



## Energy Efficiency Revolution

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The race toward energy independence and building efficiency in the United States has moved to center stage and has been identified as a national security concern by the federal government. A large portion of the U.S. economy depends upon the expectation that energy will be sustainable, available, and affordable. Therefore, it is critical now more than ever, that our nation's building owners and managers research and adopt solutions that will allow them to manage energy consumption more efficiently. A new way of thinking is spreading across the country as new technologies and innovative solutions are being developed to better manage energy. In light of today's energy challenges, Glenborough has proactively revised its energy management strategy with respect to how we manage and operate our office buildings.

As a large owner of commercial properties, Glenborough's commitment to energy management and sustainability represents a progressive vision of transforming traditional buildings into highly efficient, intelligent facilities. Although the real estate industry has evolved significantly in managing energy over the past 30 years, there has been a focus on reacting to perceived urgencies rather than creating long-term, proactive solutions. Each organization must follow their own path toward sustainability by using the technologies that are appropriate for them or creating their own innovative techniques.

Glenborough adopted a quantitative Energy Management Strategy (fig. 1) that features three key components: analysis, options, and implementation. This process allows us to ensure that our energy management program is well planned, financially feasible, and that decisions are made based on relevant data points.

### Analysis

Glenborough uses key metrics and tools to select properties that are the best candidates for energy management programs. We found that easy access to historical energy data is the key to gaining visibility into how a building is operating and identifying possible opportunities for efficiency and savings. It is also important to understand the property's business considerations in terms of evaluating the value of energy upgrades. These include:

- Comprehensive view of revenue and expenses
- Asset hold period, ownership entity, and market conditions
- Tenant lease expirations and projected occupancy levels
- Tenant leases with recoverable operational or capital expenditures

In addition, the physical building factors such as age of building, tenant make-up, equipment inventory, infrastructure, and type of building play a major role in determining the cost-benefit analysis. Having a working knowledge of these elements will provide the foundation necessary to create a clear energy management strategy.



### Options

The purpose of the analysis phase is to develop a full understanding of all stakeholder expectations and interests, as well as the business and operational parameters for evaluating energy management opportunities. With this knowledge and visibility, we are better prepared to consider alternative strategies and solutions as variables change.

### Implementation

Efficient implementation of the appropriate energy management strategies requires a dedicated team as well as expertise and precision. In areas where in-house expertise may be lacking, it is important to engage a systems integrator who has the capabilities and expertise to help execute the energy management plan through the solutions' lifecycles.

### Glenborough Case Study

#### Overview

The 1525 Wilson Boulevard building in Arlington, Virginia is an excellent example of how Glenborough's methodical approach has maximized the benefits, efficiency, and functionality of energy management projects. This 313,337 square foot building has had a consistently high occupancy rate since 2004, and is currently 100% occupied. The tenant mix consists of several high-profile tenants, including government agencies, government contractors, and large institutional firms. This all-electric building had one of the highest electrical usage in our portfolio, at more than 9,100,000 kilowatts per year, at a cost of \$2.17 per square foot. As a result of the energy management project Glenborough enacted, we've reduced the energy consumption by approximately 3,248,000 kilowatts per year, translating into a 35.6% reduction, for an annual savings of approximately \$283,478 at today's electrical rates. In addition, our ENERGY STAR score over the last 16 months has improved from 43 to 97.

#### Process

Glenborough began this transformation by identifying a list of high-energy loads in the building and recommending select capital upgrades that would have the greatest impact on energy reduction. These upgrades included a complete conversion from pneumatic controls to direct digital controls, installation of an

energy management system, switch to high efficiency compressors, and several major lighting retrofits, including installation of LED lights in the garage and compact fluorescent lamps throughout building. In addition, our Engineering Manager, Don Winterton, conducted several tenant educational sessions in order to engage them as valuable partners in the success of Glenborough's energy program.

#### *Outcome*

1525 Wilson Boulevard recently completed the EPA's National Building Competition, a 12-month energy reduction challenge that began with over 200 building applicants. The competition is judged primarily on percentage of energy reduction as it relates to overall energy use. By February 2010, Glenborough had reduced its energy consumption by approximately 17 percent, placing us third among 14 finalists. , Most notably, during the last six months of the competition, we increased efficiency by another 63 percent. In keeping with our dedication to sustainability and operational efficiency, we are in the process of enhancing our recycling programs and waste stream processes, as well as continuing to research additional solutions for energy management.

#### *The Road to Energy Efficiency*

In looking at the many new energy efficiency technologies used in this building, I have observed a growing trend. Organizational awareness and commitment in managing and reducing energy is rapidly increasing among all stakeholders in the building industry. Energy management technologies and operational best practices will soon become a requirement for every business. The energy efficiency revolution will change the way the world uses energy, and it starts with companies like all of ours.

#### *About the Author:*

*Carlos Santamaria is Glenborough's Director of Engineering. In this position, he provides technical assistance and implements cost containment measures for all of the company's assets. Mr. Santamaria has worked in commercial real estate, concentrating in engineering and construction operations for almost 30 years. Currently, he co-chairs Glenborough's Sustainability Program, strategically positioning the company as a leader in environmental stewardship. Glenborough is a REIT which is focused on owning, managing, leasing, and developing high quality, multi-tenant office properties concentrated in Washington D.C., Southern California, Boston, Northern New Jersey, and Northern California.*

#### **About Just Smart Green:**

**Just Smart Green** is a leading source for education and information for the intelligent, green building industry. Our interactive on-line resources are designed to provide valuable industry news and information to help promote the adoption of energy efficient solutions in the built environment. We'll deliver monthly webcasts, bi-monthly newsletters, case studies, press releases, on-line networking tools, and industry news to keep you informed on the latest trends and technologies for buildings.

The mission of Just Smart Green is to create a virtual green community -- from the industry's thought-leaders to innovative local managers -- and provide an on-line hub of networking and collaboration. We invite you to join our community, sign up for our mailing list, and contribute to our online discussions and blog (coming soon!).

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