



NATIONAL ASSOCIATION OF  
ELECTRICAL DISTRIBUTORS

Smart Tools for Smart Distribution®

# Going Green Outside:

## *Selling Energy Management Solutions*

### *Case Studies*

## Overview

Although more stable than the commercial market, the institutional building market tends to be a little farther from the cutting edge.

Institutional facilities administrators have tight budgets, so they are particularly motivated to reduce energy expenses. While these customers don't have the competitive pressure that drives the commercial market, they do have access to increased government funding for energy-efficient improvements. Demand for energy conservation and energy management projects in the institutional sector is also being fueled by an increasing emphasis on the importance of reducing greenhouse gas (GHG) emissions.

### ***This case study will explore:***

- Opportunities for electrical distributors in the institutional energy management market
- Motivations of facility managers to invest in these solutions
- Common barriers to energy-efficient sales and solutions in this market
- Decision-making process for institutional buyers
- Sales approaches and required knowledge

## Institutional Energy Management Market

### Case Analysis

What energy management trends are impacting the institutional market segment? How can incentives be explained and barriers be removed for facility administrators? Understanding these questions can help electrical distributors increase energy management sales as the federal government pumps billions of dollars into the institutional sector in the next few years.

The institutional market segment—which includes K-12 schools, colleges, universities, and hospitals—is seeking energy management solutions to decrease building operations expenses. These customers tend to have limited resources for funding energy management projects, which makes access to incentives and external financing sources especially important. The American Recovery & Reinvestment Act (ARRA), otherwise known as the 2009 economic stimulus package, will fund institutional sector projects worth billions of dollars over the next few years.

Knowing institutional facility administrators' motivations and communicating how energy management solutions, like high-efficiency, low-mercury lamps and daylighting integration, will cost-effectively meet their needs can help increase sales. It's also important that electrical distributors help institutional customers understand the financial benefits of energy management projects, as well as the incentives and financing available.

### Did you know?

Healthcare organization Kaiser Permanente was named a "Climate Action Leader" in 2009 for the third consecutive year for voluntarily calculating, verifying, and publicly reporting its greenhouse gas emissions under the California Climate Action Registry.

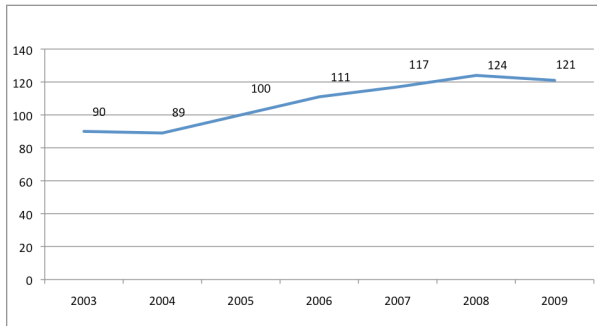
# Institutional Market Trends

## A Traditionally Steady Market

The institutional building sector usually avoids large swings and tends to be more stable than the commercial building sector. Likewise, this market also often lags behind changes readily implemented in the commercial sector.

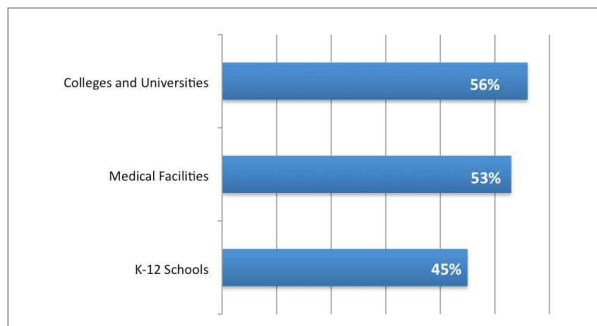
Figure 1 shows the growth in U.S. construction starts for institutional buildings since 2003. Projections for 2009 reflect the recent credit crunch and economic downturn, which is likely to slow down new building and renovation activity.

**Figure 1: U.S. Construction Starts for Institutional Buildings (billions of dollars)<sup>1</sup>**



Institutional customers make up a significant portion of energy management sales for electrical distributors. In a 2009 survey of NAED members, the majority of respondents sold to commercial customers, followed by institutional customers (colleges and universities, medical facilities, and K-12 schools).<sup>2</sup> Responses for institutional end users are listed in Figure 2.

**Figure 2: 2009 NAED Survey, Distributors' institutional energy management end users:<sup>\*</sup>**



<sup>\*</sup> Respondents were asked to check every end user category they sold to, so response frequencies exceed 100.

While institutional customers are the second most frequently cited end users for NAED members, large institutional buildings constitute the core market for Energy Service Companies (ESCOs).<sup>3</sup> According to a 2006 study, 58% of ESCO industry revenues (worth over \$2 billion) come from municipal and state governments, universities and colleges, K-12 schools, and hospitals.

## Motivations

### Federal Incentives

The ARRA made funds available for energy efficiency improvements in schools through a number of programs. The largest amount, \$53.6 billion, was allocated through the "State Fiscal Stabilization Fund." Of that, \$39.5 billion was specifically intended to modernize, renovate, and repair public schools and higher-education facilities.

But state officials have flexibility to spend these funds on other state needs, which means that not all will go towards educational facilities. An additional \$25 billion in eligible bonds have been authorized for school modernization as well.

### Other ARRA funding sources for energy efficient renovations to institutional buildings includes:<sup>4</sup>

- \$3.2 billion—U.S. Department of Energy for the Energy Efficiency and Conservation Block Grant program.
- \$3.1 billion—State Energy Programs.
- \$1 billion—National Institutes of Health for funding construction, renovation, and repair of biomedical and behavioral research facilities at non-federal research institutions, including colleges and universities.
- \$200 million—National Science Foundation for the modernization of academic research facilities.
- \$100 million—Construction grants to Impact Aid school districts, a program from the Office of Elementary and Secondary Education (OESE) that serves students from government installations or Indian tribes.

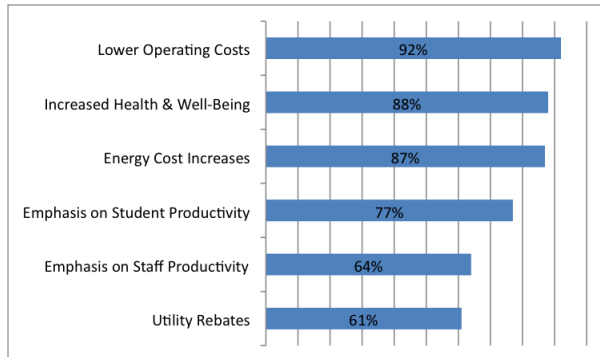
## For More Information

- Find up-to-date information on how states are allocating fiscal stabilization funds on the [federal stimulus package website](#).
- Track stimulus spending on K-12 schools on the [Department of Education website](#).
- Download the Dept. of Energy's "[Guide to Financing EnergySmart Schools](#)."

### Lower Operating Costs

McGraw-Hill Construction surveyed the Council of Educational Facility Planners International (CEFPI) in 2006 about key motivations and barriers in building green educational facilities. Lower operating costs and increased health & well-being topped the list of motivations (shown in Figure 3.<sup>5</sup>) Utility rebates, while important, were not among the top five motivators, but rather are considered “the icing on the cake.”

**Figure 3: Motivations for Building Green Educational Facilities among CEFPI Members**



### Sustainability

The desire to reduce GHG emissions is another motivating factor for many educational facilities.

Walter Simpson, recently retired as Green Office Energy Officer/Director at the State University of New York (SUNY) at Buffalo, said, “Our program was extensively environmentally driven all along—though what really sold our initial projects were the cost savings. In the past year, major buy-in on campus carbon reduction has occurred, mostly due to the American College & University [Presidents’ Climate Commitment](#).”<sup>6</sup>

Simpson continued, “Our university has signed on to this—as have 637 other schools across the country. This commitment forces colleges and universities to dig deeper into energy efficiency, including considering longer payback periods. Carbon neutrality requires more conservation, efficiency, and renewable energy than most campuses ever thought possible.”

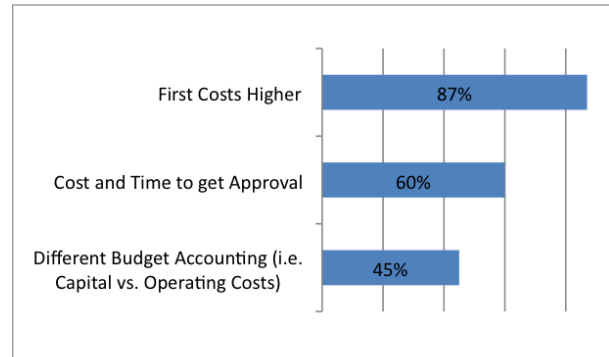
“ Author Gregory Kats found that green schools cost only about 2% more than conventional schools, or about \$3 per sq. ft. ”

### Barriers

#### Up-Front Costs

Higher up-front costs tend to be the largest barrier to energy management and green building projects. This is certainly true of Council of Educational Facility Planners International (CEFPI) members, as a McGraw-Hill Construction survey shows in Figure 4.<sup>7</sup>

**Figure 4: Barriers to Building Green Educational Facilities among CEFPI Members**



However, up-front costs may often not be as high as they are perceived to be. Gregory Kats at Capital E, a clean energy consultancy, found that green schools cost only about 2% more than conventional schools, or about \$3 per sq. ft. In his study “Greening America’s Schools: Costs and Benefits,” Kats also claims that green schools offer significantly more financial benefits to all parties than conventional schools. His study also showed that green investments had attractive paybacks in reducing school operating costs.<sup>8</sup>

#### Budget Considerations

Different budget accounting is another issue that facilities administrators often cite. Oliver Holmes, Architecture Professor at the Rensselaer Polytechnic Institute (RPI), said, “One thing that gets in the way is the difference between operations budgets and longer term energy budgets. For operations staff that face short-term budgets, sometimes the only thing they can afford to do is replace spent light bulbs with incandescents. The labor costs and long term savings from more efficient lamps don’t get factored in, so the incandescents seem less expensive in the short run.”<sup>9</sup>

## Sales Approach

### Learn the Decision-Making Process

Once the barriers are overcome, how do institutional facility administrators make energy management purchasing decisions? Often the process begins an energy audit.

Kevin Kenyon, the Associate Vice-President of Facilities Planning and Management at Ball State University in Indiana, noted, “We want the technical expertise via audits and optimization services conducted by a company with a good track record. Usually ESCOs have too many strings attached that would obligate us to do things that could negatively impact operations, like requiring stringent set points.”<sup>10</sup>

Walter Simpson from SUNY Buffalo echoed the same sentiment.<sup>11</sup> “None of our large-scale, energy management projects involved guaranteed savings. We didn’t want to pay extra for that guarantee and were convinced that the promised savings would be realized if we carefully scrutinized the design of the proposed energy conservation measures and verified the savings calculations,” Simpson said. “After the first project was completed, we used our in-house measurement & verification tools to double check the predicted savings and found that they were achieved.”

The desire for less confining energy project contracts opens an opportunity for distributors to provide energy management solutions. Distributors can tailor their energy management business model to end users that aren’t interested in the stringent requirements that ESCOs often impose.

### Discover Technology Preferences

When asked how energy management technologies are typically purchased, facilities administrators stated that in-house and/or consulting engineers would likely specify the products. This process can be influenced also by facilities staff preferences.

Oliver Holmes at Rensselaer Polytechnic Institute (RPI) described how staff influenced a recent project specification, “I was involved in an energy management program for the biotechnology center at RPI, specifically the animal lab. They used the Square D Powerlink system. Facilities staff appreciates how it can be programmed through a PC and that it integrates with the campus-wide Honeywell and Johnson Controls systems. The Square D system worked well

in other campus buildings, so it was specified for this project. The construction management firm used an electrical contractor that installed the system.”<sup>12</sup>

Once the specifications are established, the project often goes out to bid. Some private educational facilities have partnerships with certain manufacturers, but public colleges, universities, and local school systems are often legally required to use an open bid process.

Several institutional facilities administrators interviewed use energy management systems that incorporate lighting and building controls. Educational facilities administrators expressed a preference for systems that use open source protocols like Building Automation and Control Networks (BACNET). These systems are often tied to utility demand-side management programs, which can require large consumers to drop usage during peak demand periods.

Jeff Choma, Manager of Electrical / Mechanical Systems at Georgian College in Ontario, Canada, said, “Our seven campuses have individual energy management systems that are managed locally via an enterprise system that handles global operations. Our energy management system encompasses automated lighting and two main building control systems for occupancy, temperature, security, and video surveillance. It also allows demand side load shedding.”

#### SALES TIP: OPPORTUNITIES WITH SMALL & MEDIUM SIZED BUILDINGS:

- >> Smaller institutional buildings don’t offer the large, lucrative projects contracts that have historically attracted ESCOs. As a result, they may be a prime opportunity for electrical distributors.
- >> Distributors need to know what motivates purchasing decisions, barriers, energy efficiency technologies, incentives, and funding mechanisms to pursue energy management sales.
- >> Read more about this opportunity in NAED’s recent white paper, [“Green Goes Mainstream: How to Profit from Green Market Opportunities.”](#)

## Offer Cost-Effective Lighting

Daylighting is an important strategy for reducing energy use and improving productivity in learning environments, as noted in NAED's "[Green Goes Mainstream: How to Profit from Green Market Opportunities](#)." This point was emphasized by several educational facilities administrators:

- Oliver Holmes, RPI: customer satisfaction and increased productivity are key benefits, although energy savings also help.<sup>13</sup>
- Kevin Kenyon, Ball State University: earned a LEED credit in a campus building project by providing natural daylighting for 75% of the building's occupied spaces.<sup>14</sup>

Daylighting has been shown to improve work performance among hospital workers and improve patient recovery rates.<sup>15</sup> Reducing the amount of hazardous substances (like mercury) in building materials is also important when creating a healthy environment in hospitals.

Rachael Baker, Environmental Supply Chain Manager of Kaiser Permanente, said, "In our recently completed contract for lighting of our newly constructed buildings, we selected lighting, fixtures, and ballasts that are the highest efficiency products and have the least amount of mercury. We saved 13% on the contract for new buildings, and we mimicked the same purchasing model for replacement lamp products for existing buildings. The linear 4-foot T8 bulbs, which we use the most frequently in our contracts, have 1.7 mg of mercury, compared with high-efficiency CFL linear 4-foot bulbs with 6 to 8 mg."<sup>16</sup>

Institutional facility administrators are particularly motivated to reduce energy expenses because their budgets are so tight. Knowing their motivations and being able to express how energy management solutions, like high-efficiency, low-mercury lamps and daylighting integration, will cost-effectively meet their needs can help increase sales.

## Endnotes

- <sup>1</sup> U.S. Department of Commerce, Economics and Statistics Administration, Construction Put in Place indicator: [www.economicindicators.gov](http://www.economicindicators.gov) accessed June 8, 2009.
- <sup>2</sup> NAED Selling Energy Management Solutions Survey, administered between 12/29/2008 and 2/27/2009 by Yudelson Associates.
- <sup>3</sup> Hopper, Goldman, Gilligan, Singer, and Birr. "A Survey of the U.S. ESCO Industry: Market Growth and Development from 2000 to 2006." Lawrence Berkeley National Laboratory and the National Association of Energy Service Companies, May 2007. Available at: <http://eetd.lbl.gov/ea/emp/reports/62679.pdf>
- <sup>4</sup> <http://www.facilitiesnet.com/maintenanceoperations/article/Stimulus-Funds-Go-Beyond-K12-School-Districts--10736> accessed June 8, 2009.

## ADDITIONAL RESOURCES

- >> [Association of Higher Education Facilities Officers](#)
- >> [National Association of College and University Business Officers](#)
- >> [Council of Educational Facility Planners International](#)
- >> [American College & University Presidents' Climate Commitment](#)
- >> [LEED for Schools](#)
- >> [Collaborative for High Performance Schools](#)
- >> [U.S. Department of Energy's EnergySmart Schools](#) includes a financing guide for energy-efficient schools
- >> [ASHRAE Advanced Energy Design Guides for K-12 School Buildings and Small Office Buildings](#)
- >> [Green Guide for Health Care](#) adapts the LEED rating system to the needs of hospitals

- <sup>5</sup> McGraw-Hill Construction, "Construction Outlook 2009," available at: [http://construction.ecnext.com/coms2/summary\\_0249-295230\\_ITM\\_analytics](http://construction.ecnext.com/coms2/summary_0249-295230_ITM_analytics)
- <sup>6</sup> Personal interview with Walter Simpson, on January 16, 2009.
- <sup>7</sup> "Construction Outlook 2009", op. cit.
- <sup>8</sup> Kats, Gregory, "Greening America's Schools: Costs and Benefits", Capital E, October, 2006. Available at: <http://www.cap-e.com/ewebeditpro/items/O59F12807.pdf>
- <sup>9</sup> Personal interview with Oliver Holmes, December 30, 2008.
- <sup>10</sup> Personal interview with Kevin Kenyon, February 18, 2009.
- <sup>11</sup> Personal interview with Walter Simpson, on January 16, 2009.
- <sup>12</sup> Personal interview with Oliver Holmes, December 30, 2008.
- <sup>13</sup> Personal interview with Oliver Holmes, December 30, 2008.
- <sup>14</sup> Personal interview with Kevin Kenyon, February 18, 2009.
- <sup>15</sup> <http://www.greenerbuildings.com/feature/2006/03/15/americas-top-10-green-hospitals> accessed June 10, 2009.
- <sup>16</sup> Personal interview with Rachael Baker, February 5, 2009.

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