Certification

22

Charles.Goulding@energytaxsavers.com

## Understanding Energy Models

- Important modern Energy management tool.
- Currently required for all HVAC and building envelope deductions and for whole building lighting alternative.
- In many jurisdictions, rebates are provided for all or substantial portions of modeling costs.
- IRS has approved two types of modeling software and is in the process of approving two more. Other submissions are in process.

23

## Window of Opportunity

- EAct rules are for property placed in service from January 1, 2006 to December 31, 2007, inclusive
- Legislation has been proposed to extend through 2011 and increase deduction amounts

24

## About Energy Tax Savers, Inc.

- Unique, multidisciplinary staff
  - CPA, Attorney, Engineering, Computer Modeling
- Leading subject matter experts
  - National speaking tour
  - Published articles
- Working with well over 400 million in square footage
- Proprietary Lighting Tax Savings calculator
- Marketing partnerships
  - We are part of a team of leading energy management companies that together provides services to meet today's complex energy needs