

LED Building Lighting Drives Supermarket EAct Tax Deductions

By Charles Goulding, Raymond Kumar and Daniel Audette

Charles Goulding, Raymond Kumar and Daniel Audette discuss how energy-efficient LED refrigerator and freezer case lighting upgrades have had a large impact on the supermarket industry in the last few years, leading to energy cost savings and the opportunity for tax deductions.

Introduction

In the last few years, energy-efficient LED refrigerator and freezer case lighting upgrades have had a large impact on the supermarket industry. LED building lighting technology is quickly mainstreaming into select mainstream building categories led by supermarkets that have the first-mover advantage from already using and benefiting from LED refrigerator and freezer lighting technology. Low-wattage energy-efficient LED building lighting applications typically qualify for large EAct tax deductions.

EAct Tax Deductions

Pursuant to Code Sec. 179D, as added by the Energy Policy Act of 2005, building owners or tenants making qualifying energy-reducing investments can obtain immediate tax deductions of up to \$1.80-per-square foot.¹

If the building project doesn't qualify for the maximum \$1.80-per-square-foot immediate tax deduction, there are tax deductions of up to \$0.60-per-square foot for each of the three major building subsystems:

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lighting, HVAC (heating, ventilating and air conditioning) and the building envelope. The building envelope is every item on the building's exterior perimeter that touches the outside world including roof, walls, insulation, doors, windows and foundation.

Understanding LED lighting

A Light Emitting Diode (LED) is a semiconductor device that converts electricity into light. LED lighting has been around since the 1960s, but is trending toward major inroads in the commercial building lighting market.² In 2008, white LED fixtures (used by most retail and industrial property owners) accounted for just over 50 percent of the embryonic LED building lighting-fixture market. The commercial marketplace for LED bulbs is forecast to exceed \$5 billion in 2012, corresponding to a compound annual growth rate (CAGR) of 28 percent from 2008 to 2012. And, as the global production market for LED bulbs expands, combined with the continuous doubling of capability and halving of the price (Moore's Law), the price for an LED bulb will steadily decline. There is industry-wide consensus that LED lighting for building applications is at the tipping point for major market penetration and once the \$10-per-bulb threshold is reached, the LED market will take off.³ In order to maximize the economic incentives of an LED lighting retrofit, Leadership in Energy and Environmental Design (LEED) certified buildings should endeavor to make any desired LED lighting upgrades on or before the current EAct statutory deadline of December 31, 2013.⁴

Supermarket Focus on Energy Management

For supermarkets, overall energy cost is a very large, but manageable, operating cost. Energy costs related to refrigeration and freezers are the biggest energy-cost user in addition to the lighting and HVAC costs for general building needs. Appropriate lighting is crucial in supermarkets for product presentation particularly for increasing volumes of fresh foods including seafood and produce.

Supermarket LED Lighting Tax Deductions

Supermarkets vary in square footage based on demographic location and a particular brands standard format. Often inner-city stores are smaller at around the 25,000-square-foot level. Suburban strip-center supermarkets are frequently in the average range of 50,000-square feet. Larger, big-box supermarket formats are 100,000 square feet and greater. Table 1 presents the EAct lighting tax deduction opportunity for a single supermarket and 50 store chains at all three size ranges:

Case Study Experience from Supermarket Case Lighting Applications

Supermarkets require large numbers of refrigerator and freezer cases. Previously, these cooled spaces lost a tremendous amount of cooling-related energy just to offset

the heat generated by previous generation case lighting that used heat generating incandescent and fluorescent lighting. Even more energy was lost with fluorescents, because at the lower temperatures in a refrigerator, their output was reduced up to 25 percent. Throughout the country, supermarkets have moved quickly to substantially reduce their energy cost by converting existing case lighting to cooler operating LED case lighting. The major new case manufacturers have shifted to energy-efficient lighting and emphasize energy-efficient case lighting as a major selling point. As a result of this widespread occurrence, supermarket facility managers have quickly become familiar with LED lighting.

Another advantage of LEDs that is of great potential to supermarkets is the ability to blend colors. Due to the color mixing capabilities of LEDs, supermarket owners can easily tailor the lighting arrangement to fit each individual product. Different combinations of LEDs can be used to make a product's packaging more vibrant or to make meats and vegetables appear fresher. The Lighting Research Center at Rensselaer Polytechnic Institute has experimentally shown customer preference of products lit with LEDs. When asked to choose between identical products in two adjacent cases, nearly all of the people questioned preferred the products lit with LEDs over fluorescents.⁵ Another study, with similar conditions, conducted by LEDs Magazine reported that sales from the LED case were 19-percent higher than the sales from the Compact Fluorescent Light bulb (CFL) case.⁶

Setting an Example

Many supermarkets are beginning to integrate LEDs into their stores. The Chestnut Hill Star Market

Table 1. EAct Potential Tax Benefits

Typical Supermarket	Total Square Footage of Size Categories	Lighting		HVAC Max. Deduction	Building Envelope Max. Deduction	Total
		Min. Deduction	Max. Deduction			
Inner City	25,000	\$7,500	\$15,000	\$15,000	\$15,000	\$45,000
50 City Stores	1,250,000	\$375,000	\$750,000	\$750,000	\$750,000	\$2,250,000
Suburban Shopping Center	50,000	\$15,000	\$30,000	\$30,000	\$30,000	\$90,000
50 Suburban Stores	2,500,000	\$750,000	\$1,500,000	\$1,500,000	\$1,500,000	\$4,500,000
Larger Big Box Stores	100,000	\$30,000	\$60,000	\$60,000	\$60,000	\$180,000
50 Big Box Stores	5,000,000	\$1,500,000	\$3,000,000	\$3,000,000	\$3,000,000	\$9,000,000
Totals	8,925,000	2,677,500	5,355,000	5,355,000	5,355,000	16,065,000

\$170k Lighting and Refrigeration Investment

LED Lighting Investment	\$ 85,000
Refrigeration Investment	\$ 85,000
Total Investment	\$ 170,000
Annual Energy Savings	\$ 63,000
20% Utility Rebate	\$ 34,000
Tax savings (50,000 sq.ft. x \$.60/sq.ft. x 35% Federal rate)	\$ 10,500
Economic Return after 1 Year	\$ 107,500
Economic Return after 2 Years	\$ 170,000

in Newton, Massachusetts increased its energy savings by 50 percent by converting entirely to LED lighting. By replacing their fluorescent and incandescent bulbs and taking refrigeration efficiency measures, they were able to receive the U.S. Environmental Protection Agency's GreenChill Partnership platinum award.⁷ The supermarket was one of the earliest in the country to retrofit its entire store with LEDs, and it is reaping the high energy-cost-saving benefits.

Optimizing Supermarket Utility Rebates

Many utilities offer cash rebates for a wide range of supermarket energy-efficiency measures. Their energy-efficiency measures are related to building lighting, refrigerator case lighting, deli, bakery and kitchen appliances, refrigerators and freezers, and general building HVAC applications. Often utilities will offer higher overall percentage rebates for multiple projects, or what the industry calls "multiple energy efficiency measures." As a result of their numerous energy consuming activities, supermarkets are ideal candidates for so-called combined measure utility rebates. Also, installation labor and overall project costs are much lower when electrical and mechanical contractors are engaged to handle multiple measure-energy-efficiency upgrades at one time.

Calculating the Overall Savings

Supermarkets consume substantial amounts of energy, making energy cost a very meaningful operating cost that may even exceed total supermarket store profit. In their supermarket energy overview, the federal government energy

star program indicates that the average 50,000-square-foot supermarket uses 50 percent of its \$250,000 annual energy cost of \$125,000 just for lighting and refrigeration. With supermarkets providing more fresh foods, refrigeration is increasing total energy use and consuming even greater percentages of energy cost.

Annual costs savings of 50 percent or \$62,500 (50 percent of

\$125,000) from lighting and refrigeration upgrades are clearly achievable, and previous years' supermarket data indicate that thousands of supermarkets have used energy upgrades to achieve an average annual savings of \$54,000. The key is to use a combination of energy savings, utility rebates and tax savings to achieve these results. Note that implementing both measures at once will often result in higher utility rebates in jurisdictions that offer higher combined measure rebates. The following example presumes the average 50,000-square-foot supermarket makes a \$170,000 investment to reduce lighting and refrigeration costs.

Note that economic results from a specific store project will vary widely depending on the store's current energy use, the total cost and nature of the energy-reduction method selected, the local utility-rebate regime and the local electrical rate.

LED Supermarket Tax Planning

The key with supermarket LED EPC projects is to make sure the combined wattage of the new LED installation and any retained lighting meets the supermarket EPC targets. Supermarkets frequently use different types of in-store lighting applications. The EPC tax deduction is based on the combined wattage of both the new LED lighting and the retained lighting. Often the ability to obtain a meaningful tax incentive will depend on upgrading another lighting category to more energy-efficient methods in addition to the LED upgrade.

Conclusion

Supermarkets present tremendous opportunities for energy savings. LED refrigeration and freezer cases have given the industry a first peek at LED lighting.

Supermarkets are the first major retail category to widely embrace LED building lighting, and their presence in every community should serve as an example for all building categories considering LEDs.

ENDNOTES

- ¹ Energy Policy Act of 2005 (P.L. 109-58).
- ² Charles Goulding, Jacob Goldman and Taylor Goulding, *The Economic, Business and Tax Aspects Light Emitting Diode Interior Building Lighting*, CORP. BUS. TAX'N MONTHLY, Jan. 2009, at 31.
- ³ Charles Goulding, Joseph Most and Spencer Marr, *The Tax Aspects of Energy Equipment Tipping Points*, CORP. BUS. TAX'N MONTHLY, Feb. 2011, at 13.
- ⁴ Charles Goulding, Kenneth Wood and Raymond Kumar, *Optimizing the 3,2,1 LED Lighting Tax Deduction Countdown*, CORP. BUS. TAX'N MONTHLY, July 2010, at 13.
- ⁵ *LED Lighting Contributes to Grocery Store's Sustainability Achievements & EPA Award*, LITHONIA LIGHTING, available online at http://lithonia.acuitybrands.com/Files/RTLED_Files/RTLED_CaseStudy_ChesnutHill_Grocery.pdf.
- ⁶ Lighting Research Center, Rensselaer Polytechnic Institute, *Refrigerated Display Case Lighting with LEDs*, available online at www.lrc.rpi.edu/programs/solidstate/cr_refrigeratedDisplayCase.asp.
- ⁷ *LED Luminaires Get Warm Welcome in Supermarket Freezers*, LEDs Magazine, Apr. 2006: available online at www.ledsmagazine.com/features/3/4/2.

Federal and State Taxation of Limited Liability Companies

FEDERAL AND STATE TAXATION OF LIMITED LIABILITY COMPANIES provides clear and reliable guidance on what the latest tax treatment is for limited liability companies and what it means for your clients or your business. This hands-on treatise is dedicated entirely to the taxation of LLCs. It answers all of your questions with an analysis of all federal tax issues applicable to LLCs with detailed references to related Code Sections and Treasury Regulations, plus cases, revenue rulings and private letter rulings. It provides a state-by-state analysis of state tax laws and filing requirements in all 50 states and the District of Columbia, with references to the applicable tax forms and places of filing listed. It explains how to prepare the most common LLC tax forms, state tax forms, checklists, practice tips, tables and examples. This comprehensive manual offers scrupulous and exhaustive coverage of LLC taxation that accountants, tax attorneys and CPAs working with LLCs will find invaluable for daily reference.

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