Amplifying Real Estate Value through Energy & Water Management: From ESCO to "Energy Services Partner"[1]

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ABSTRACT

The energy service company (ESCO) business model could become significantly more effective by integrating the energy-efficiency purveyor and their capital into the underlying building ownership and operation partnership, rather than the current model in which the ESCO remains an outsider with higher transaction costs and limited interest and participation in the value created by the cost savings. Resource conservation advocates rarely use the language of real estate to articulate the cost effectiveness of capital improvements aimed at reducing utility costs in commercial and residential income properties. Conventional methods that rely on rarefied academic notions of simple payback time or a narrow definition of return on investment fail to capture a significant component of the true market value created by virtue of reduced operating expenses. Improvements in energy and water efficiency can increase the fundamental profitability of real estate investments by raising Net Operating Income (NOI), and hence returns during the holding period, and, ultimately, proceeds at time of sale. We introduce the concept of an "Energy Services Partner", who takes an equity interest in a real estate partnership in exchange for providing the expertise and capital required to reduce utility operating costs. Profit to all partners increases considerably as a result. This approach would also help to address a crisis facing ESCOs today stemming from their considerable liabilities (through guaranteed savings) and negligible offsetting assets.

Introduction

The cost effectiveness of capital improvements aimed at reducing utility costs in residential, commercial, or industrial income properties are rarely expressed in the language of the real estate investors. The methods typically used rely on notions of simple payback time or other narrow and abstract definitions of profitability, thus failing to capture the primary component of the true economic value, i.e. that created by virtue of reduced operating costs. This paper presents—for both utility and real estate audiences—the business case for more fully valuing energy and water efficiency investments than is the case at present, and a corresponding proposition for how Energy Service Companies (ESCOs) could significantly increase their effectiveness by becoming financial partners in broader real estate investment. As described below, investments in energy- and water efficiency can increase the profitability of these real estate investments by raising net income, and hence returns during the holding period, and proceeds upon sale.

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Over $80 billion is spent annually in the U.S. to provide energy consumed by income properties (the major share of which is in non-residential buildings), some paid by owners and some paid by tenants. The cost of providing energy in U.S. multifamily buildings (5 or more units) reached $12 billion in 1997 (the latest survey year available), with an average of $755 per household (EIA 2002a). Non-residential buildings consumed $70 billion in 1995, with an average of $1.19/sq.ft, ranging by a factor of four: from $0.48/sq. ft. for religious worship buildings to $4.11/sq. ft. for food sales properties (EIA 2002b). Even vacant buildings used $0.27/sq. ft., on average.

The management of energy use became popular during the oil crises of the 1970s, and has more recently seen a revival of interest in response to problems with electricity reliability resulting from poor implementation of utility restructuring and deregulation, growing concerns about indoor air quality and associated liabilities, and increased price volatility. Management of water use has also received some interest. Some utility efficiency improvements yield both types of savings, e.g. water-efficient laundry equipment also reduces water-heating demand. Untapped opportunities and a continuous stream of new technologies and strategies provide significant remaining potential.

Because expenditures aimed at trimming energy and water use yield reduced operating costs, they are properly evaluated as investments rather than simple expenses. It is well known that these investments often yield payback times on the order of months or years, and are thus widely regarded as cost-effective from this perspective. For real estate investors, however, the economic consequences of such investments must be considered in the broader real-world context of cash-flow analysis. Additional factors include accelerated depreciation for many capital improvements and deductibility of interest payments associated with financing improvements. The prospect of lowering utility costs is noteworthy given that many major cost components in real estate ownership—e.g. property taxes, insurance, and management—are not directly controllable. Hence, reducing these costs is one of the few ways to increase profitability without raising rents.

Using the language of real estate investment, reduced utility costs translate into increased "Net Operating Income (NOI)" (see Equation 1) which in turn beneficially influences the various operating ratios and profitability indicators for an income property. The most profound effect is on property resale value (see Equation 2), which can be estimated as the ratio of NOI to the prevailing capitalization rate ("CAP rate"; Equation 3), also known as "Return on Assets, ROA". For example, at a CAP rate of 10%, one-dollar of annual energy savings will increase NOI by one dollar and, thus, resale value by ten dollars (i.e. a $1 increase in NOI divided by a cap rate of 0.10 equals $10). Under "seller's market" conditions, CAP rates decline, further increasing the value of lower energy bills. CAP rates of 5% are not uncommon today in desirable markets. Importantly, as this gain in value is harvested at the time of a building's sale, the time period over which retrofit investments are recovered could be considerably faster than dictated by abstract "energy economics". Meanwhile, the effects of reduced utility costs on the return on investment[2] during ownership are directly related as shown in Equation (4). Adjustments are made for the up-front cash infusion required to obtain the operating cost reduction by increasing the amount of investment (equity) assumed.

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[2] Also known as "return on equity" or "cash-on-cash return".

(Eq 1) Net Operating Income (NOI) = Realized Income – Expenses (incl utilities)
(Eq 2) Property Value = NOI / Capitalization Rate (CAP Rate or ROA)
(Eq 3) Capitalization Rate (CAP) = Net Operating Income/Property Value
(Eq 4) Return on Equity (ROE) = (NOI – Debt Service) / Investment

An earlier analysis valuation problem and some analysis of this issue was performed by Koomey (1990). Many others have referred to this way of thinking in the "energy literature", but the idea has not found its place in practice.

The structure of lease terms is clearly central to determining the allocation of financial benefits. "Net" leases (perhaps one-third of all commercial leases) are such that owners do not incur most energy and water costs, whereas standard leases allocate these costs to the property owner. In both types of leases, common-area energy and water uses[3] are normally the responsibility of the property owner, as are utility costs during periods of vacancy (which typically range from 5 to 15%, depending on market conditions). Utility costs are often shared, e.g., with the owner providing heat or hot water, and tenants picking up the remaining costs. In any case, if the implications of utility costs are properly identified, validated and communicated, potential tenants will value an energy-efficient property over a conventional property, as their operating costs will be lower. In an ideal world, this would translate into willingness to pay incrementally higher rents and a corresponding competitive advantage for owners of efficient properties. Moreover, many large institutional property owners report a willingness to invest in energy efficiency due to the tenant retention benefits (Parker *et al.* 1999).

Real Estate Investment Trusts are an important segment of property owners, with over $300 billion in assets organized into large property portfolios. REITs often pay their own utility bills and have been noted to have distinct interest in energy management (Innovest 2002). Parker *et al.* (1999) performed extensive interviews of REIT representatives to determine activities and perspectives on energy management. Analyses by Innovest (2002) suggest that large property owners, such as REITs, with aggressive energy management programs have better stock market performance than their peers.

Assessing the Opportunity

Determining baseline energy and water use and costs is a key starting point. Many confounding factors are involved, not the least of which is the year-to-year variation in weather. Short periods of utility bill history must be taken with a grain of salt. Also, different occupants use energy differently, and thus historical occupancy may not provide a reliable proxy for costs that will be incurred by prospective tenants. A common way of addressing these kinds of uncertainties is to perform computer simulations in which all physical and occupancy characteristics can be explicitly stipulated. Many such tools are available. Care must be taken in that the quality of these tools and skill of their users varies widely (Mills 2002).

An industry of "energy auditors" and other professional service providers has grown up in parallel with the interest in energy management. Many energy and water providers (utilities) also provide such services, as well as financial incentives (e.g.

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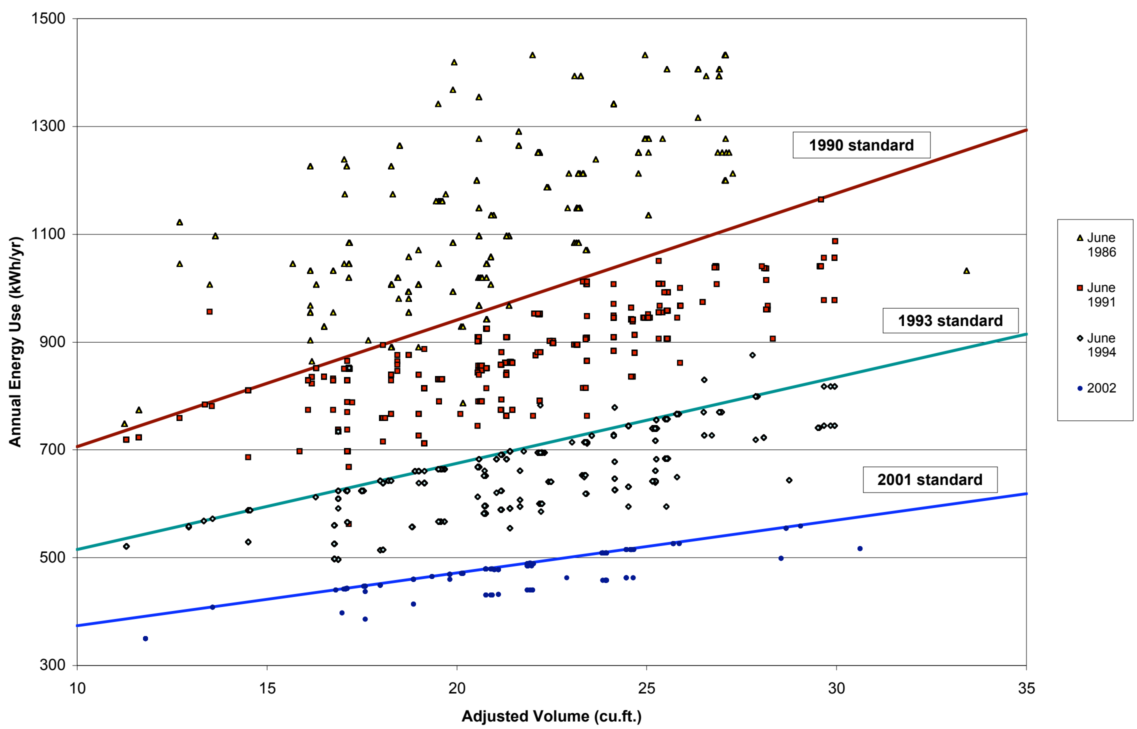
[3] E.g. laundry, common interior lighting, exterior lighting, garage lighting/ventilation, irrigation. Premium efficiency clothes washers can save $160/year in water and energy bills compared to standard machines (Parker 2003).

rebates) to purchasers of efficient equipment or services. There also exist firms—typically called Energy Service Companies (ESCOs)—who will invest capital in a property in return for a share of the energy savings. Implications for ESCOs are discussed more fully below. Energy and water surveys must also ascertain the performance of existing equipment compared to current codes. Especially in the case of energy, a wide range of prevailing mandatory equipment standards will automatically result in an improvement of efficiency if a device is replaced (i.e. even if no special effort is made to select a premium-efficiency model). For example, the maximum-allowed energy use of a refrigerator purchased in 2001 will be at least one-third that of vintage-1990 models. In turn, the models available at that time would yield an additional 20% savings (Figure 1).

Figure 1. Range of top-mounted refrigerator efficiencies on the market, and shifts due to mandatory standards



Some efficiency investments also reduce maintenance costs, or provide other sources of enhanced property value (Mills and Rosenfeld 1996). Among the most well-known examples is in the case of compact fluorescent lamps to replace incandescent lamps. The per-bulb energy savings are on the order of 75%, but, in addition, these lamps last for approximately 10,000 hours as opposed to 1,000 hours for standard lamps. Thus, ten or so lamp changes (and the associated labor costs) are also avoided. Another example is evidenced by the prolonged roof lifetime achieved by lightening roof color as a means of reducing summertime heat gains and air conditioning costs. Efficient equipment is by definition newer, but also tends to be of higher quality. This may manifest in longer service life, lower repair cost, quieter or safer operation, etc. An efficient and "green" property may have better indoor air quality or "curb appeal" for tenants or prospective buyers in certain marketplaces. This can, in turn, translate into lower turnover rates (and reduced lost revenues and fix-up costs due to vacancy).

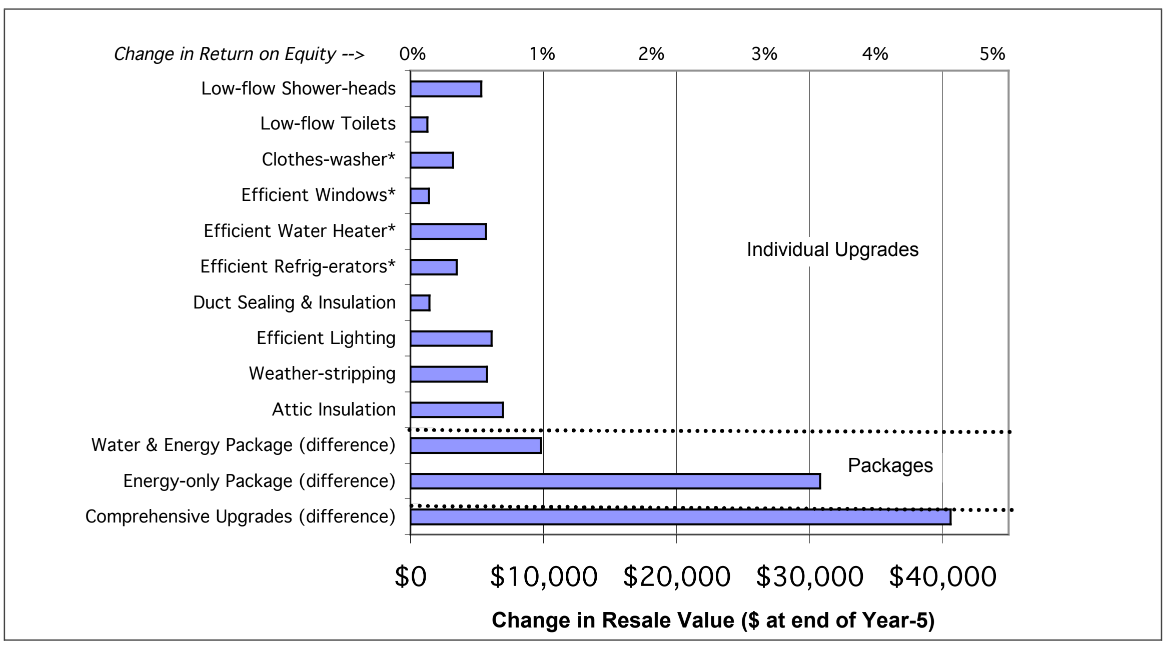
Case Study

The aforementioned concepts are illustrated for the case of a six-unit apartment building located in Eureka, California. The property is not individually metered, and thus the owner has a particular interest in managing the energy costs. While this property is small by some standards, it represents a perhaps surprisingly large fraction of residential income property, e.g 57% of residential rental properties in the city of San Francisco have 9 or fewer units (Bay Area Economics 2003).

A survey and billing analysis of the property was conducted to generate a list of existing energy- and water-using equipment, and identify possible approaches to managing utility costs. Then, using a web-based simulation (see: http://HomeEnergySaver.lbl.gov), energy use under typical weather conditions was estimated. Engineering estimates were then made for water savings opportunities. Various features of the building were modified (e.g., insulation levels in the attic) to determine the anticipated energy savings. A package of measures was identified, with an incremental first cost premium of $4,000 and annual utility bill savings of $2,800. Simple payback times for the individual measures ranged from 0.4 to 7.4 years.

The results suggest significant benefits of making investments in reduced energy and water consumption (Figure 2 and Table 1). The analysis examined a potential one-time investment of $0.95/square foot per year for all upgrades combined (1.8% of the purchase price) resulting in reduced annual operating costs of $0.66/square foot per year (15% of NOI). This translated into an increase in an after-tax year-five return on equity from 12 % to 17%. Approximately three-quarters of the case study benefits arose from energy-only improvements, with the balance associated with water or combined water-and-energy ones.

Figure 2. Profitability of energy efficiency investments: real-estate metrics



To put these results in perspective, the "traditional" valuation of the energy savings of $2,800/year is about $14,000 (undiscounted) over a 5-year holding period. In contrast, the boost in resale value (at an 8% CAP rate) is about three-times this value, or $41,000 (which is also about 20% of the original purchase price, and 40% of the gain.

Table 1. Financial-performance impacts of individual energy- and water-efficiency upgrades and packages (Baseline values are totals, others deltas)

	Baseline	All	Packages for Water and Energy	
	No Upgrades	Comprehensive Upgrades (difference)	Energy-only Package (difference)	Water & Energy Package (difference)
Investment ($)	-	4,039	2,929	1,110
Utility Operating Cost Savings ($/year)	-	2,805	2,127	678
Simple payback time (years)		1.4	1.4	1.6
Differential Net Operating Income ($, year-1)	18,951	2,805	2,127	678
Differential Net Present Value ($, <tax)	47,892	29,120	22,206	6,914
Differential Property Value ($, end of Year-5)				
@7% CAP	377,494	46,450	35,227	11,223
@8% CAP	330,307	40,644	30,823	9,820
@9% CAP	293,606	36,128	27,399	8,729
Change in Property Value / Investment (ratio)	-	10.1	7.6	2.4
Change in debt-coverage ratio (year-2)	1.52	0.22	0.16	0.05
Return on Assets, ROA (<tax, year-5)	11.3%	1.4%	1.1%	0.3%
Return on Equity, ROE (<tax, year-5)	12.3%	4.7%	3.5%	1.1%
Internal Rate of Return, IRR (<tax)	21.3%	5.3%	4.1%	1.3%
Change in ratio of NPV to initial investment (%-points)	70.7%	43.0%	32.8%	10.2%

Notes:
Assumes investment made all in first year (I.e. not financec
Net present values calculated at a 10% discount rate.
Measure costs are incremental to equipment meeting current minimum-efficiency standards. Other measures include full purchase and installation costs.

The results clearly vary widely by the type of upgrade in question. At one end of the spectrum, lighting upgrades pay for themselves in 5 months, and increase the property value by 40-times the initial investment cost. At the other end of the spectrum, efficient windows typically have relatively limited cost-effectiveness, due to their high first cost,[4] and as a result increased the property value by only 2-times the initial investment. There are four additional ways to put the operating cost savings into perspective, each of which is critical to the decision-making process when evaluating a potential acquisition or determining financial performance:

[4] This is especially the case in non-extreme climates such as Eureka, which has no air-conditioning needs and where wintertime temperatures are moderated by the ocean. However, it is important not to overlook other amenities (fire safety, noise, UV control) that can increase property values (Mills and Rosenfeld 1996).

• *Expressed as an equivalent reduction in vacancy rate.* In the case study, the improvement in NOI equates to an 8-percentage-point decrease in the first-year break-even vacancy rate (from 25% to 33%), defined in Equation 5.

(Eq 5) Break-even Vacancy Rate = (Fixed Expenses + Debt Service) / (Gross Rent per unit - Variable Expenses per unit)

• *Expressed as an increase in Debt Coverage Ratio, a measure of the adequacy of operating income to cover debt service.* In the case study, the baseline year-5 DCR is 1.5, which increases to 2.09 under the efficiency scenario, per Equation 6. Banks often stipulate covenants that properties not fall below a certain level, e.g. 1.2, and may even have the option to foreclose on a property if the terms are violated.

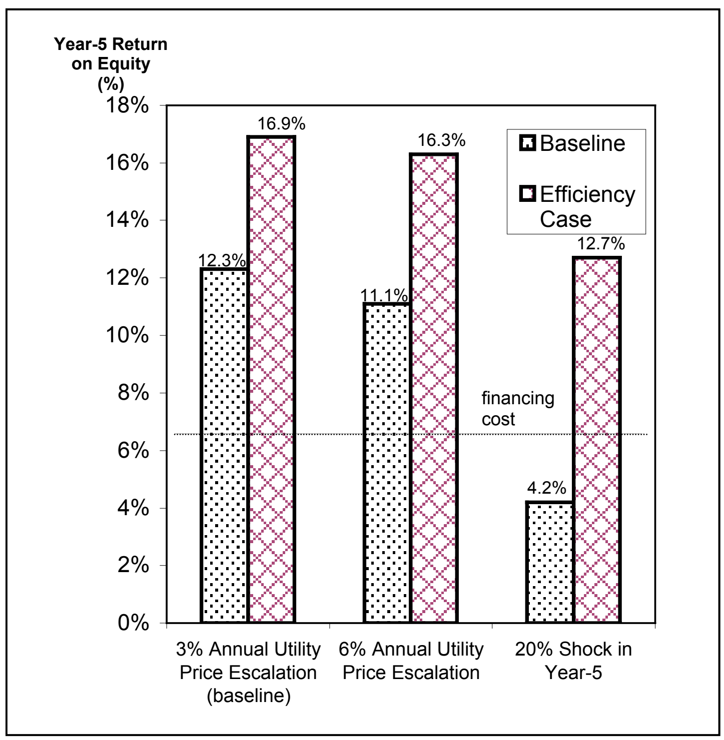
(Eq 6) Debt-coverage Ratio (DCR) = Net Operating Income / Debt Service

• *Expressed as an increase in the project's "profitability index", an overall measure of project profitability.* In the case study, the profitability index improves from roughly 70% for the baseline property to 140% for the efficiency scenario, per Equation (7).

(Eq 7) Profitability Index = After-tax NPV / Equity (Initial Investment)

• *Expressed as a hedge against energy price increases* (Figure 3). As an illustration, a sensitivity analysis of 6% annual expense price escalation factor (including energy)—as opposed to the 3% baseline—dropped the year-5 Return on Equity by about 1% point (10%), while a one-time 20% price shock in year-5 cut the ROE by 8.1 percentage-points (75%).[5] By introducing the comprehensive energy/water package, the ROE was essentially maintained for the 6% price increase, and fell only 25% under the price-shock scenario (as compared to 75% for the baseline scenario). The baseline ROE (4.2%) under the price shock falls well below the financing cost of 7% for this project.

Figure 3. Energy and water efficiency improvements function as a hedge against utility price increases



[5] Escalation rates were far higher than this during the California energy crisis of 2001.

Identifying and Addressing Limits and Challenges to Achieving Full Valuation of Utility Cost Savings

There are five key challenges to achieving the full valuation of energy efficiency improvements in the context of real estate investment. In each case, solutions are available.

1. *Measurability of savings.* A key crosscutting issue is the need for industry standards for quantifying and verifying energy and water savings. The International Performance Measurement and Verification Protocols (IPMVP) have made considerable strides in this direction. Lacking such certifications of savings, investors will significantly deflate their valuations of the energy cost savings (Koomey 1990; Mills *et al.* 2003). Uncertainty is reduced considerably when portfolios of projects are considered.
2. *Uncertainty and skepticism about the stability/persistence of additional cash flows that can be anticipated as a result of capital investment aimed at improving efficiency.* There is a need for certification and quality assurance methods that can be accepted by the real estate trades. A variety of risk-management strategies, such as energy savings insurance, are available (Mills 2002; Mills et al 2003). Of particular importance, quality assurance measures such as commissioning and improved diagnostics can ensure that predicted savings are captured and maintained. Performance rating systems such as the ENERGY STAR building and equipment labels promulgated by the U.S. Environmental Protection Agency (see: http://www.energystar.gov) and U.S. Department of Energy, the *EnerGuide* labels required by the Federal Trade Commission (see http://www.ftc.gov/bcp/conline/edscams/eande/index.html), and the U.S. Green Buildings Council's Leadership in Energy and Environmental Design (LEED) system go a long way towards addressing such issues. For larger properties, in-house programs for measuring and tracking energy use are also merited.
3. *Applicable building stock.* Energy savings in properties where tenants pay for utilities can only translate into increased returns for owners if they are reflected in the lease rate. So-called "Net" leases (tenants pay utilities) are most common in single-tenant properties, e.g. "big-box" stores. Ideally, the owner can adjust rents upwards to equal the corresponding reduction in energy expenses otherwise faced by the tenant. Common-area energy expenses (paid by owners) can be significant and savings accrue to owners.
4. *Income property appraisal process.* While based on the industry standard valuation methods described above, income property appraisals do not routinely include actual utility costs, and virtually never consider the potential for managing those costs downwards. While the participants in a transaction can always negotiate in a more sophisticated fashion, appraisals remain the basis of financing (irrespective of true costs). Appraisers would benefit from methodologies for better incorporating energy factors (Chao and Goldstein n/d; Chao and Parker 2000). Table 2 illustrates how accounting for an $11,000 reduction in energy costs yielded a $124,000 increase in actual appraised value for a small hotel in Southern California.

	Prior to Upgrade	After Upgrade	Difference
Income			
Gross Scheduled Income ($/year)	506,624	506,624	0
Vacancy Rate (35%) ($/year)	177,318	177,318	0
Net Scheduled Income ($/year)	329,306	329,306	0
Expenses			
Electricity ($/year)	18,766	10,450	-8,316
Natural Gas ($/year)	5,447	2,850	-2,597
Other ($/year)	177,171	177,171	
Total Expenses ($/year)	201,384	190,471	-10,913
Net Operating Income (NOI) ($/year)	127,921	138,834	10,913
Appraiser's Opinion of Value (8.75% CAP rate) ($)	1,461,959	1,586,679	124,720
Increase in value due to energy upgrades ($)		124,720	

Adapted from Chao and Parker (2000)

5. *Property management companies as "gatekeepers"*. Many income property owners retain property management companies, to which they defer key decisions and recommendations regarding physical improvements. Like real estate owners, property managers have little knowledge of the necessary methods of analyzing and implementing energy and water saving measures, and their fees are typically tied to gross rent income rather than overall project net income or profitability. This limits their incentive to help owners manage utility costs.

In sum, the profit-enhancing and risk management potential for energy and water management is clearly significant, and largely untapped by the real estate industry. Various barriers and challenges exist, but are surmountable with adequate validation of savings and communication of the applicable costs and benefits to the parties involved in real estate transactions. The key remaining question is how to better align market forces to recognize and capture the benefits described above. To answer this, we look to one of the largest investors in energy efficiency today – the ESCO.

A New Business Model for ESCOs

A key channel for investment in utility cost savings is through third-party Energy Service Companies (ESCOs).[6] Yet, their current market penetration is relatively low (perhaps $2 billion per year versus a need of $100 billion or more), growth in the industry is slowing (Goldman *et al.* 2003), and structural problems such as "cream skimming" are a lingering issue for national energy policy objectives. Owing to their current business structure, ESCOs have no particular interest in the overall financial performance of the real estate asset (other than its solvency) and diminishing interest in actual savings as evidenced by a trend towards stipulating (rather than measuring and verifying) savings (Goldman et al 2003). With the trend away from guaranteed savings, ESCOs also have a

[6] While ESCOs focus primarily on energy, they also evaluate and invest in water-savings measures.

declining interest in the persistence of the measures they install. Moreover, property owners may be reluctant to use ESCOs given potentially divergent interests. However, as demonstrated above, ESCO activities add material value to the real estate investment, beyond the operating cost savings achieved by the improvements. In fact, approximately three-quarters of the value created by ESCO investments resides in resale as opposed to the year-to-year operating cost savings from which ESCOs are generally paid. However, ESCOs do not currently financially participate in these benefits.

As large real estate acquisitions are typically structured with multiple partners (investors), there is potential value—both for individual building owners and for the aims of national energy policy—to restructuring ESCO investments as an integral part of the property ownership partnership rather than as a disjointed activity. Creation of what me might call the "Energy Services Partner" would unambiguously align the objectives of the ESCO with those of the property owner, and yield several other synergisms. A hypothetical scenario is shown in Table 3 for a project with a $14 million equity investment plus a $0.475M energy-efficiency addition by the ESP. The addition of the ESP to a traditionally structured deal increases project performance for the traditional partners, whose operating income during ownership *and* capital gains after sale each increase by approximately 10 percent for the scenario shown.

This business arrangement need not entail the dissolution of the ESCO as an independent business unit, but would involve greater integration—through financial partnership—with the entity owning the real estate asset in question. The levels of ESCO capital contribution could remain the same as at present, i.e. the amount of the efficiency improvements and associated costs in measurement, verification, etc., but it would translate into a proportionate equity interest rather than an off-balance-sheet freestanding project. Traditional partners would find the Energy Services Partner particularly valuable given the expertise (as well as funding) they would bring to projects.

Table 3. Example of the real estate benefits from employing the Energy Savings Partner business model

	Energy Savings	OVERALL PROJECT	General Partner	Limited Partners	Energy Services Partner
BASELINE	0%				
Cash in		$14,194,688	$2,838,938	$11,355,750	$0
Share of Equity			20%	80%	0%
Cash Flow Before Taxes (year-5)		$1,358,390	$271,678	$1,086,712	$0
Return on Equity (year-5)		9.6%	9.6%	9.6%	
Sale Price in Year 6 (at 8-CAP)		$57,976,406			
Return of Capital and Gain Distribution		$16,025,661	$3,205,132	$12,820,529	$0
WITH ENERGY SERVICES PARTNER	25%				
Cash in		$14,667,188	$2,838,938	$11,355,750	$472,500
Share of Equity			19%	77%	3%
Cash Flow Before Taxes (year-5)		$1,541,286	$298,327	$1,193,307	$49,652
Return on Equity (year-5)		10.5%	10.5%	10.5%	10.5%
Sale Price in Year 6 (at 8-CAP)		$60,354,232			
Return of Capital and Gain Distribution		$18,260,817	$3,534,510	$14,138,040	$588,268
<u>DIFFERENCE</u> with Energy Services Partner Compared to Baseline					
Cash in		$472,500	$0	$0	$472,500
Cash Flow Before Taxes (year-5)		$182,897			
Return on Equity (year-5)		0.9%	0.9%	0.9%	
Sale Price in Year 6 (at 8-CAP)		$2,377,826			
as % of initial investment		16%			
Return of Capital and Gain Distribution		$2,235,156	$329,378	$1,317,511	$588,268
as % of basecase distribution		14%	10%	10%	

Scenario based on a hypothetical property with 315,000 square feet, $175/sf purchase price ($55 million), energy costs of $2 per square foot, a 3-year payback time on the energy-efficiency upgrade costs required to obtain 25% savings.

By entering the real estate partnership, the Energy Services Partner would also add value in the "due diligence" processes routinely conducted prior to property acquisition, i.e. validating income and operating expense claims by the seller in order to determine the appropriate price to pay for the property and identifying opportunities to reduce operating costs (and increase profits) after ownership. Energy represents about 30% of office building operating expenses (Innovest 2002), and thus represent a sizeable target for savings in overall costs. Real estate investors typically accept reported utility expenses during due diligence, regarding them as a given and fixed cost rather than as a variable or manageable cost. By involving the new Energy Services Partner in this process, the purchasing entity can ascertain whether the property in question offers material opportunities for resource cost reduction (i.e. value that may not be reflected in the asking price). This improves the bidder's position during the negotiation process. Irrespective of energy savings opportunities, careful energy due diligence can enhance property value. As a case in point, audits of one building identified energy cost reductions resulting from the planned removal of telecommunications equipment not required by the new owner. This change in NOI in turn resulted in a twenty-five-percent increase in appraised value (Majersik 2003). By involving an Energy Services Partner, the existing real estate partners would benefit from more knowledge (and hence less risk) about the cost structure of the acquisition target, and associated opportunities/risks.

For portfolio holdings, Energy Services Partners would provide the expertise necessary to identify and prioritize capital investments in utility cost reductions in a fashion that would increase the aggregate portfolio value. Typical real estate partnerships do not possess the skills to evaluate and capture important utility related characteristics of the properties, their mechanical systems, climate, and energy price variability.

Participating ESCOs—or other entities not necessarily structured as ESCOs—would benefit from acquiring an equity interest in the properties. Currently, the ESCO industry is challenged by the fact that energy savings guarantees are being counted by some as liabilities, which, given their lack of hard assets, is highly detrimental to their book value, and hence ability to obtain good financing and remain solvent (Mills et al 2003). Under the Energy Services Partner model, the cost of financing would be significantly lower, as the capital would be secured by the property in question rather than (exclusively) by the asserted energy savings stream.

Applying this new business model would harness the well-established and proven paradigm of amplifying the profitability of real estate investments by increasing net operating income, with incentives for all parties to maximize and maintain the energy and water saving measures implemented to garner the operating cost reductions. This could advance the uptake of energy efficiency considerably beyond current levels.

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