

It is becoming increasingly common for executives to issue or receive environmental sustainability goals. This is especially true in the area of reducing energy use and cost where the volume of energy consumed continues on what can often appear to be an inexorable upward trend.

Eighteen percent of CO<sub>2</sub> emissions, for example, are now attributed to commercial building energy use, according to the U.S. Environmental Protection Agency's ENERGY STAR® program. And many companies underuse office space by 50 percent or more—says Gartner Research—which also means wasted heating, ventilating and air-conditioning (HVAC) and lighting costs for those underutilized areas. This is a lost opportunity to reduce operating costs—such as utilities, taxes, janitorial and maintenance—as well as costly physical assets, freeing up capital through the reduction of the physical footprint.

A great deal of unnecessary expense and expanded carbon footprints can be avoided by using some simple, proven and often vendor-neutral conservation strategies. Such

# Top Strategies for a Greener Corporation

BRUCE K. FORBES, IFMA FELLOW  
JOSEPH KOLMER  
KENNETH MILLER



conservation initiatives may be driven purely by bottom line considerations, by concern for the environment or both.

Whatever the motivation, managers already have the operational insights and even the Integrated Workplace Management Systems (IWMS) software tools that are needed to implement a range of strategies and best practices for conserving energy and achieving other sustainability goals. These tools and techniques are readily available, easily affordable and too often underutilized.

### Stop being a waste of space

Aside from the impact to your bottom line that comes from renting or owning surplus buildings, the associated wasted energy costs point to the simple conclusion that the faster you implement better space management, the faster you gain the added environmental and economic benefit of lower energy use and operating expenses. More frequent space audits using space planning and management software can readily identify vacant space and opportunities to consolidate your operations.

BlueCross BlueShield of North Carolina did exactly that at its nearly 2 million-square-foot campus and reduced its carbon footprint through a space consolidation program that eliminated the need for a new US\$35 million headquarters. Even better, the consolidation opened up 500,000 square feet of floor space the company could then sublease at its existing campus buildings to generate US\$1.5 million revenues annually.

What the company saved and earns can now be applied toward environmental initiatives or other productive uses.

There is also virtually no limit to the scalability of such a strategy in pursuit of energy savings, in addition to other organizational cost reduction goals. For instance, international electricity and natural gas producer/distributor Enel generated a 24 percent reduction on what had been more than 23 million square feet of rentable area costs.

### Alarm your facility management department 24/7

Integrating your Building Automation Systems (BAS) with your facility management department's building operations software can be a highly effective energy con-

servation strategy. A major Midwestern state government's recent energy management initiative linked BAS HVAC alarms to its building operations software. The integrated systems identify the location of the problem on building drawings and automate the issuance of work orders when energy management systems detect performance failures of heat traps and other system components.

The state has projected annual energy savings of US\$6 million from its energy management initiatives statewide, of which the BAS/IWMS integration is a key part. The BAS/IWMS effort alone is expected to deliver within its realm of implementation an estimated 20 to 40 percent in operational savings, contributing approximately US\$500,000 in cost reduction to the overall projected savings. Those and other measures—such as space consolidation—have reduced annual statewide emissions of CO<sub>2</sub> by at least 200 million pounds, dropped nitrogen oxide output by nearly 300,000 pounds and lowered its sulfur oxide volume by more than 500,000 pounds. It is calculated that the emissions reductions are the equivalent of removing 16,000 automobiles from the state's roads.

A similar initiative is being pursued at the University of North Carolina - Charlotte, the state system's fastest growing campus. The school's sustainability commitment is in large part due to institutional conviction but it was given added impetus by a state directive to reduce its energy costs 20 percent by 2010 and 30 percent by 2015.

Energy economies on such a scale would produce a considerable bottom line impact at the school given the extent of its facilities. UNCC currently has 123 buildings comprising 6.5 million square feet of space. Because of the university's continuing expansion, that square footage is expected to double by 2020—providing added impetus to implementing BAS/IWMS integration and other sustainable energy practices now.

### Prevent data centers from generating more heat than light

A recent IDC market research report shows that customers have increasingly identified the cost-efficient management of power and cooling as the number one challenge for the data center. Such operational costs routinely

exceed 50 percent of the total information technology budget.

A typical 10,000-square-foot data center in New York City, for example, may spend in excess of US\$50 per square foot annually on HVAC costs in addition to the cost of electricity to run the data center equipment itself.

## A great deal of unnecessary expense and expanded carbon footprints can be avoided by using some simple, proven and often vendor-neutral conservation strategies.

A contributing cause of that energy expense is the purchase of unnecessary, frequently underutilized, heat-generating server capacity—not to mention the cost of constructing additional data center space to house it.

Excel-based, manual tracking systems often can't keep up with rack server equipment changes. On the other hand, implementing a data center management software provides easy, graphical visualization and automatic updates to server rack inventories. The graphical views and insights such a product offers help to optimize server capacity and avoid over-provisioning and underutilization of installed server rack systems.

Other techniques—such as the implementation of hot and cold aisles in data centers—can also aid in reducing data center power consumption. Surprisingly, IDC's 2007 power and cooling trends study revealed that fewer than 20 percent of data centers are using hot and cold aisle configurations.

### Avoid working in a "HVACuum"

NASA Goddard Space Flight Center has its heart in outer space but it also has its eye on controlling inner space HVAC costs in the 140 structures that occupy the center's 1,200-acre Maryland campus. An energy management audit by the organization's facility management group found that too many of its offices were receiving 24/7 HVAC support—even though they oper-

ated during a standard nine-to-five workday and were vacant on weekends and holidays.

In a variation to the hot and cold aisle concept at data centers, NASA's facility management department is attempting to remedy its energy excesses in a trial project at one building that indentifies rooms and functions in need of 24/7 HVAC, col locating them into clustered zones of their own.

Using its space management software and computer-aided design drawings to reconfigure space and consolidate the HVAC-intensive data centers and other operations, NASA has reduced its after-hours electricity consumption by up to 13 percent. The encouraging proof-of-concept result can be expected to roll-out to the rest of the campus and benefit government budgets and taxpayers alike.

### Create a home team advantage

Telecommuting may be one of the biggest boons yet to organizations interested in running leaner, greener operations. Research by Telework Advisory Group of Worldat-Work—an organization based in Phoenix, Ariz., promoting work-from-home initiatives—found that:

- Sun Microsystems' telecommute program, called Sun Open Work Practice, has 2,800 employees working from home three to five days a week; another 14,219 work remotely twice weekly. This has resulted in 29,000 fewer tons of CO<sub>2</sub> emissions and savings of US\$63 million in one fiscal year by cutting 6,660 office seats.
- AT&T reports savings of US\$3,000 per office, or approximately US\$550 million total, by eliminating or

consolidating office space through telecommuting initiatives.

- Twenty-five percent of IBM's 320,000 workers worldwide telecommute, saving the company some US\$700 million in real estate costs.

As part of a billion-dollar cost reduction initiative that also tries to minimize carbon-based commuting, Vodafone U.K. now has 40 percent of its headquarters' staff working from home, either full- or part-time. In addition, the company encourages videoconferencing to further reduce travel and lost produc-

tivity. Both measures are helping the company achieve its goal of reducing its carbon emissions 50 percent by 2020 versus its 2007 baseline of 1.23 million tons of CO<sub>2</sub>.

Another remote-work advocate—Telecommute America—estimates that 60 percent of a company's annual real estate costs can be saved through the right telecommuting strategies. It estimates average annual reductions of 1,800 miles annually in round-trip commutes by workers—saving an average of 53 minutes per day in travel time and reducing auto- and bus-generated greenhouse gas emissions.

However, a common thread that runs throughout many organizations' telecommuting programs is to also have employees on-site periodically for meetings or other activities. This keeps them integrated with their work teams and corporate culture.

To support a successful telecommuting strategy, you may need—and might already have—hoteling software for reservation-based allocation of unassigned desk or office space on a short- or long-term basis to occasionally accommodate your telecommuters. This will help to improve both the working environment and your bottom line.

### Teach old dogs new metrics

Key performance indicators (KPIs) are the metrics used for improving organizational per-



formance—the benchmarks against which progress is measured for environmental sustainability initiatives, cost reduction goals, business process improvements and other activities. Too few managers are employing environmental sustainability KPIs and that's a missed opportunity.

A well thought-out environmental sustainability strategy can deliver up to 10 percent—and possibly as much as 20 percent—savings on operational costs.


Whatever the environmental goal, managers should choose KPIs that represent a few key metrics for their organization. As examples, they might include the volume of recyclable versus disposable materials headed for landfills, the rate of energy reduction or adoption of renewable energy or better hazardous materials management.

Being able to track the amount of water or electricity being used on a day-to-day basis and where the energy sinks are, gives organizations the ability to take quick remedial measures that can have immediate returns. A centralized real estate, infrastructure and facility management system is invaluable in supporting robust KPI data collection and the subsequent reporting and analysis of that data.


The tools are right at your fingertips. By incorporating and implementing more sustainability initiatives, your building's energy usage is sure to improve and your overall operating costs will decrease. The results are worth it. **FMJ**



The #1 Solution for Total Infrastructure & Facilities Management in the World



Over 4 million users prove it daily—saving their organizations over \$100 billion annually



18 Tremont Street  
Boston, MA USA  
Tel: +1 617.227.2508  
archibus.com



Bruce K. Forbes, IFMA Fellow, is the founder and president of ARCHIBUS Inc., and is considered a leading authority on infrastructure and facility management. He is a past director of the design automation project at Harvard. Forbes delivered presentations to more than 40,000 facility professionals in 2009. He can be reached at [bruce\\_forbes@archibus.com](mailto:bruce_forbes@archibus.com). For more information on ARCHIBUS, visit [www.archibus.com](http://www.archibus.com).

• • •



Joseph Kolmer is the chief operating officer of ARCHIBUS Solution Center – Environment + Sustainability Services, the division responsible for the Total Environmental Asset Management System software that was recognized as a Top 100 Product for 2009 by *Buildings* magazine. Kolmer may be reached at [jkolmer@asc-teams.com](mailto:jkolmer@asc-teams.com). Visit ASC-TEAMS on the Web for more information at [www.asc-teams.com](http://www.asc-teams.com).

• • •



Kenneth Miller is the president of Civil & Environmental Consultants, Inc., a co-developer of TEAMS software. CEC provides sound technological solutions that balance compliance, risk management and business needs in the practice areas of environmental, civil and site development engineering, ecological services, water resources and solid waste management. Miller may be reached at [kmiller@cecinc.com](mailto:kmiller@cecinc.com). Visit CEC online at [www.cecinc.com](http://www.cecinc.com).