CRITICAL ISSUES SERIES

ENERGY EFFICIENCY IN THE COMMERCIAL REAL ESTATE INDUSTRY

Energy Efficiency Retrofit Financing Options for the Commercial Real Estate Market

ANTHONY J. BUONICORE, P.E., BCEE, QEP
Managing Director
Buonicore Partners, LLC

Paper No. 12-001
February 15, 2012

Please direct all inquiries to the author at Buonicore Partners, LLC,
Suite 101, 440 Wheelers Farms Road, Milford, CT 06461,
800-238-1841, ajb@bepinfo.com

Introduction

For several years, it has become increasingly evident to stakeholders in commercial real estate (CRE) that building energy performance can impact property value. As a result, less energy efficient buildings are now viewed as having a competitive disadvantage in the market and may be in danger of accelerated obsolescence. In property transactions for instance, knowledgeable buyers now consider sub-par building energy performance no different than a damaged roof or air conditioning units in need of repair or replacement.(1) The result has been a growing number of retrofit projects designed to increase building energy efficiency, particularly when energy-using equipment needs to be upgraded or replaced. Energy savings projects, with or without government incentives, that result in lower energy costs can have an excellent return on investment (ROI).

The CRE market, consisting of almost five million office, retail, service, lodging, multifamily, warehouse and storage buildings in the U.S., represents a significant opportunity for building stakeholders to reduce energy use and monetize their energy savings. Almost three quarters of these buildings were constructed prior to 1990, with many still relying on original mechanical and electrical systems that are at or near the end of their useful lives.(2) This market is distinct in a number of ways from the mature MUSH (Municipal/State/Federal Government, Universities/Colleges, Schools and Hospitals) energy efficiency market.

First, the CRE market is profit-driven, meaning more stringent financial underwriting criteria surrounding energy efficiency ROI. Second, the ROI time horizon is generally much shorter than in the MUSH market, principally because of more frequent building turnover. In CRE, the higher frequency of ownership turnover can discourage certain energy savings retrofit projects because the resulting payback period can be longer than the anticipated ownership term, and there is concern that the investment may not be recouped on sale. Also, many buildings in the CRE market are not owner-occupied, but rather involve multi-party leases under various lease structures (often triple net leases). This may mean that most, if not all, the energy savings generated by improving building operations benefit the tenant, and may not benefit the owner enough to make a compelling investment case. Additionally, once a prospective tenant has decided on a location, they have traditionally been more conscious of the bottom line rent expense than incremental utility cost savings.

The lack of commercially-attractive funding has been a major impediment to energy efficiency investment in the CRE market today. In a recent survey,(3) McGraw-Hill found that energy efficiency retrofit projects more often than not rely on internal balance sheet resources, rather than outside funding. This represents a potential obstacle where capital budgets and corporate profits are under intense pressure due to the current economic environment. As such, energy efficiency investments may need to compete for a company's limited pool of capital with other competing priorities.

There is no question that commercially-attractive financing needs to be more readily available to support market growth in the CRE energy efficiency sector. **To really move this market there is a clear need to make energy efficiency financing a mainstream financial asset class with a high degree of standardization, predictability and scale.**

To accomplish this, innovative financing mechanisms have been developed over the past few years, are "market ready" and are supported by new tools and developments that will significantly reduce the financial underwriting risk. This paper will explore these financing mechanisms, new tools and recent developments.

Accelerating Energy Efficiency Financing in the CRE Market

It is highly likely that the majority of low cost improvements with relatively short payback periods and low risk are being, or have already been implemented. As a result, the CRE industry is moving from the installation of lower cost, short payback (less than 2-3 years) energy efficiency improvements to figuring out how to handle deep retrofits where the capital need is much more intensive and the payback period longer. The challenge is how to deal with these deeper, more capital intensive energy efficiency retrofit improvements, particularly when internal financing is scarce or not available.

To accelerate energy efficiency improvements and enable CRE stakeholders to unlock the full potential for monetizing energy savings opportunities, the ideal "commercially attractive" financing mechanism allows for the following:

1. Funding of the project without any capital expense;
2. Funding that does not add debt to the property;
3. Funding that covers 100% of the project cost, including upfront costs and both hard and soft costs, i.e., no "out-of-pocket" owner expense;
4. Funding structure that results in favorable tax treatment for expense, i.e., that will be tax deductible to the maximum extent possible;
5. Funding that will be at relatively low cost and payable over an extended period of time, i.e., 10 to 20 years. This will allow energy savings to offset the investment necessary to capture the savings, decrease operating costs and achieve cash flow positive status immediately.

Energy Efficiency Financing Mechanisms

There is no one size fits all solution for the broad energy efficiency CRE market today; but there are a number of considerations a building owner needs to assess to determine the most appropriate financing mechanism, including:

1. Total cost of the improvement project;
2. Constraints on internal capital availability;
3. Owner's balance sheet impact (whether or not "off-balance sheet" funding is preferred);

4. Preferred payment structure;
5. Preferred ownership status of the improvements and tax implications;
6. Available technical expertise commensurate with the project size and complexity;
7. Responsibility for underperformance risk.

Each of these factors needs to be carefully evaluated early in the energy efficiency financing decision-making process. The most appropriate financing solution will likely be that which has been specifically tailored to meet the need.

The more common energy efficiency financing mechanisms available today are identified below. Also discussed are the primary obstacles that may be encountered by a building owner in the CRE market.

Internal Financing

The most direct way for building stakeholders to pay for energy efficiency improvements is to allocate funds from an internal capital (capex) or operating budget. In fact, the majority of energy efficiency projects completed in the CRE market to-date have relied on internal financing. Such financing has certain advantages over other forms of financing, mainly that all the savings from increased energy efficiency can be retained by the building owner, and the fact that it is the simplest and most straightforward option administratively.

Obstacles

1. Cash reserves and a strong balance sheet are needed.
2. Real estate ownership may be multi-party, e.g., different investors in an LLC or LP or joint venture partnership arrangement, making capital expenditure decisions difficult.
3. There may be a ceiling (limitation) on capital expenditures.
4. Other company investments may be competing for internal capital.
5. Owner assumes 100% of the underperformance risk.
6. Today's challenging economic climate means cash flow is of paramount importance. Thus cash will be conserved to the maximum extent possible, resulting in scarce funds allocated for discretionary investment.

Debt Financing

Direct financing through banks or other types of lenders is an alternative to internal funding for energy efficiency investments. Experience to-date suggests that if the energy efficiency retrofit market is to grow significantly in the CRE sector, traditional lender financing will need to play a larger role than it has in recent years.

Fortunately, leading financial institutions, such as Bank of America, Barclays, Citi, Comerica, Deutsche Bank, JP Morgan Chase, US Bank and Wells Fargo, already recognize the potentially significant business opportunity in energy efficiency lending and have committed to investigate expanding such financing. However, to accomplish this, lenders need a much stronger energy efficiency performance database to allow them to build scalable financing models.

Traditionally, lenders have rated the borrower's ability to repay the loan (the borrower's "creditworthiness") at the highest end of the spectrum in the loan decision-making process. Moreover, for most commercial businesses, operational savings associated with energy retrofit projects are often too small a percentage of total expenses to impact in any significant way the borrower's ability to repay the debt. In the CRE market, a building's location (that will affect occupancy rates and rents) is much easier for lenders to analyze.

The existing mortgage on commercial properties may also present a challenge to borrowing for energy efficiency improvements in that loan covenants may restrict the addition of further debt. At a minimum, there typically are strict rules about incurring debt.

Another challenge that lenders face is associated with understanding how a building's energy performance can impact its value. To-date there is insufficient data on how building valuation is impacted by energy efficiency improvements. Appraisers are not focused on a property's energy efficiency and therefore it is not reflected in their valuation. This void creates uncertainty and adds to the potential risk associated with energy efficiency investment.

Interestingly, lenders have had a difficult time getting their hands around energy savings because energy savings cannot be measured directly. *Energy savings is based on what is **not** going to happen in the future, rather than what will happen.* Moreover, cash flow from future energy savings is not a familiar form of revenue or collateral to back traditional lending. There also is a general lack of confidence in energy savings projections because of the embedded bias to present projects as compelling investment opportunities.

Notwithstanding, lenders are beginning to recognize that energy efficiency loans can help preserve the value of a building by avoiding obsolescence. In fact, the obsolescence issue, directly related to the value of the collateral, is an important consideration to lenders, something they understand, and may even be a more important consideration today than operational savings.

While lenders generally agree that more energy efficient buildings are ultimately a good investment, it is crucial that lenders develop the ability to fully recognize the benefits in their loan underwriting process. Fortunately, today standardized measurement and performance protocols have emerged and are now being deployed with success to identify energy savings at a high degree of confidence.[4] By building these protocols into loan documentation and the underwriting process, lenders will eventually become more comfortable with the way energy savings and risks are quantified. Moreover, government energy efficiency loan guarantees, energy efficiency loan loss reserve funds, and the advent of "energy savings" insurance,[5] will further reduce the risk and uncertainty.

Regulations requiring building energy performance data collection, disclosure and labeling are fast becoming another market driver for lenders, and one which is being taking into consideration at the time of a CRE transaction.[1,6] Public disclosure of a building's energy performance is a strong driving force for building owners to make energy efficiency improvements and for lenders to provide financing to protect their collateral.

In the final analysis, a better understanding by lenders of energy efficiency investment, combined with recent developments and tools to improve financial underwriting, should enable energy efficiency financing to become a mainstream financial asset class with a high degree of standardization, predictability and scale. It should also go a long way toward moving the commercial real estate industry toward large scale adoption of energy efficiency investment.

Obstacles

1. Creditworthiness of borrower is of paramount importance.
2. Mortgage documents often include restrictive language associated with incurring additional debt.
3. In the CRE sector, many buildings are owned by single purpose LLCs or LPs with little credit and few assets (other than the property itself).
4. Debt service ratio may be unacceptable (company may already have too much debt, i.e., be too highly leveraged or be at or near its debt ceiling).
5. Long term borrowing for energy efficiency improvements is typically not available (financing period is typically 1-5 years).
6. Financing terms may not be commercially-attractive.
7. Cost of financing is strongly correlated to the borrower's creditworthiness.
8. Borrower must invest in the up-front energy audit work to identify energy savings opportunities and determine project cost.
9. 100% financing of energy efficiency retrofit cost is not possible (typically the loan-to-value (LTV) ratio is not much higher than 50%).
10. Borrower owns 100% of the risk of underperformance.

Lease/Lease Purchase Agreements

Leasing and lease-purchase agreements provide a means to reduce or avoid the up-front capital investment for energy efficiency improvements. As such, for building owners equipment leasing represents another financing source. These agreements are routinely offered by commercial leasing companies, management and financing companies, banks, investment firms and equipment manufacturers. Since cash flow management is extremely important in today's challenging economic environment, depending on the upgrade it may even be possible in lease agreements to match lease payments with energy savings, thereby creating a win-win solution.

In general, there are two types of leases that can be used, capital leases and operating leases. In an operating lease, the lessor transfers only the right to use the energy efficiency equipment to the lessee. Since the lessee does not assume the risk of ownership, the lease expense is treated as an operating expense in the income statement and the lease does not affect the balance sheet. Since the IRS does not consider the transaction to be a purchase, lease payments become a tax-deductible overhead expense. At the end of the lease period, the lessee may renegotiate the lease or buy the equipment for its fair market value.

In a capital lease, the lessee assumes some of the risks of equipment ownership and enjoys some of the benefits. Consequently, the lease, when signed, is recognized as both an asset and a liability (for the lease payments) on the balance sheet. The lessee gets to claim accelerated depreciation each year on the asset and deduct the interest expense component of the lease payment each year. The lessee can also receive the full benefit of a variety of government incentives.

In general, capital leases recognize expenses sooner than equivalent operating leases. However, an operating lease is often preferred in order to keep 100% of the lease payments as a tax-deductible overhead expense. If there is a transfer of ownership to the lessee at the end of the lease term or there is an option to purchase the energy saving equipment at a "bargain price" at the end of the lease term, accounting rules generally require the lease to be treated as a capital lease.

Since a lease often does not require a down payment, it is the equivalent of 100% financing for an energy efficiency retrofit project, and can include engineering, equipment purchase and installation. Lease periods can vary significantly, however capital leases generally range from 5 to 10 years. Operating leases are usually for a shorter term.

Obstacles

1. Building owner's creditworthiness is an important consideration.
2. Security typically is required.
3. Financing can be expensive relative to other options.
4. Lease purchase instruments may require existing mortgage holder consent, depending upon covenants in the mortgage document
5. Long term lease periods (much beyond 5 years) are uncommon.
6. Up-front investment for an energy audit may be required to identify energy savings opportunities.
7. Lessee has 100% of the underperformance risk.

ESCO Financing Under Energy Savings Performance Contracts

An energy service company (ESCO) represents a one-stop shop for project development and installation. However, many ESCOs can also assist with project financing (as an active or passive party). Projects

are typically large-scale with the contract period covering a 5-10 year period or longer. There are both large ESCOs with significant financial resources (such as Johnson Controls, Honeywell, Siemens, Eaton, Schneider Electric, Trane and Ameresco) and many small-to-mid-sized ESCOs (including many regional engineering and consulting companies). These smaller ESCOs may not be as financially strong as the larger ESCOs or have comparable financial resources.

Various types of energy savings performance contracts (ESPCs) exist, including "shared savings" contracts, "paid from savings" contracts, and "guaranteed savings" contracts. "Shared savings" and "paid from savings" contracts are the most common in the market today. With the "shared savings" contract, the dollar value of the measured energy savings is divided between the building owner and ESCO. If no energy cost savings are realized, the owner continues to pay the energy bill, but does not incur any expense to the ESCO for that period. Ownership transfers to the building owner at the end of the ESPC period. It may be accomplished by either a purchase at fair market value or the building owner may simply assume ownership of the equipment that has been paid for during the ESPC term.

The majority of ESPCs are financed through savings generated by reduced energy consumption. In these "paid from savings" contracts, the building owner pays the ESCO a predetermined amount each period (for example, an amount equal to 80% of the expected energy bill had the improvements not been made).

The "guaranteed savings" type contracts guarantee that energy cost savings will exceed an agreed upon minimum dollar value. To ensure a positive cash flow during the ESPC term, the guaranteed minimum typically equals the financing payment for the same period. Like an insurance policy, the building owner pays a premium that covers monitoring, measurement and verification costs and compensates the ESCO for accepting responsibility for any underperformance risk.

To-date, the majority of ESCO work has been performed in the MUSH market, principally because the ESCO business model is based on large, long-term ESPC contracts. It requires clients like MUSH owners who typically have very large energy efficiency retrofit projects (for example, involving multiple buildings on a university campus) and are committed to operate their properties for relatively long time spans. In the CRE market, building turnover is often opportunistic, i.e., on average every 4 – 7 years. As such, ESPCs with ESCOs have been slow to catch on in the CRE market. However, ESPCs are now being given more serious consideration because of the growing preference to finance energy efficiency investments via third party lenders rather than use internal funds. In addition, there are a growing number of small-to-mid-sized ESCOs specifically targeting the smaller-sized projects that are often the sweet spot in the CRE market.

Obstacles

1. Performance guarantee is only as good as the financial strength of the ESCO.
2. Energy efficiency retrofit projects typically need to be relatively large (preferably greater than $1 million) to cover all the upfront expenses and administration costs.
3. Substantial negotiation and documentation is required.
4. There is a lack of confidence in projected energy savings (a potential bias may exist to support project investment).
5. Since energy savings often cannot be measured directly (it is an "avoided" cost dependent on what the energy cost would have been had the project not been implemented), there is a lack of confidence in the energy savings verification process.
6. Potential conflict of interest may exist if an ESCO is verifying performance of a system for which it has engineered, designed and installed.
7. SEC's proposed rule requiring registration of ESCOs as municipal advisors under section 975 of the Dodd-Frank Act would limit an ESCOs ability to originate loans to finance projects.

Energy Service Agreements

A number of innovative managed energy services agreement (ESA) structures are now being offered by third parties who develop projects, arrange or provide the capital, and manage the installed equipment. It is typically a pay-for-performance solution where energy efficiency is essentially being sold as a service. Building owners have no upfront cost, no capital requirement, and 100% of the project cost is financed. These innovative agreements are distinct from traditional ESCO performance contracting in multiple respects, including: (1) energy efficiency service providers assume ownership and maintenance responsibility for project assets over the lifetime of the project; (2) building owners are not required to arrange their own financing and do not assume responsibility for principal and interest payments; (3) building owners do not bear the risk of whether an ESCO is willing and able to stand behind its performance guarantee – energy efficiency service providers are compensated only if energy savings are realized; and (4) building owner payments to the energy efficiency service providers are viewed as operating expenses. (However, more recent ESCO performance contracting is being designed to respond to a number of these differences.)

There are a growing number of energy efficiency service firms offering financing solutions under ESAs, including Transcend Equity Development (Dallas, TX), Metrus Energy (San Francisco, CA), and GreenCity Finance (Indianapolis, IN). Under the Transcend model, for example, building owners pay Transcend a service fee based on historical energy costs. Transcend, in turn, pays the utility bill and earns its fee from savings generated by the efficiency improvements. The Transcend fee becomes an operating expense that replaces the utility bill. At the end of the ESA term (typically 5-10 years), title associated with the improvements passes to the owner. Under the Metrus model, in contrast, building owners maintain responsibility for payment of their reduced utility bills and pay Metrus's fee separately out of the delivered energy savings. This service charge is structured as a per-unit-saved payment (i.e., a

price per avoided kilowatt hour of electricity and/or avoided therm of natural gas), where the price for energy savings is set at a level below the prevailing utility price for energy consumption. This arrangement establishes energy efficiency as a resource and is akin to a solar power purchase agreement, where the customer has no project performance or technology risk and pays only for realized, measured and verified savings. Metrus retains ownership of all project-related assets for the duration of the ESA term. GreenCity Financing provides a proprietary financing model that includes sharing the savings with the building owner and maintains the investment as an operating expense.

Obstacles

1. Substantial negotiation and documentation is typically required.
2. Energy efficiency retrofit projects generally need to be relatively large (preferably greater than $750,000) to cover all the upfront expenses and administration costs.
3. Annual energy expenditures need to be relatively high (preferably approaching $1 million per year).
4. Private financing provided through ESA managers may not offer the lowest interest rates (depending on the source of funds).
5. Since energy savings often cannot be measured directly (it is an "avoided" cost dependent on what the energy cost would have been had the project not been implemented), there is a lack of confidence in the energy savings verification process.
6. Potential conflict of interest may exist if the ESA Manager is verifying performance of a system for which it has responsibility.
7. Contract period typically is no more than 10 years.
8. Lack of a strong experience base (most of the innovative structures are relatively new).

Government Loan Programs

The American Recovery and Reinvestment Act (ARRA) allocated $11.6 billion in FY2010 to state and local governments to finance energy efficiency programs.[7] ARRA has been a driving force motivating states to create long-term funding mechanisms. Many states have applied for ARRA funding to set up revolving loan funds that are not subject to expiration as long as the entire allocation is loaned in three years. Currently, there are 65 funds, available in 34 states. Unfortunately, ARRA funding is expected to drop sharply this year.

At the federal level, the Small Business Administration (SBA) has a successful loan program for financing energy efficiency improvements, and is proposing to expand it further. FHA and HUD also have programs to provide additional capital on favorable terms for multifamily energy efficiency retrofits. President Obama's Better Building Initiative, announced in February 2011, calls for a federal loan guarantee program (run through U.S. DOE) to encourage private lenders. The U.S. Department of Energy (DOE) is implementing a pilot program to guarantee energy loans, designed to make the credit rating for small and medium-sized businesses far more appealing to lenders. In addition, a number of states have already, or are seriously considering, establishing loan loss reserve funds to cover bridge payments to lenders in default situations (such as California's PACE Reserve Fund). In the CRE sector, federal loan guarantees and reserve funds can be a crucial factor in securing financing.

In addition, many states have major initiatives to encourage energy efficiency. Strategies range from tax credits/abatements (such as in NY and MD) to grants (such as offered in WA and IL) to loans (such as in WI and FL) to rebates (such as in LA).

Obstacles

1. Program funding is often limited.
2. There are no guarantees that program funding will be renewed.
3. There are fees associated with loan guarantees.
4. Loan guarantees do not cover 100% of the project cost.
5. There may be statutes that limit local government from lending public money for private purposes.
6. Extensive paperwork and documentation is typically involved (particularly when tax credits are involved).
7. 100% financing is not usually available (typically not more than 80%).
8. Energy efficiency improvements must be "eligible" for funding in the program.
9. "Caps" on the size of a loan can be relatively low.
10. Loan payback periods may be relatively short.

Rebates and Tax Incentives

In addition to loans, federal and state governments as well as utilities frequently offer rebates, grants and/or tax incentives to promote energy efficiency investment. Such incentives are designed to make energy efficiency retrofit investments more attractive by improving the ROI and payback term.

One example of a federal incentive is the 179D tax deduction. Section 1331 of the Energy Policy Act of 2005 (EPAct 2005) included § 179D of the Code and provides a tax deduction (through December 31, 2013) for the cost of qualifying energy efficiency improvements in commercial buildings. A tax deduction of up to $1.80 per square foot is available for buildings that save at least 50% of the heating and cooling energy use of a building that meets ASHRAE Standard 90.1-2001. Partial deductions of up to $0.60 per square foot can be taken for any one (or combination, to a maximum of $1.80 per square foot) of qualified energy conservation measures affecting: (1) the building envelope; (2) lighting, and/or (3) HVAC systems. The tax deduction also applies retroactively to qualified measures placed in service after December 31, 2005.

In addition to this federal tax incentive, businesses in some areas of the country will also be eligible for state or utility assistance, including loans, rebates or other financial incentives. A database (referred to as the DSIRE database), accessible on the web, identifies incentives for renewable energy and energy efficiency created by the federal and state governments, and utilities.[8]

Property Assessed Clean Energy (PACE) Programs

PACE programs, also referred to as tax-lien financing, allow local governments, when authorized by state law, to fund energy improvements on commercial and industrial properties via an additional assessment on the property tax bill for a lower cost of capital over a long term (typically 10-20 years). PACE financing also transfers with sale of the building so that future owners or tenants assume the payments but at the same time receive the savings benefit.

In addition to local government funding, financing can also be provided by private investors. For example, in the "private placement" (or "owner arranged") PACE model, the municipality acts as a conduit for private investment. Individual property owners negotiate financing terms with investors of their choice. The owner-negotiated terms are then reflected in a loan agreement funded, for example, through issuance of a bond which is then sold to the investor that underwrote the deal. Financing is repaid as a line item on the owner's property tax bill, which can make both the energy savings and the cost to achieve these savings a pass-through to building tenants. The repayment obligation transfers with ownership. The Los Angeles Commercial Building Performance Partnership program, a potential bellwether program designed to stimulate CRE energy efficiency investment, uses this PACE model.

There is also a "bond" PACE model that involves the issuance of bonds to create a local or state fund that the local government will then make available to the PACE program. The Florida PACE Funding Agency relies on this model.

Lastly, there is the "warehouse" PACE model where an investor makes available a line of credit for the cities and counties to use in funding the PACE program, with the intention of reaching a critical mass of funding that results in bonds or other securities issued in order to replenish the line of credit. The PACE Commercial Consortium (PCC) created by Carbon War Room with Ygrene Energy Fund is an example of this type model. Barclays has committed to short term financing (and warehousing the loans) for its first projects in the Miami and Sacramento areas. When critical mass is reached, Barclays plans to bundle the loans into long term bonds resembling those routinely issued by government taxing districts and market them.

In PACE programs, the loan is secured by a lien on the owner's property and is paid back via a charge on the owner's property tax bill. PACE assessments may be eligible for "expense pass throughs" to tenants as operating expenses under existing leases. In the case of net lease agreements where tenants are responsible for utility costs, the pass-through of the PACE assessment allows owners to both implement projects and equitably share project costs with tenants who benefit. Municipal loan pools are funded by issuing bonds and/or with state/federal grant funding. The mortgage holder's consent is required before applications are approved and assessments placed. With PACE programs, by significantly expanding the term of the typical energy efficiency loan (to 10-20 years), it often becomes much more likely to have the reduced monthly energy bill (the energy savings) more than offset the additional charge (for loan repayment) on the monthly property tax bill and therefore achieve cash flow positive status immediately. To date, 27 states and the District of Columbia have passed enabling legislation enacting PACE programs, with more than a dozen commercial PACE programs either actually in operation or far along in the development process.

Obstacles

1. First mortgage holder's consent is needed.
2. Legal and administrative expenses can be high.
3. To-date, there is limited project experience in the marketplace.
4. Borrower may have to provide funding for initial upfront energy audit work (unless or until it can be rolled into the project financing).

"On-Bill" Utility Financing

Utility bill financing ("on-bill" financing) is a financing alternative under which the utility or a third party financier provides the upfront capital for an energy efficiency upgrade. In turn, the building owner repays the investment through a charge on their monthly utility bill. Most of these programs offer low or no interest loans over relatively short repayment periods (maximum 36 months). The primary purpose of utility incentives is to lower peak demand. There currently are 31 "on-bill" financing programs in 20 states, although most of these programs are relatively new, with many still in the pilot phase.

While attractive in concept, it appears that private capital providers are often leery of working with utilities under a structure dependent on the utility to collect and distribute funds. They also have concerns about the priority that a utility will set for this liability.

Lastly, utilities are generally reluctant to serve as a loan originator and collector. Certainly they prefer not to assume risks associated with making loans to customers using internal capital or ratepayer funds. Moreover, they are concerned about the potential of servicing customer complaints should the installed energy efficiency equipment have problems.

Obstacles

1. Caps on loan size.
2. Relatively short term repayment periods (typically less than 3 years).
3. Borrower assumes 100% of the underperformance risk.
4. Creditworthiness of the borrower is important.
5. There may be restrictive language related to incurring additional debt in borrower's mortgage documents.

6. Borrower must invest in the up-front energy audit to identify energy savings opportunities and determine project cost.
7. Lack of experience, since most of the programs are relatively new.

Energy Efficiency Underwriting

No matter what type of financing is ultimately selected, it will have to be underwritten. Fortunately, it is now possible to provide underwriters with the confidence they need to underwrite the deal because of the following new market developments and tools:

1. There now is a technically sound, accurate, consistent and fully- transparent methodology (ASTM E 2797-11, Building Energy Performance Assessment Standard published in February of 2011) for energy use data collection, compilation and analysis. Moreover, when used in conjunction with established energy auditing guidelines (such those published by ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers) and measurement and verification protocols (such as the International Performance Measurement and Verification Protocol (IPMVP) framework) can provide a lender with the necessary confidence in the projected energy savings before energy conservation measures are installed and confidence that the actual energy savings can be reliably measured and verified after they are installed.(4)
2. There are now insurance policies in the market that will guarantee the energy savings.(5) These policies transfer the risk of underperformance to the insurance carrier. Use of such policies can even provide a credit enhancement.
3. Relatively long term (10+ years) funding is fast becoming available through PACE programs, ESCOs and energy service agreement (ESA) providers.

Technical Underwriting

A key to making energy efficiency investment is the ability to project energy savings with a high degree of confidence and, after the investment is made, verify performance in a technically supportable, consistent and fully-transparent manner. To accomplish this, the industry now relies on the IPMVP guidance document.(9) The IPMVP also specifies the contents of the Measurement and Verification (M&V) Plan that must be prepared, adhering to the principles of accuracy, completeness, conservativeness, consistency, relevancy and transparency. The recently published ASTM E 2797-11, Building Energy Performance Assessment (BEPA) Standard,(10) provides a prescriptive data collection and analysis methodology that readily supports the guidance provided in the IPMVP.

For ESCOs and building owners, the primary purpose of the M&V Plan is to define the methodology that will determine the performance of an energy retrofit project. The M&V Plan becomes part of the ESPC, and defines the measurements and calculations to determine payments or demonstrate compliance with the guaranteed level of performance.

The IPMVP relies on an energy audit to establish the baseline, including collection of energy use data and all independent variable data coinciding with energy use. Baseline documentation includes identification of the baseline period, collection of energy use data in the baseline period, and collection of independent variable data coinciding with energy use in the baseline period. The energy audit typically follows guidelines established by ASHRAE, with ASHRAE Level II or Level III energy audits commonly relied upon to establish baseline conditions.

Until recently, no consistent standardized methodology existed in energy auditing for the collection and analysis of building energy use data to establish the baseline. While it may seem relatively straightforward to simply collect utility data, the devil is in the details. For example, prior to the adoption of the ASTM BEPA Standard, there was no standard time period over which building energy use data had to be collected. Energy professionals commonly use anywhere from one to three years. (The standard established three years as the time period, or back to the last major renovation if completed in less than three years, with a minimum of one year if reliability criteria can be met.) Also, there was no standard on how partial month data collected from a utility should be converted to a calendar month basis. Some energy professionals use daily averaging, while others utilize complicated weighing factors such as weighting by heating or cooling degree days. (The standard uses daily averaging.) If a building had undergone a major renovation, there was no standard on how this should be taken into consideration, if at all. There was not even a standard definition as to what constituted a major renovation. (The standard defines a major renovation as one which either involves expansion (or reduction) of a building's gross floor area by 10% or more, or that impacts total building energy use by more than 10%.) There were no standards on how weather conditions should be analyzed and taken into consideration, how building operating hours should be factored into the analysis, or how building occupancy should be considered. (The standard prescriptively addresses each of these issues.)

The ASTM BEPA standardized the methodology for the collection, compilation and analysis of building energy use data. As such, use of the methodology fills many of the holes in existing energy audit guidelines. This is important because the energy audit is integral to energy conservation measure (ECM) identification and eventual performance measurement. ASTM BEPA methodology establishes a technically sound, consistent and fully-transparent baseline (pre-ECM retrofit), enables projection of energy savings before actual installation of ECMs, and enables cost effective performance measurement and verification after ECMs are installed. As such, ASTM BEPA methodology complements the IPMVP and adds value by providing the necessary depth and prescriptiveness to the pre- and post-ECM evaluation process.

Financial Underwriting

ESCO Energy Savings Guarantee

In ESPCs with ESCOs, building owners require a guarantee of a specified level of cost savings and performance. They also want this guarantee to be measurable and verifiable in a cost effective, consistent and fully-transparent manner. Under the "guaranteed savings" type ESPC, ESCOs guarantee the energy cost savings. However, like an insurance policy, the building owner will pay a premium for this benefit. Notwithstanding, the guarantee is only as good as the financial strength of the ESCO.

Government Guarantees and Loan Loss Reserve Funds

A government guarantee on an energy efficiency loan is a contractual obligation between the government, private creditors and a borrower that covers the borrower's debt obligation in the event of default. Regardless of whether PACE financing is available, establishing a federal or local loan guarantee program to cover credit risk can leverage public funding to ramp up private investment on a large scale in the CRE sector. There has been a strong push by the CRE industry (spearheaded by the U.S. Green Building Council, the Natural Resources Defense Council and The Real Estate Roundtable) to obtain federal loan guarantees for whole-building energy efficiency retrofits. In fact, President Obama's Better Building Initiative, announced in February 2011, specifically calls for a federal loan guarantee program to encourage private lending. The legislative proposals for a federal credit risk loan guarantee program under consideration would lower interest rates and give risk-averse institutional lenders security in their investment. If loan guarantees are combined with ESPCs, where the ESCO takes on the technical and performance risk (possibly backed even further by energy savings insurance), the loan guarantee covers the relatively small risk of owner default. Interestingly, the U.S. Department of Energy (DOE) is implementing a pilot program that guarantees energy loans in the CRE sector.

Federal, state or local governments can also leverage significant private investment by establishing (or seeding) loan loss reserve funds. This credit-enhancing mechanism would cover bridge payments to lenders in default situations. In PACE programs, because only delinquent property tax payments (typically 1-2 years) need to be cured upon default, the bulk of the assessment survives bankruptcy, and the remaining balance and future payments are assumed by the new property purchaser. Sources of reserve funding are most commonly being developed at the state level. For example, in April 2010, California passed legislation establishing a statewide PACE Reserve Program. This state-financed loss reserve was created with $30 million from the Renewable Resources Trust Fund.

Energy Savings Insurance

Energy savings insurance (ESI) policies can provide a backstop for energy savings guarantees given by ESCOs. In exchange for a premium, the insurer agrees to pay any shortfall in energy savings below a pre-agreed baseline, less a deductible, over the term of the policy (typically 5-10 years). Pricing is usually expressed as a percentage of energy savings over the term of the contract. A percentage in the 3% - 5% range, with a 10% deductible, would not be unusual. The premium is paid once, in the first year of operation. However, depending on the project's financing structure, the up-front ESI premium may be rolled into the financing to enable payment over time.

The risk of the policy is reduced by specific contractual agreements and technical requirements. Contractual agreements include the use of deductibles and policy exclusions. Typical policy exclusions, for example, might include:

1. Failure to perform required maintenance on ECM systems;
2. Physical damage to ECM systems;
3. New end uses that increase building energy consumption (e.g., addition of a data center);
4. Changes in energy prices;
5. Failure or malfunction of data acquisition systems.

Technical requirements under the contract typically include review by the insurer of the engineering and design specifications, review of the energy monitoring plan and commissioning protocol, including acceptance testing and efficiency verification, construction inspections, on-going performance measurement and tracking, and on-going annual inspections.

A number of insurance companies are now exploring the ESI concept and market opportunity. One company, Hannover Re, a leading international reinsurance company working with Energi Insurance Services (Peabody, MA) has recently launched an ESI product for ESCOs known as the "Energy Savings Warranty." The PACE Commercial Consortium (PCC), created by Carbon War Room, has chosen to incorporate this "Energy Savings Warranty" into their program to reduce the risk. It is expected that other insurers will follow Energi/Hannover Re as the market expands and emerging long-term energy retrofit financing programs take root, such as the PACE commercial loan programs.

There are a number of benefits associated with ESI. These include:

1. ESI transfers performance risk from the balance sheet of the entity (ESCO) implementing the energy savings project.
2. ESI reduces barriers to market entry of smaller ESCOs who do not typically have sufficiently strong balance sheets to self-insure the savings.
3. ESI forces the criteria for defining baseline energy use levels and savings to be totally transparent and explicit.
4. ESI results in higher project confidence among building owners desiring to make significant energy efficiency improvements and lenders financing these improvements.
5. ESI can avoid disputes with ESCOs over energy savings.
6. ESI can provide a guarantee on debt service and lower the cost of financing.
7. The insurer provides third-party review of engineering and design and third-party involvement in ongoing measurement and verification, thereby increasing the building owner's confidence level to invest.

The combination of ESI with long-term energy efficiency retrofit financing can fill a void in the CRE market that has been limiting large-scale adoption of significant energy efficiency retrofit investments.

Comparison of Financing Options

A comparison of financing options against the ideal commercially attractive funding criteria is presented in Table 1. It is clear from the table that a number of financing mechanisms operating in conjunction with a PACE program are able to meet most or all of the ideal criteria for commercially attractive funding. The greatest advantage appears to be associated with ESCO and ESA programs using PACE funding. If energy savings insurance and/or a government loan guarantee are included or if a government reserve fund has been established, then these credit enhancements will provide the "icing on the cake." The bottom line is that this should significantly accelerate energy efficiency retrofitting in the CRE market.

Emerging Best Practice for Energy Efficiency Project Financing and Implementation

In order to obtain financing under the most attractive terms and implement a successful energy efficiency retrofit project, a best practice consisting of the following steps is emerging for commercial buildings. These steps assume that experienced and qualified professionals are selected to execute the work.

Upfront

1. Conduct an ASHRAE Level II or III energy audit incorporating ASTM BEPA methodology to identify baseline and pro forma energy use and energy saving opportunities.
2. Identify applicable government/utility grants, rebates and incentives.
3. Select energy conservation measures (ECMs) meeting criteria (ROI, payback time, etc.).
4. Determine total project cost and payback time.
5. Identify projected energy savings using ASTM BEPA methodology and IPMVP framework.

Financing

6. Establish the amount of financing needed and the preferred payback period.
7. Obtain the cost and commitment from the insurance carrier offering energy savings insurance for the preferred payback period.
8. Solicit interest from lending sources (and provide a full documentation package supporting the energy savings projections).
9. Secure financing under preferred terms.

Implementation

10. ECM engineering and design.
11. ECM installation.
12. ECM commissioning.

Performance M&V

13. ECM performance measurement and verification (M&V) relying on ASTM BEPA methodology and the IPMVP framework.
14. Conduct annual M&V.

This emerging best practice can overcome most if not all the technical and financial underwriting obstacles to obtain commercially-attractive financing for energy efficiency retrofit projects in the CRE market. It is expected that eventually those providing financing to this market will build these steps into their underwriting process. [An excellent reference for both building owners and financial professionals interested in energy efficiency financing is available in a publication, International Energy Efficiency Financing Protocol, published by the Efficiency Evaluation Organization.[11]]

The Los Angeles Commercial Building Performance Partnership Demonstration Project

The Los Angeles Commercial Building Performance Partnership (LACBPP) program was developed by the City of Los Angeles and the Clinton Climate Initiative and seeks to offer capital providers the opportunity to make financially attractive investments in energy efficiency projects in the CRE sector. LACBPP has been designed to connect building owners with a range of investors interested in funding an energy efficiency project through a variety of structures, from energy service agreements and equipment leases to an innovative PACE financing option (where the project is paid for over time through the property tax bill).

The innovative PACE financing option is a "private placement" model where the city acts as a conduit for private investment in energy efficiency retrofit projects. Building owners negotiate financing terms with investors of their own choice. Owner-negotiated terms are then reflected in a loan agreement funded through issuance of a bond by LA County. The bond is sold to the investor that underwrote the deal in a "private placement." The existing mortgagee may also underwrite and purchase the bond. Repayment is secured through a contractual assessment in first position on the building's property tax bill (this is subject to the mortgagee's consent to the PACE assessment). The program offers 100% financing on the total project, at lower rates and with longer term financing to allow projects to be cash flow positive from day one. Moreover, since property taxes are an operating expense, the transaction may be considered "off balance sheet." The PACE assessment transfers with the real estate in the event the building is sold in the future.

To align incentives between landlords, who must pay the PACE assessment and tenants who enjoy the benefit of reduced energy costs, LACBPP promotes use of an "energy aligned" lease provision that allows landlords to recover the cost of energy efficiency investments through tenant lease payments, provided that tenant payments are set at an amount that is sufficiently below the projected energy cost savings and tenants are protected from savings underperformance.

To prepare a project for investment, the LACBPP model generally relies on the best practice steps outlined previously in the emerging best practice for energy efficiency project financing. For the demonstration period, LACBPP is providing funding for steps (1) through (5).

Conclusion

There are a number of financing options available that can provide funding for energy efficiency retrofit projects in the CRE market. Financing alternatives range from internal funding, to traditional loans from lenders, to leasing, to ESCO energy savings performance contracting, to managed ESA providers of energy efficiency as a service, to government loans or guarantees, to utility loans, to PACE funding. Each has advantages and limitations. As such, it is important to investigate multiple financing options and carefully consider which alternative is most appropriate for a particular project. In all likelihood, the best energy efficiency financing mechanism will be a tailored solution that provides the maximum financial return.

Recent developments and tools being incorporated into an emerging best practice are now available to address the principal technical and financial underwriting limitations. The emerging best practice can provide confidence in energy savings projections and verification of energy savings after the energy efficiency retrofit is completed. The best practice relies on an ASHRAE energy audit and the IPMVP framework for M&V, both supported by ASTM BEPA methodology, and supplemented as needed with either government loan guarantees or energy savings insurance. **This makes energy efficiency financing in the CRE market "commercially attractive" today and enables it to become a mainstream financial asset class with a high degree of standardization, predictability and scale. The result is the CRE market is now poised for large scale adoption of energy efficiency investment in CRE. Moreover, it will be a win-win solution for all stakeholders (owners, lenders, insurers, energy service companies).**

References

1. Buonicore, A.J., "Using the New ASTM BEPA Standard in the Property Transaction Market," Building Energy Performance Assessment News, Critical Issues Series, Paper No. 11-001, August 2, 2011. (www.bepanews.com)
2. Buonicore, A.J., "The Formidable Challenge of Building Energy Performance Benchmarking," Building Energy Performance Assessment News, Critical Issues Series, Paper No. 10-001, April 5, 2010. (www.bepanews.com)
3. Bernstein, H.M. and Russo, M.A., "Business Case for Energy Efficient Building Retrofit and Renovation," SmartMarket Report, McGraw Hill Construction, December 2011.
4. Buonicore, A.J. and Halpin, C.F., "M&V in Energy Performance Contracting Using ASTM BEPA Methodology," Building Energy Performance Assessment News, Critical Issues Series, Paper No. 11-004, December 13, 2011. (www.bepanews.com)
5. Buonicore, A.J., "Energy Savings Insurance and the New ASTM BEPA Standard," Building Energy Performance Assessment News, Critical Issues Series, Paper No. 11-003, November 15, 2011. (www.bepanews.com)
6. Buonicore, A.J. and Burr, A., "Emerging Building Energy Performance Regulations and Industry's Response," Building Energy Performance Assessment News, Critical Issues Series, December 20, 2010. (www.bepanews.com)
7. Kats, G., "Energy Efficiency Financing – Models and Strategies," prepared by Capital E for the Energy Foundation, October 2011.
8. DSIRE database may be accessed at www.dsireusa.org.
9. Efficiency Valuation Organization, "International Performance Measurement and Verification Protocol, Concepts and Options for Determining Energy and Water Savings," Volume 1, EVO 10000 – 1:2010, September 2010.
10. ASTM Standard Practice E 2797-11, Building Energy Performance Assessment, published by ASTM, Conshohocken, PA, February 2011.
11. Efficiency Valuation Organization, "International Energy Efficiency Financing Protocol," EVO 40000 – 1:2009, April 2009.

Table 1. Comparison of Financial Options

EE Retrofit Financing Options	No Capital Expense	No Upfront Investment for Audit	100% Project Financing	No Debt on Property	100% Write-off of Annual Payments	Lower Cost of Capital	Longer Term Financing	Cash Flow Positive
Traditional								
Internal			N/A	√	*	N/A	N/A	N/A
Bank Debt					*			?
*thru/PACE***	√		√	√	√	√	√	√
Lease	√		√	√	?		?	?
Non-Traditional								
ESCO	√	√	√	?	?	?	?	?
w/PACE	√	√	√	√	√	√	√	√
ESA	√	√	√	√	√	?	?	√
w/PACE	√	√	√	√	√	√	√	√
Government Loan						√		?
PACE	√		√	√	√	√	√	√
On-bill Utility	√		√	√	√	√		?

** Accelerated depreciation of capital investment*
*** "Owner-arranged financing" PACE Model*
√ indicates this funding criterion can be met
? indicates this funding criterion may or may not be met depending on the specifics, e.g., an operating lease expense can be written-off each year, while a capital lease expense may not
A blank space indicates that this funding criterion is not met.

Author Biography

Anthony J Buonicore, P.E.

Anthony Buonicore is a past president and Fellow Member of the Air & Waste Management Association, a Diplomat in the American Academy of Environmental Engineers, a Qualified Environmental Professional and a licensed professional engineer. He is a member of the ASTM Property Environmental Due Diligence committee, former chairman of its ASTM Phase I Task Group, and currently chairs the ASTM Task Group that developed the U.S. standard for vapor intrusion screening for properties involved in real estate transactions. In addition, Mr. Buonicore is chairman of the ASTM Task Group responsible for developing the new Building Energy Performance Assessment and Disclosure Standard.

Mr. Buonicore has been a leader in the energy-environmental industry since the early 1970s, serving as General Chairman of the American Institute of Chemical Engineers' First National Conference on Energy and the Environment in 1973 and as founder and first chairman of the Air Pollution Control Association's Energy-Environmental Interactions Technical Committee in 1974. He pioneered the use of refuse-derived fuel pellets (a bio-fuel) mixed with coal in stoker-fired boilers and has written extensively on energy and environmental issues.

As a Managing Director of Buonicore Partners, LLC, Mr. Buonicore is responsible for management of the firm's commercial real estate holdings and all due diligence activities associated with property acquisition. He holds both a bachelor's and a master's degree in chemical engineering.

SUSTAINABLE REAL ESTATE SOLUTIONS™

SRS IS REINVENTING ENERGY EFFICIENCY BENCHMARKING
DISCOVER HOW >> WWW.SRMNETWORK.COM

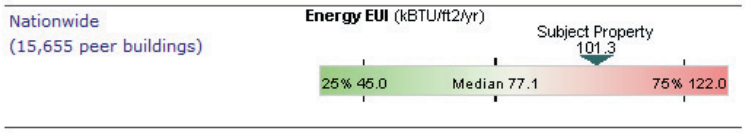
About Sustainable Real Estate Solutions, Inc. (SRS)

SRS delivers Sustainable Real Estate Manager® an Internet-based, software-as-a-service workflow platform enabling building owners, operators, investors, lenders, tenants and consultants assess, benchmark and optimize the energy and sustainability performance of their properties.

Your Assessment, Benchmarking & Optimization Solution

Sustainable Real Estate Manager® (SRM) seamlessly integrates leading industry standards, benchmark and rating system protocols with proprietary data and workflow automation enabling the capture of your energy and sustainability-related opportunities.

The SRM guided workflow solution has reinvented industry best practice methodology for building energy efficiency benchmarking with its Peer Building Benchmarking™ database, encompassing 120,000 buildings across 15 property types, 3.3 billion square feet, over $7.8 billion in annual energy costs and $635 million in annual water/sewer costs.



The SRM workflow 'wizard' facilitates the comparison of your subject property's energy and water key performance indicators to its peer group's performance across multiple geographic areas resulting in unparalleled visibility to performance assessment and benchmarking analytics.

SRS IS REINVENTING ENERGY EFFICIENCY BENCHMARKING >> DISCOVER HOW >> WWW.SRMNETWORK.COM

100 Technology Drive, Suite 208 - Trumbull, CT 06611 - 203.459.0567 - Info@SRMnetwork.com

E-CAPITAL DEVELOPMENT

E-Capital Development, Inc. is a financial consulting firm that specializes in originating, structuring, and underwriting energy performance contract based energy efficiency projects and investment products. E-Capital Development offers innovative solutions to insure and finance Energy-Efficiency projects. We provide our partners the expertise and exposure necessary to engage this emerging market with a significant competitive advantage.

At E-Capital Development, we have an advanced understanding of the obstacles currently hindering energy efficiency project development and have identified the underwriting procedures necessary to resolve them. Our energy performance contract underwriting expertise allows our partners to be confident in the investment returns produced by their energy efficiency projects. E-Capital Development takes potential energy efficiency projects and makes them a reality.

For more information:

Marshall Haimson
(516) 546-1100 • info@E-CapitalDevelopment.com
www.E-Capitaldevelopment.com

BEPAnews
Building Energy Performance Assessment News

A FREE *daily newsletter for energy professionals.*

Building Energy Performance Assessment News™ provides commercial real estate professionals and service providers with the latest news covering energy management and performance in commercial buildings throughout the United States. Our in-depth coverage provides you with a one-stop source for:

- Breaking news related to building energy performance
- Developing government energy legislation and initiatives
- Monitoring green building regulations and initiatives
- Tracking technology developments
- Comparing carbon offset alternatives and pricing
- Following international trends
- Monitoring energy tax credit initiatives
- Following case studies
- Benchmarking resources
- Monitoring major industry events

BEPAnews saves you time - All articles are summarized by our editorial staff and archived in a searchable database, allowing you to fully-leverage BEPAnews' resources and execute valuable custom research initiatives.

***Subscribe now** and join our community of energy professionals working to improve building performance!*

For additional information: Phone: 860-598-4522 • Website: www.bepanews.com • E-Mail: info@bepanews.com

Buonicore Partners

"Winning strategies and solutions for companies serving the building energy efficiency market"

Founded in 2007, Buonicore Partners (BP) sought to identify investment opportunities in the fast growing building energy efficiency market. The following year, BP launched the daily news service, Building Energy Performance Assessment News, which has since become the leading source for building energy efficiency information in the commercial real estate industry.

With almost a century of combined experience in the energy and environmental markets, from company start-up to financing to operational improvement to revenue enhancement to M&A, the partners in BP now offer this expertise on a consultancy basis. BP services are uniquely designed to assist businesses that serve, or plan to serve, the building energy efficiency market, develop the expertise, tools and strategies for current and future success in this fast growing industry.

For more information contact:
Peter L. Cashman • pcashman@bepanews.com • 1-800-226-9094
www.bepinfo.com/buonicorepartners