EXTENDING THE VALUE OF ENERGY EFFICIENCY TO PORTFOLIO AND CORPORATE PERFORMANCE

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This paper describes how energy service and product providers can help their clients who own or operate commercial properties to gain, through improved energy efficiency in their facilities, greater value for their organizations. The authors rely on a combination of sources: government and private sector research and analysis, experience in energy efficiency program development, and the experiences of property owners and operators who represent some of the 11 billion square feet of organizations that are working in partnership with the Environmental Protection Agency's ENERGY STAR program.

The paper first defines the opportunity for strategic energy management practices and upgrades in commercial properties. Then, the paper describes how focusing on energy and financial performance can help providers of energy management products and services to position their offerings. Examples of the successes of property owners and operators who are active in the ENERGY STAR program illustrate the value of a strategic approach to energy management, targeted at performance improvements. Finally, the paper discusses the investment industry's interest in quantifying success in energy management as a leading indicator of intra-organization management quality.

THE OPPORTUNITY TO IMPROVE THE ENERGY PERFORMANCE OF COMMERCIAL PROPERTIES

It seems logical to assume that new or renovated buildings are more effienct than older or un-renovated ones. After all, in the last three decades a number of technology advances have been integrated into products prevalent in new building construction or renovation.

- Incandescent ligths and T-12 systems with magnetic ballasts have been largely replaced with electronic ballasts, T-8 bulbs, and compact flourescent systems;
- On average, 1995 lighting technologies offered 30% more energy effiency for the same light output, compared to the most available lighting products from the mid 1970s;
- On average, R values in fenestration increased from 1.0 to 1.5 between the 1970s and 1990s;
- Rooftop air conditioning systems increased from SEER ratings of 7.0 to 9.0 during this period; and
- Chillers improved in efficiency from average consumption of 1 kW per ton to close to 0.6 kW per ton.

In addition, automated and computerized building management systems, digital direct controls, and variable air volume fan systems have been designed to optimze energy performance in building operations.

Yet the actual energy efficiency of office buildings appears at first glance to defy logic. Neither new buildings nor upgraded buildings with the most advanced technologies are necessarily more energy efficient than buildings with less advanced technologies. There is tremendous disparity of energy performance in buildings of the same type across the country. For instance, according to the Commercial Building Energy Consumption Survey (CBECS) conducted by the U.S. Department of Energy (DOE), shows that energy intensity in office buildings across the country varies as much as 400%. In other words, the poorest performing office buildings in the country use about four times the amount of energy—and on average spend four times as much per square foot on energy—as the best performing buildings. Other property types studied by the DOE and the EPA, including schools, retail spaces, restaurants, and hotels, have similar ranges of energy intensity.

This 400% variation in energy intensity seen in buildings cannot be explained by technology differences or age. Some of the best-performing buildings do not have some of the most advanced technologies mentioned above, while some of the worst performing buildings do have the technologies mentioned above. Some of the best performing buildings were built decades ago and have had upgrades of widely varying degrees, and some of the worst performing buildings are new or have had major retrofit programs. A closer look at the best-performing buildings provides further insight.

The EPA has studied the characteristics of top-performing properties to better understand what contributes to their success. Through the use of ENERGY STAR's Portfolio Manager tool, commercial property operators can rate the energy performance of their properties. Buildings that use the Portfolio Manager, which is free to use and available on the Internet, can establish a rating of their building's energy performance on a scale of 1 to 100. [1] Buildings whose ratings are 75 or higher are among the most energy efficient in the country, and are eligible to apply for the ENERGY STAR label. For three consecutive years, ENERGY STAR reviewed the technologies and operating characteristics of office buildings that qualified for the ENERGY STAR label.[2] EPA's observations include:

- As compared to the national stock of office buildings, those offices that qualified for the ENERGY STAR are of the same average vintage, use generally the same fuel mix, and are found in geographically diverse locations (which subjects them to a wide variety of climates, building codes, energy prices, and access to public-benefit energy management programs).
- Over half of the offices that qualified for ENERGY STAR have boilers that are more than 15 years old.
- These buildings do not have a single or dominant occupant profile. The buildings have a mix of office occupants and owner-- both the public and private sector, investor-owned and owner-occupied. The ownership structure is segmented into the following categories: 50% are investor-owned, 29% are private sector owner-occupied, and 21% percent are owned by the public sector.

In these reviews, EPA compared the presence of advanced technologies in the high performing buildings to buildings that were average, below average, and above average in energy consumption per square foot, as recorded in CBECS. In this comparison, EPA saw that the poorest performing builldings had, on average, a similar reliance on advanced technologies in their operating systems as the best performing buildings.

[1] The rating system is currently applicable to offce buildings, K-12 schools, supermarkets, hospitals, and hotels. Additional space types are underdevelopment

[2] See Hicks and Vonneida, www.energystar.gov/ia/business/tools_resources/HicksACEEE2000.pdf

One of the differentiators, though, was that better-performing buildings were more likely to have had an energy audit conducted within the past three years. While additional work is needed to fully understand this pattern, the prevalance in the better and lower performing buildlings of systems that were designed to offer greater energy efficiency confirms that technology is only part of the solution. If systems with advanced technologies are not 1) sized,[3] 2) installed, 3) operated, and 4) maintained properly and in an integrated fashion, buildings are unlikely to perform well. In fact, poor facilitation any one of the four above conditions can independently doom a building with even the most advanced systems and technologies to less that average energy efficiency. In other words, good technology must be accompanied by good management to create top energy-performing buildings.

The experience of ENERGY STAR partners supports the conclusions that management strategies are integral to maximizing energy performance in buildlings. In one instance, a building that was less than three years old was benchmarked by its owner in 1998. The building's rating was in the low 30s. The following year, a new owner took over the building's operations and applied its standard management practices. Using Portfolio Manager, their average building rating increased to above 60. Within two years of the new owner's operation of the building, its rating was above 75. According to that owner: because the building was new and good technologies and systems were in place, the improvement in the building's rating from the 30s to above 75 was largely the product of applying a standard of operations and maintenance that includes ongoing commissing of all systems.

FOCUSING ON PERFORMANCE IS KEY TO MARKETING ENERGY MANAGEMENT SERVICES AND PRODUCTS

If a company's senior executives understand the value that improved energy performance can bring to their organizations, then both in-house energy managers and contracted service providers are likely to have the orgainzational support they need to improve energy performance across a portfolio of properties. There are two critical aspects of communicating the value of energy efficiency in terms senior executives and other decision makers can quickly understand:

1. Using a standardized comparable way to measure and report whole-building and whole-organization energy performance improvements.

2. Describing savings opportunities in the metrics of financial performance specific to a business type.

More and more organizations are using the ENERGY STAR national energy performance rating system to measure their performance, and calling on service and product providers to improve their buildings' ratings. Service providers that help their clients establish baseline ratings and demonstrate ratings increases wil be in a better position to meet client needs going forward.

In reviewing the offices that received the ENERGY STAR label, the EPA compared the buildings' operating costs to national averages, as reported by BOMA International, and the CBECS. Among the observations:

- ENERGY STAR offices are approximately 40% less energy and cost intensive than average buildings.

[3] In a study by Lawrences Berkeley National Laboratories, chiller plants in office buildings were oversized, on average, between 50 and 200%. In a study conducted by the EPA, 60% of office buildings reviewed had fan systems oversized by nearly 60%.

- The energy cost intensity of labeled buildings was $0.80 per square foot less, or 39% lower, than the average building stock as represented by CBECS and $0.88 per square foot less, or 42% lower, than the average building stock as represented by BOMA's Experience Exchange Report.

Clearly, better-performing buildings save their owners and occupants energy and money. But what these statistics do not convey is how savings on energy costs translate into bottom line financial gains for the owners and occupants.

Using Financial Performance Metrics That Are Specific to a Client's Reporting Practices

To effectively address the concerns of a client, particularly a senior executive, service and product providers can frame their business offering in terms that are familiar to the executive. Each industry has some metrics that energy savings can be translated *to,* in order to demonstrate corporate value to their clients in the language used to recognize value for that organization.

In commercial office properties, owners and operators recognize that asset value is derived from a multiple of Net Operating Income (gross rents minus expenses). For each $1 invested in energy performance improvements, the asset value can conservatively increase by $2 to $3.[4] A financial modeling tool developed by the EPA, QuikScope, provides a financial analysis of the allocation of the costs and benefits of energy efficiency investments in multi-tenanted office properties.

In the hospitality sector, the key financial drivers are occupancy and room rates, from which are derived business and asset values. A 10% reduction in energy consumption for a full-service hotel is equivalent to increasing occupancy points by 1.04, or increasing the daily average room rate by $1.35 (representing a 1.6% increase). Each $1 invested in energy efficiency improvements in hotel properties can yield $1.85 to $2.78 in increased asset value.

In retail property markets, the key financial driver is profit margin, which is often determined by razor thin margins based on sales. A 10% reduction in energy costs for a supermarket is equivalent to a 6% increase in profit margins or a 7% increase in earnings per share. Another way to look at the reduction in energy costs is equivalent dollar value of goods sold. The same 10% reduction in energy costs is equivalent to increasing sales $60 per square foot.

An Integrated Approach to Building Upgrades Maximizes Returns

Once an organization understands the financial opportunities available by improving energy efficiency, it will be helpful for a service provider to be able to link the value of their offering to the broader context of an integrated upgrade strategy. Table 1 reflects an investment upgrade strategy and anticipated returns for office properties.

[4] Typically energy efficiency improvements in office properties have a 20 to 30% rate of return on investment. At a 10% capitalization rate, each $1 invested in energy efficiency improvements would yield $0.20 to $0.30 in savings. This incremental income can be translated to incremental asset value using the income approach to market value (market value = net operating income / capitalization rate).

Table 1: Investments in Energy Efficiency Have High Returns*						
	Investment per SF	**Rate of Energy Savings**	**Annual Savings per SF**	**Savings per 100,000 SF Office Building**	**Asset Value Increase at a 10% Capitalization Rate**	**Simple Payback**
Janitorial Services	$0.01	5%	$0.14	$13,500	$135,000	Immediate
Operations & Maintenance	$0.05	9%	$0.20	$19,800	$198,000	4 months
Lighting	$1.04	16%	$0.36	$36,000	$360,000	3 years
Heating, Ventilation & Cooling	$1.21	9%	$0.21	$20,700	$207,000	6 years
Measures Combined	$2.30	40%	$0.90	$90,000	$900,000	2.5 years

* Calculations based on national averages and $0.09 per kWh blended rate for office properties.

The details of this table are the product of research conducted by the EPA as well as experience from companies that participate in ENERGY STAR. The items in the table reflect, in general terms, a sequence that ENERGY STAR has articulated in greater detail in its Building Manual. The sequence of upgrades is critical to optimizing a strategy to improve a building's energy efficiency.

By following a strategic sequence, the reductions in building loads from low cost investments can reduce the investments required for the more capital-intensive measures.[5] For instance, when a building's cooling loads are reduced through purchase of lighting systems, flat panel display screens and other office equipment that generate less heat in their operation and have controls to turn systems off when they are not being used, then a building's new fan systems could operate with variable speeds, leading to lower power requirements for ventilation.

LEADING ENERGY STAR PARTNERS AND LEADING STRATEGIES

ENERGY STAR's partners have made voluntary commitments to improve the energy performance of their organizations. The EPA recognizes these partners for their environmental leadership and provides them with a strategy and tools for superior energy management. Over 7,000 organizations partner with the EPA through ENERGY STAR, including over 30% of the Fortune 500 Most Admired Companies. In 2002 alone, consumers and organizations partnering with ENERGY STAR saved over $7 billion on their energy bills, and reduced the emissions of greenhouse gases equivalent to taking 14 million cars of the roads.

Among these partners are Hines, a global real estate development company; Transwestern Commercial Services, one of the nation's largest property management firms; and USAA Real Estate Company, the wholly owned subsidiary of USAA—the ninth largest property and casualty company in the country; and Food Lion, a member of Delhaize America, the U.S. division of Brussel-based Delhaize Group.

[5] The upgrade sequence ENERGY STAR recommends in the Building Manual is: 1) operating and management, 2) lighting, 3) load reductions, 4) fan and motor systems, 5) plant upgrades.

Hines adopted use of the ENERGY STAR Portfolio Manager as part of its monthly verification process to track the success of its ongoing commissioning efforts in all of the company's U.S. office properties. Since establishing a baseline rating of the energy performance across their property portfolio in 1999, efforts to improve its energy efficiency have resulted in a 12% rise in Hines portfolio's rating. The company's commitment to continuous improvement has significant financial implications. According to Andy Kitchens, a Senior Manager of Engineering Services at Hines, "In 2002, overall opertional costs in Hines ENERGY STAR buildings saved $13 million. This means that labeled properties operate $0.49 per net rentable area lower than non-labeled properties. When compared to the energy costs for non-labeled properties, Hines saves more than $9.8 million annually, or a 19% reduction in 'energy only' costs."

The Hines Energy Management Operating Standards and Procedures are based on a strategy of utilizing current and effective industry standards and benchmarks to create a competitive advantage from effective levels of energy conservation, lower energy costs, longer equipment life, and environmental sensitivity. The implementation of this strategy is designed around:

- Devoted ENERGY STAR Management Group headed by corporate office
- Effective training of personnel on the operations of building systems and controls
- Using tools such as ENERGY STAR's Portfolio Manager, close monitoring and tracking of energy consumption and cost data
- Evaluation of data, which allows the team to adjust operating procedures and recommend improvement upgrades that meet the strategy
- Accountability and reporting of energy management results
- Procurement policies for equipment that has qualified for the ENERGY STAR label, and establishing their own performance codes
- Mandatory monthly energy consumption tracking for all properties and detailed list of all energy projects and measures proposed and implemented each year.

Transwestern Commercial Services identified energy management as a key differentiator to competition and devotes significant company resources to close monitoring of monthly energy consumption and cost, a national evaluation of effectiveness of programs, and annual goals setting for improvements. According to David Rock, a Senior Executive Vice President for the West Coast, "Transwestern Commercial Services has a senior level commitment to improve energy performance for each property through diligent utility tracking programs, low-cost load shedding and demand side management including expansive energy efficiency projects." He continues by adding, "Our commitment and dedication to [energy efficiency] is shared among the owners we serve and the employees who implement it."

Transwestern Commercial Services utilizes an energy matrix detailing a multitude of energy saving opportunities for each property, regional utility incentive programs, and proactive O&M checklists for immediate no capital and low-cost load shedding and demand side management on a property-by-property basis. Transwestern Commercial Services' energy management team uses the ENERGY STAR performance ratings to prioritize upgrade opportunities and calculate the financial value of improvements to building owners and tenants. They evaluate opportunities to invest in energy efficiency using the following criteria: cost of investment, net increase in operating income, incremental increase in asset value, and projected change in ENERGY STAR portfolio rating for energy consumption reductions of 9%, 26%, and 34%.

USAA Realco owns and operates real estate as an investment for its parent company and provides leasing and management services. USAA Realco's energy management strategy includes cost and use monitoring, energy efficiency retrofits, physical audits, and a national approach to procurement. According to Val Hawkins, a Managing Director of USAA Realty Company, "USAA Realco has always had a firm commitment to customer service, satisfaction as well as overall performance. Our energy strategy is part of our strategy for driving value for our tenants."

The energy team tracks energy consumption for the entire portfolio, including bill review, audits, and building tune-ups and retrofits. Following their energy management plan, USAA Realco incorporates energy performance into all aspects of their business, including leasing requirements. In 2002, using the ENERGY STAR performance system, USAA Realco documented a 5% reduction in portfolio energy consumption, improving their average portfolio score from a 53 to a 60.

One example of the ultimate value of energy efficiency is the 2002 sale of an office property in California. USAA Realco performed a lighting retrofit and implemented their standard O&M improvements at the property. The total investment of $106,000 was offset by a rebate from the local utility ($41,632) and the state of California's 20/20 program ($57,000), making the out of pocket expense less than $8,000. With annual energy savings of approximately $67,000, the payback was less than two months. In addition to the above retrofits, Realco evaluated and procured power at substantially lower costs than current utility pricing; this procurement strategy is estimated to save over $164,000 over the next three years. Brenna Walraven, Executive Director of National Property Management at USAA Realco says, "Conservatively, these improvements and power procurement increased the building's value by almost $1.5 million dollars. The increased sale price improved USAA Realco's return on investment, and increased the commission for the broker who helped to educate the buyer on the value of these improvements."

Food Lion operates 1,200 supermarkets in Southeastern and Mid-Atlantic states and has earned over 90 ENERGY STAR labels. In 2002, while increasing its square footage by two percent, the company reduced their energy operating costs five percent, saving the company nearly $15 million dollars. The company equates this savings to an additional $465 million in sales, or eliminating the energy use of 55 stores for that year. Food Lion also attributes 10 cents of its earning per share to its savings in energy costs.

As part of its energy management strategy, Food Lion has used the ENERGY STAR rating system to benchmark the energy performance of its stores.

The approach these companies take to energy management illustrates how leading organizations achieve high-performing buildings portfolio-wide. The EPA has distilled the best practices of these and other partners into guidelines for superior energy management. The major steps include

1. Make a high-level commitment to continuous improvement of energy performance
2. Assess current energy performance and set goals
3. Create and implement an action plan
4. Evaluate performance
5. Communicate results and gain recognition

Service and product providers that help their clients achieve defined goals in energy performance improvement will provide value and will tap into an already primed market.

THE INVESTMENT INDUSTRY'S INTEREST IN ENERGY MANAGEMENT WHEN ANALYZING CORPORATE PERFORMANCE

The clients of energy service and product providers will find greater value in the work of their service providers if the clients understand the value of adopting an energy management strategy for their organization. One place value is identified for clients are in lowering their facilities' operating costs. This opportunity is well defined in the prior sections of this paper. There is another value proposition for companies to link their energy management successes to: interest from the investment community that may hold a stake in their companies through publicly traded securities.

There are two significant drivers of this interest: 1) the relationship between superior energy management practices and corporate profits; and 2) the value that investors place on investing in organizations that demonstrate corporate stewardship in areas of social and environmental concern.

Superior Energy Management Practices and Corporate Profits

Innovest Strategic Value Advisors, an independent investment research advisory firm, published three studies of publicly traded companies that explore the relationship between an organization's overall corporate performance and its energy management strategies. Innovest analyzed the relative energy efficiency performance of companies in real estate (the study reviewed real estate investment trusts), the retail food sector, and retail merchandising. Twelve companies were studied for each report.

The studies each found that energy efficiency leaders achieved superior stock market and financial performance over the periods of time analyzed. The reports concluded:

- In retail food, the group of leaders outperformed the group by 1,700 basis points;
- In the real estate sector, the group of leaders outperformed the group by 3,400 basis points
- In retail merchandising, the group of leaders outperformed the group by 7,100 basis points.

The Innovest studies do not imply that energy management leaders are more profitable *because* they save so much money on their energy costs. Rather, management quality, Innovest asserts, is a primary determinant of stock performance. However, management quality is intangible. Compared to the value of goods or services sold, or compared to the value of a hard asset such as a building, it is difficult to quantify the quality of a management team. Therefore, analysts look for indirect ways to measure management quality. Success in energy management, which can be observed through tracking energy performance with ENERGY STAR's building performance tools, Innovest asserts, is an indirect measure of management quality.

ENERGY STAR partner Arden Realty also tracks their accomplishments in energy management and shares this information with the investor community. Victor Coleman, the President and Chief Operating Officer of Arden believes that, "Through a leadership position, Arden reduces operating costs, creates potential savings for tenants, and attracts more tenants, while simultaneously taking better care of our environment." He continues by saying, "In short, we create greater value for our shareholders through effective management of our portfolio and through responsible corporate citizenship." According to Brook Lauder, Arden's director of investor relations, the company's president regularly includes information about their accomplishments in energy management, including the number of buildings they own that have qualified for the ENERGY STAR label, in their calls with investment analysts.

Information on Corporate and Environmental Stewardship is Sought by Investors

There is a growing awareness among investors, and the securities and investment management professionals that serve them, of a need for greater disclosure of management practices. Responding to this awareness, there is increasing investment in mutual funds or directly in companies that demonstrate corporate and environmental stewardship, which is seen as a form of disclosure.

According to the Social Investment Forum's *2001 Report on Socially Responsible Investing Trends in the United States*, assets moving in to socially screened investment portfolios rose by 35% from 1999 to 2001. One in every $12 invested in public securities reportedly includes the application of a socially responsible investment (SRI) screen. According to Nelson's Directory of Investment Managers, the growth rate of assets moving to screened portfolios outpaced the growth of all other professionally managed assets in the U.S. by 1.5% in 1999. Currently, approximately $2.3 trillion in equity markets are placed through SRI holdings, up from $150 billion in 1995.

According to Lipper Analytical Services, a fund research firm, while there was a 94% drop in new capital invested in mutual fund markets in the first three quarters of 2001, the decline in capital in SRI funds was just 54%. Also according to Lipper, data shows a three percent net inflow to SRI mutual fund assets between January and June 2002, and a concurrent 9.5 percent net outflow from the total assets of US diversified funds. In other words, while investors were withdrawing money from mainstream mutual funds, they were inceasingly depositing money into SRI mutual funds.

Recently, investment management firms have started to ask the companies in which they hold stock if they those companies are participants in ENERGY STAR. To investment managers, this inquiry can reveal superior management quality and socially responsible corporate practices that are part of the investment criteria of the investment funds. Neuberger Berman, an investment advisory firm with over $67 billion in assets under management, stated in their Spring 2003 newletter, "measured results of energy use help make the case for treating energy management as a strategic corporate issue." Through its request for companies to share information on their participation in ENERGY STAR, "Neuberger Berman increases its research and database capabilities; … companies cited for their energy efficiency save money and improve their image with the community; and investors have further proof of a company's commitment to both the bottom line and the environment."

CONCLUSION

An organization-wide approach to energy management can bring owners and operators of commercial properties substantial financial benefits. The opportunity to improve the energy performance of the average commercial property can be optimized through a strategic approach to upgrades. Investments of capital and personnel for energy efficiency improvements have quantifiable rates of return that benefit the bottom line and can attract the interest of growing sources of investment capital. When energy service and product providers position their offerings in this context, they, like the prospective clients such as those participating in ENERGY STAR, can improve their financial performance.

Commercial property operators are likely to seek a mixture of inhouse and contracted services to meet their goals for energy performance improvements. The reporting and tracking tools ENERGY STAR has made available for public use provide independent third party verification of success in service and product offerings. Some service and product providers are using the rating system to create performance baselines for single buildings and portfolios of buildings, and to demonstrate improvements to their clients over time. Property operators are using the rating system to set goals, track success in meeting those goals, and specifying rating improvements – at the building and portfolio level – in energy service contracts.