



NATIONAL ASSOCIATION OF
ELECTRICAL DISTRIBUTORS

Smart Tools for Smart Distribution®

Sustainability Best Practices: *A Case Study Series*

Overview

As electrical distributors seek to grow their market share in sustainability products and services, greening the warehouse has several business, energy efficiency, and selling benefits.

Green Benefits:

- Green warehouses reduce energy bills and can serve as a vivid demonstration of cutting-edge energy efficient technologies for customers.
- Experience with solar power technology can be used to help sell renewable energy packages.
- Installing on-site renewable energy is a way to gain experience with incentive and tax rebate documentation processes.
- A green warehouse is the best way to “walk the talk” on corporate sustainability and energy efficiency.

Greening Warehouse Facilities

Case Analysis: The Business Case and How-to of Greening Warehouse Facilities

What’s the business case for distributors to green their warehouses? How can a company make a warehouse a net zero energy user? As distributors start on the path of sustainability, greening facilities is a relatively easy first step.

Greening the warehouse makes practical business sense, and it is easier to sell renewable energy and energy efficiency technologies if distributors can demonstrate these products in their own facility. Not only can distributors showcase the value and energy-efficiency of their products, but they can also save on their own operating expenses, quantify value, and qualify for tax incentives.

One of the more sustainable goals for a green warehouse is to make it a net zero energy user. In some cases, net zero buildings are able to sell excess energy back to the grid, so much so that the cost of generating energy is neutralized by the excess energy sold.¹

To achieve this goal, a building must be as energy efficient as possible and should produce as much renewable energy on-site as possible.

NET ZERO ENERGY USER:

Produces (or buys) at least as much energy as it uses (from renewable sources). It also produces zero greenhouse gas emissions as a by-product of that use

Greening a Warehouse Using Energy Efficient Technologies

Lighting

Electrical Distributors Inc. (EDI), based in Charlotte, NC, implemented several energy efficiency measures in its warehouse to reduce its environmental impact.

Chris Studney, a Business Development Manager and Leadership in Energy and Environmental Design (LEED) Accredited Professional with EDI, described the energy efficient lighting measures the company has taken, “We’ve made lighting upgrades in our warehouse, from metal halide to a more efficient fluorescent system.”

Electrical Distributors Inc. made a variety of green changes including:

- >> Swapping 3-lamp parabolic fixtures to 2-lamp parabolic
- >> Changing from CFL downlights to LED downlights
- >> Moving from 2x4 fluorescents to 2x2 LEDs

Studney said, “This has resulted in a 35 to 45% energy reduction. We’ve also installed some lighting controls in our facility. This helps cut down energy use. All of these changes allow us to demonstrate the varying technologies to our customers.”

Warehouses and distribution centers are ideal candidates for daylighting because of their large flat roofs. Daylight can enter a building through skylights, solar tubes, light reflectors, roof monitors, and windows. Daylight can be used sometimes for directional task lighting concentrated on work areas, as well as ambient lighting that comes from all directions and washes a room.³

Q & A

WHAT IS THE BUSINESS CASE FOR GREENING YOUR WAREHOUSE?

“There is a big competitive advantage in being green. We don’t want to be in a position of having to sell on price alone. This is a big way to differentiate ourselves.”

—Chris Studney, a Business Development Manager and LEED AP with Electrical Distributors Inc.

“We want to be different than the regular pipe and wire distributor. We want to be a valuable asset for our contractors. We want to be more than a price broker. Being green helps us do that.”

—Gregg Laber, President of [Green Mountain Electric Supply](#)

“A building with daylighting can reduce annual energy use and peak demand by 20-30% compared to a building without daylighting.”

Equipment Switches

Gregg Laber, President of [Green Mountain Electric Supply](#) (GMES) in Vermont, mentioned another way to increase energy efficiency is to put office equipment on switches that can be turned off at night to reduce phantom loads. Phantom load or plug load is the electricity used by a device when it is turned off.

For instance, when cell phone chargers are plugged into the wall they still draw power even if they aren't charging a cell phone battery.

Net Zero Buildings

When the economy picks back up, Laber plans to build a net zero warehouse/office facility for GMES. He described the highlights of his plans:⁵

"We have plans for a zero-energy building at our new facility in St. Johnsbury, VT. We're installing 240 solar panels on the roof to provide all the power for the building and then some. For example, the building will only use 75% of what those panels will produce; the remaining 25% will power our existing St. Albans (VT) facility, which is 7,800 square feet.

Laber continued, "Our brochure discusses how net-zero is about more than just building upgrades—it's really a lifestyle change. For instance, there will be no Coke machine in our St. Johnsbury facility. Our credit card machines, calculators, etc., will run on equipment switches that get turned off at night to reduce phantom loads. We will use daylighting and lighting controls."

"You must have (on-site) power production for net-zero buildings," Laber said. "Our heating will be done with a solar-assisted heat pump. We also use high performance T8s and T5s whenever possible."⁶

"We have plans for a zero-energy building... We're installing 240 solar panels on the roof to provide all the power for the building and then some... The building will only use 75% of what those panels produce."



55%

OF NEW BUILDING PROJECTS SHOULD HAVE OCCUPANCY SENSORS INSTALLED

Occupancy sensors save an average of:



30%

IN LIGHTING ENERGY COSTS VERSUS



28%

FOR DAYLIGHTING CONTROLS AND



23%

FOR SCHEDULING OR TIME SWEEP CONTROLS

—ZING Communications survey conducted for the Lighting Controls Association (a group consisting of 900 lighting designers, 730 electrical engineers, and 530 lighting/energy consultants)²

product shelf

Power strips that help reduce phantom loads:

- >> The [Isole Plug Load Control](#) (manufactured by WattStopper/Legrand)



- >> [Smart Strip](#) are power strips that help reduce phantom loads.

In addition, Green Mountain Electric Supply used insulated concrete forms (ICF) in their newest facility, which dropped overhead expenses significantly.

Based on research performed by Building Works, Inc, houses built with ICF exterior walls require an estimated 44% less energy to heat and 32% less energy to cool than comparable wood-frame houses.

The energy efficient performance comes in large part from the polystyrene foam on the interior and exterior of ICF walls, which range from R-17 to R-26, compared to wood frame's R-9 to R-15 walls. Also, ICF walls are tighter, reducing infiltration (air leakage) by 50% over wood-frame homes.⁴

Did you know?

By using Insulated Concrete Forms (ICF) in exterior walls, a typical 2,000 sq. ft. home in the center of the U.S. will save approximately \$200 in heating costs and \$65 in air conditioning each year.

Endnotes

- ¹ <http://www.eere.energy.gov/buildings/commercial/initiative/> accessed March 9, 2009.
- ² <http://www.environmentalleader.com/2009/02/27/occupancy-sensors-most-recommended-office-lighting-saving-tool/> accessed March 9, 2009.
- ³ http://windows.lbl.gov/comm_perf/nyt_control-system.html accessed March 5, 2009.
- ⁴ Insulating Concrete Form Association (<http://www.forms.org/index.php?act=faqs>)
- ⁵ Gregg Laber, personal interview, February 16, 2008.
- ⁶ Gregg Laber, Op. Cit.

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