The EPAct TAX Aspects of LED Lighting For Refrigerated Distribution Centers

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LED Lighting is uniquely capable of satisfying the many demands that refrigerated distribution centers place on their lighting systems, as LED's are long-lasting, can weather the cold, and highly efficient.

Contents

The refrigerated distribution center industry is a fast growing sector in the American economy change. Supermarket chains around the country now reflect an increased consumer demand for large amounts of locally grown organic produce and fresh foods. This change is impacting not only the supermarkets themselves but is also critically altering the form and function of the distribution centers that supply food to them. Because distribution centers now have to apportion a greater part of their square footage to refrigeration, they are prime candidates to install new light-emitting diode (LED) lighting products in both their refrigerated building and "dry" sections. Additionally, the large amount of energy consumed in the refrigeration process makes these distribution centers ideally suited to install rooftop solar photovoltaic (P.V.) cells to generate electricity.

Increased refrigeration of fresh goods means that a higher portion of the operating expenses needs to be dedicated towards lighting refrigerated areas and there's more to gain by investing in energy-efficient lighting. Previously, both dry and refrigerated distribution centers used energy inefficient metal halide lighting. Although the dry warehouses have been able to upgrade to energy-efficient lighting, the refrigerated warehouses could

not since fluorescents don't operate well in cold environments. New LED technology is, for the first time, opening the door to lighting that is efficient, long-lasting, and unaffected by the cold. Though the new LED lighting is expensive, refrigerated distribution centers operators who consider energy savings, federal EPAct tax savings, custom utility rebates, cooling cost savings, lower maintenance costs, and increased supplier sustainability points are executing these projects.

The Section 179D EPAct Tax Opportunities

Pursuant to Energy Policy Act (EPAct) Section 179D, distribution centers making qualifying energy-reducing investments in their new or existing locations can obtain immediate tax deductions of up to $1.80 per square foot.

If the building project doesn't qualify for the maximum EPAct Section 179D $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: 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.

Alternative Energy Tax Credits and Grants

There are multiple 30% or 10% tax credits available for a variety of alternative energy measures with varying credit termination dates. For example the 30% solar tax credit expires January 1st 2017 and the 10% Combined Power tax credit also expires January 1st 2017. The 30% closed loop and open loop biomass credit expires January 1st, 2014.

All alternative measures that are eligible for the 30% and 10% tax credits are also eligible for equivalent cash grants for the three years staring January 1st 2009 and ending December 31st 2011.

Using LED's to Achieve Enhanced Supplier Status

More and more large-box retailers around the country are including supermarkets within their properties and establishing programs that seek to minimize their own carbon footprint by mandating certain efficiency standards of their suppliers. In the leading instance, Wal-Mart requires a huge volume of goods daily to fulfill its third-party food supply chain, and requires its suppliers to execute a Sustainable Supplier Assessment as part of its commitment to cost reduction and sustainability[1]. Wal-Mart has three focused goals with this program:

(1) To produce zero waste

(2) To be supplied by 100% renewable energy and

(3) To sell sustainable products.

Wal-Mart makes it clear that it will "reward those suppliers who have measured impacts and shown progress toward meeting aggressive sustainability goals." Wal-Mart is a critical customer for many companies, large and small, so that Wal-Mart suppliers throughout the country are working through their Wal-Mart sustainably assessments. Wal-Mart suppliers can use a variety of tax savings opportunities to reduce their investment costs as they begin to execute their new sustainability improvements. As Wal-Mart improves its own energy reduction financial modeling, the time is ripe for distribution centers to act on their own efficiencies.

LED Lighting for Refrigerated Warehouses

Some of the benefits of LED lighting include:

- Up to a 90% reduction in lighting-related energy costs
- The delivery of a focused beam of light when and where it is needed
- Lower maintenance costs
- Very long life
- Reduced refrigeration electricity costs from less lighting heat generation
- Immediate-on lighting (no warm-up time)

When combined, these benefits are helpful to a distribution center operator when the LED lighting is being installed in a dry or refrigerated building section. For instance, owners of distribution centers who have already installed LED fixtures have reported that they're very happy with the energy savings, tax savings, and quality of light – even if they've encountered some negatives, including forklift operators not being able to see near ceiling interior shelving palettes as easily because of how focused the LED beam is. Since the LED beam focuses down, there can be diminished viewing of higher level inner palette bar code scanning labels. In the refrigerated sections of the distribution centers, building owners need high-quality light in the aisles when forklift drivers and other staff are present, but when there is no activity in an area, the lights must have the ability to be dimmed or off as long as they can be turned on to full efficacy as soon as needed. They also need lighting that is rugged enough to withstand cold, sometimes freezing, temperatures.

As refrigerated distribution centers can be as large as one million square feet or more, the EPAct tax deductions available to owners in the year they install LED lighting can amount to $600,000 per building for lighting alone.

Solar Photovoltaic (P.V.)

Solar P.V. rooftop systems are used to generate electricity at warehouses. Warehouses typically make ideal solar installation candidates since they often have large, unobstructed flat roofs. Large roofs enable large P.V. systems that generate more electricity, which is particularly useful in refrigerated distribution centers that require extraordinary amounts of electricity for refrigeration. Solar P.V. installations are entitled to 30% tax credit or now for the first time a 30% grant[2].

When using either the credit or the grant, five years MACRS deprecation is available. Because the electricity needs of distribution centers are so great, the need to look beyond one's own building to sell excess energy back to the grid that often characterizes warehouse operations is eliminated.

Unique 2011 Opportunity: Enhanced Bonus Tax Depreciation

Solar projects are ordinarily eligible for a 5 year MACRS depreciation, but building owners who install these renewable energy systems after September 8, 2010 through December 31, 2011 can take 100% depreciation tax bonus immediately. Even if building owners miss this 2011 window, they can enjoy a 50% tax depreciation bonus on equipment placed in service from January 1, 2011 through December 31, 2012.

Combining EPAct 179D with Local Utility LED Rebates

It is crucial to understand how different utility rebate processes work with the different lighting technologies. Many utilities offer two types of rebates: prescriptive and custom.

Prescriptive Rebates

Prescriptive rebates are a fixed amount per product such as $30 per fluorescent fixture. Prescriptive rebates are common with high volume mature product categories because utilities are thoroughly familiar with the product's energy performance results. End users are able to streamline the process of procuring a rebate when the technology they plan on using falls within such a predefined category, making prescriptive rebates attractive even if a custom rebate may save the end user more money. Accordingly, most utilities offer, for example, fluorescent rebates based on a pre-determined amount available from a prescribed table or listing. However, as LED's are a newer technology, their eligibility for prescriptive rebates varies by jurisdiction and will depend on each individual distribution center's location.

Custom Rebates

Custom rebates are tailored or customized to the product's expected performance and are normally calculated based on the electricity expected to be saved. Hence, custom rebates for electricity-based products are sometimes called kW (kilowatt) rebates. Many utilities are not yet familiar or supportive of LED and induction lighting products, so the exclusive rebate opportunity may be a custom rebate.

Since LED and induction lighting is low wattage lighting, an investigation into a custom rebate may lead to a dialogue resulting in a much higher overall rebate than the typical prescriptive process. While LED's are slowly entering the mainstream and gradually gaining eligibility for prescriptive rebates, there is somewhat of a "bottleneck" effect slowing the process of approval within the Design Lights Consortium (DLC).[2]

The Design Lights Consortium

In general, if an LED product is Energy Star labeled then the utility will immediately give the rebate. However, for newer LED lighting products, relevant for cold storage systems, that are not yet Energy Star labeled, most utilities only offer rebates after the product has been approved by an independent agency like the Design Lights Consortium (DLC). The DLC takes lighting rebate requests for energy-efficient lighting installations and determines if the product is considered qualified. If so, the utility will award the rebate to the efficient lighting installation project. However, recently due to the increased commercial desirability of LED lighting and an influx of new LED lighting products, there is a huge back-up in approvals which has led to significant delays in the availability of utility rebates[3].

In most cases, since distribution center operators may be paying close to $1500 per lighting fixture, they will want to seek a custom rebate reflective of the large energy savings LED's have to offer in order to offset as much of that cost as possible.

Lighting Sensors and Controls under EPAct 179D

New cold storage LED lighting solutions present another tremendous opportunity for energy savings previously unknown to refrigerated distribution centers. LEDs can be linked to lighting sensors and controls capable of monitoring when aisles are occupied and need to be lit or when the aisle can be dark; since refrigerated distribution center aisles are unoccupied a large portion of the time, up to 90% of energy costs can be eliminated through use of a light control system.

While lighting sensors and controls are not new, they were previously of limited value in refrigerated distribution centers because they didn't function well with inefficient metal halide lighting that took twenty minutes to "warm up" or restart each time they were turned back on. Prior generation sensors were uneconomical in dry

distribution centers because though fluorescent lighting is energy-efficient, lamp life was often materially reduced by sensor use. Since LED's have no "warm up" time and their life is unaffected by sensors, their energy saving capacity is exponentially increased when operated with a lighting controls system.

Conclusion

Refrigerated distribution centers are a fast growing property category with very high electric energy costs. Owners of these facilities have a new opportunity to utilize new highly efficient LED lighting to greatly reduce energy costs. After installing energy-efficient LED lighting, many of these facilities are now installing solar P.V. After completing both of these initiatives, these facilities can achieve higher supplier sustainability points. This enables them to gain more revenue while reducing costs. Substantial tax incentives are available for all of these energy savings measures.

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[1] Charles Goulding, Jacob Goldman, & Christopher Winslow, "The EPAct and Alternative Energy Tax Aspects of Wal-Mart's Supplier Sustainability Program," *Corporate Business Taxation Monthly* (forthcoming)

[2] Charles Goulding, Joseph Most, and Spencer Marr, "The Tax Aspects of Energy Equipment Tipping Points," *Corporate Business Taxation Monthly* (forthcoming)

[3] *Id.*