

# Decision-making in the Commercial Office Buildings Market: Targeting Key Players in the Office Submarket

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## Abstract

Traditionally utility and public goods charge programs have tended to promote energy efficiency in commercial office lease space on a building-by-building basis. There are a relatively small number of firms that control large amounts of lease space and about 25 firms that build a substantial percentage of new office lease space. We argue that the existing building-by-building approach should be complemented by an approach that targets all buildings owned by a property company or at least all buildings being served in a jurisdiction or service territory that are owned or managed by a single company. Those who make investment decisions differ from those who make decisions about efficiency measures. We believe that a top down approach may accelerate the rate at which energy efficiency penetrates the commercial building market. In order for such a strategy to work it is important to realize that property firms differ and that there are other types of firms and organizations that make or support investment decisions. We identify and discuss five such types of organizations.

In addition, the paper observes that there is little support for the idea that incentives are split between owners and tenants in the commercial office lease sector. The paper briefly comments upon the increased turnover in building ownership and the effect that has on energy efficiency. The paper also reports increased interest in global warming and sustainable buildings in the commercial lease sector. Finally the paper reports some interest on the part of certain building operators in encouraging improved tenant efficiency behaviors.

## Background

As of 1999 there were more than four million commercial buildings with nearly 70 billion square feet of floor space in the United States. In terms of square footage, offices are the largest submarket with 739,000 buildings and approximately 12 billion square feet representing about 17 percent of the total commercial square footage (Reed 2004). In terms of square footage, the commercial office submarket is followed by warehousing and storage and education submarkets with roughly 10 billion and 8 billion square feet respectively. The remaining submarkets have less than 6 billion square feet each.

In terms of energy intensity, offices consume about 90 kBtu per square foot of energy annually. This compares with food service establishments that consume the most energy at about 250 kBtu per square foot and warehousing and storage at less than 50 kBtu per square foot annually. In terms of energy consumption, the office submarket is the largest consumer of energy in the commercial buildings market.

Thirteen percent of the floor space in the office submarket is government owned, 62 percent is owner occupied, and 25 percent is leased or non-owner occupied. Owner occupied spaces tend to be smaller buildings while leased buildings are larger. Sixty-four percent of owner occupied buildings compared to 45 percent of non-owner occupied buildings have total areas less than 5,000 square feet. Seventeen percent of non-owner occupied buildings are more than 25,000 square feet compared to seven percent of owner occupied buildings. The very largest buildings are mostly leased buildings.

As we have noted elsewhere (Reed 2004), there is a high degree of concentration of ownership in the non-owned or leased portion of the office market. Twenty-five large firms in the US own between 17 and 18 percent of total office leased floor space. In 2001 and 2002, just 25 large companies developed approximately 80 percent of the new commercial office space. There is some overlap between the largest 25 office property owners and large developers but there are also firms unique to each list. The owners with large amounts of lease space tend to be located in central cities of large metropolitan areas and their adjacent suburbs.

## **Current Approaches to Promoting Energy Efficiency Tend to Be Building-by-Building Approaches**

The concentration of ownership in the office lease submarket presents an inviting target. The high concentration of firms owning large amounts of property presents an opportunity to work with a relatively small number of firms (200-300) to influence the efficiency of a large amount of floor space both in existing buildings and in new construction whether it is high rise buildings in central locations or low rise office properties in suburban locations. This is particularly true in very large metropolitan areas and less so in small metropolitan areas.

Generally efficiency programs have failed to take advantage of this concentration of ownership. Energy efficiency programs have generally focused on architects, engineers and facility engineers. The traditional approach to energy efficiency in the office lease sector might best be characterized as a building-by-building approach. Generally, efforts to promote energy efficiency have been directed to influencing individuals associated with specific buildings. There are a number of reasons for this.

Because we implement efficiency in buildings, we tend to think of decisions being made at the building level. But, it is decision-makers at higher levels in commercial property firms that usually make decisions about investments including energy efficiency investments as opposed to decisions about measures. Persons at higher levels in the organization also establish the investment criteria. Thus, we need to distinguish between decisions about investments and decisions about measures.

Another reason the building-by-building approach has tended to dominate is that the ownership, the decision-makers, and decision-making are often not transparent. The office lease sector is increasingly specialized and many of the largest office buildings and office campuses are fee managed. Without some diligence, it is difficult to identify the ownership and the individuals who make investment decisions about energy efficiency.

Utilities have been in the forefront of efforts to make office lease space more energy efficient. In many cases utility account representatives, sometimes working with program managers, sell energy efficiency to their large office customers. The traditional role of the customer representatives is to assist large customers with understanding rates and policies, dealing with connection issues, service outages, and other issues. The focus on customer service issues means that representatives' relationships are geographically organized and focused. The holdings of large property firms tend to span utility service territories. Utilities may have multiple individuals addressing buildings owned or managed by the same firm. The result is that utility commercial building programs have tended to be building focused rather than focused on the firm. This is not always the case. Some utilities have key or corporate account representatives. These individuals deal with very large accounts with widespread holdings. When this is the case there is more opportunity for addressing total building holdings rather than selected buildings.

## Promoting Energy Efficiency in the Commercial Office Lease Market— A Portfolio Approach

A complement to the building oriented approach is to motivate large property firms to focus on their portfolio of buildings and promote energy efficiency at multiple levels within organizations, especially at higher levels. In our research on commercial buildings for Pacific Gas and Electric (PG&E) and US Department of Energy (US DOE) several key findings emerged.

- The commercial office building lease market is comprised of a complex mosaic of interacting firms.
- There are significant differences among these firms in terms of their business models and how they achieve their goals.
- Investment decisions are made at the highest level in these firms.
- Reaching these firms to effectively promote energy efficiency at the corporate level requires understanding these differences and developing multiple strategies, multiple channels, and multiple messages for the different types of firms.
- Many of the largest firms are national rather than regional or local firms so their portfolios extend well beyond local service territories. Utilities may have to work with other utilities, Environmental Protection Agency (EPA), US DOE, or national and regional organizations to be fully effective in getting firms to think in terms of their portfolio of buildings.

In order to illustrate the difference and the importance of the differences we briefly describe five types of organizations that deal with large numbers of buildings. These organizations are

- Firms that are sole owners and manage their own buildings
- Owner/manager investor organizations (such as Real Estate Investment Trusts — REITS)
- Fee based property management firms
- Large institutional investors and pension funds, and,
- Engineering service/construction firms

The study is based on a series of interviews with key corporate account and account representatives and hour-long interviews with key players in the buildings market including directors of engineering, vice presidents for asset services, vice presidents for operation and others. The objective was to identify strategies and tactics to motivate firms to upgrade the energy efficiency of their building portfolios or to motivate property firms with owner/clients to upgrade their buildings.

### Sole Owners of Buildings

The sole owners of buildings can be local or national firms. In the current hyper commercial building market this type of firm is becoming increasingly rare. Sole owners typically run high quality Class A buildings with tenancy rates that often exceed 90 percent. They develop or buy buildings. A key difference between sole owners and other types of owners and managers of buildings is that they **tend to hold buildings** longer (several years or more). Their basic business model is that they make money from premium rents and building appreciation. Another key difference that distinguishes sole owners from property firms is that they tend to make decisions on the basis of their portfolio rather than

the building. The investment in a specific building is determined by its contribution to the overall performance to the company portfolio.

From our work with PG&E we can provide two examples of this type of firm. One is a large national firm and the other a local developer property owner. Before its recent sale, the large national firm had 220 buildings in Northern California totaling 22 million square feet and an additional 16 million square feet in Southern California. The California properties represented about a quarter of the property this firm holds nationally.

The local firm is structured as a set of trusts with the intention of holding property in “perpetuity,” and, according to our informant, is unlikely to dispose of any assets in the foreseeable future. The firm has approximately 30 buildings with nine million square feet on a single site in a community north of San Francisco.

Unlike other instances of ownership, the owners of these buildings are listed as customers of record in utility files so that it is easy for the utility to identify buildings in their portfolio. In the case of the large national firm there is a corporate account representative who coordinates at the regional level. The local property firm has a single account manager because the property is located at a single site. If the thirty or so buildings were spread across the service territory this might not be the case.

The management structure of these firms is hierarchical. There are building and facilities management hierarchies. The building management hierarchy is responsible for tenant relations, tenancing, and business management of the building. The facilities management hierarchy is responsible for the physical well being and the performance of the building.

Because of its size, the number of buildings, and their geographical spread, the structure of the large national firm has more layers than the local firm. In the national firm, several building engineers report to a cluster manager who reports to the director of engineering for Northern California. The regional director of engineering reports to the national director of engineering. Building engineers report through the engineering chain and coordinate with the building manager.

The local firm has several building engineers who report to a chief engineer who reports to a vice president for operations.

In both cases investment decisions are pushed to the top and information travels down and across hierarchies. Capital decisions are made in relation to all holdings rather than at the building level, an important distinction from other types of firms. Respondents told us they **do not have energy related capital budgets for specific buildings**, rather requests are evaluated as to what is best within the overall portfolio.

The regional director of engineering makes recommendations to headquarters, analysts at headquarters use sophisticated financial models to assess the opportunity, and the decision about an energy efficiency investment is made at the national level. This firm does buy and sell property, although not with the same rapidity as other property firms, so the potential for sale is considered in the evaluation. Key criteria that are considered are listed below.

1. The payback or return on investment (ROI)
2. How long the firm expects to hold the building
3. The structure of the leases for the building
4. The urgency of the improvement
5. The equity in the building
6. The potential for change in the value of the building
7. The potential for selling the building
8. The need for liquidity within the portfolio

In the case of the local owner, the decision process is somewhat less complex and analytic. The chief engineer presents recommendations to the vice-president who reviews and makes a

recommendation to the owner. Payback or ROI are important criteria. A key difference between the national firm and the local owner is that the local owner is free to consider factors that may not have calculable ROI or to consider factors that are important to the owner but may have paybacks as long as 15 years. The local owner can do this because he does not anticipate selling any of the buildings and he can invest in long-term value. He has only to satisfy his own sense of what represents a good investment.

Overall, sole owners are prepared to move forward with energy efficiency. Portfolio strategies make sense to them. A strategy for addressing this group needs the following components:

1. Target key high-level decision-makers (the regional director and above or the vice president and the owner) who can influence decisions.
2. Key messages are: improved performance of the portfolio, better buildings, reduced costs, improved occupant comfort, and environmental impacts.
3. Provide assistance to create and support a long-term energy plan and implement it.
4. Provide a program that is well tailored to the firm and reflects the firm's values.
5. CEO-to-CEO communication to gain the attention of CEOs.

## **Owner/manager investor organizations (such as Real Estate Investment Trusts — REITS)**

These firms typically manage buildings for investors but have a partial ownership stake in the building. The equity position of the property firm in a building may be as small as a few percent or more than 40 to 45 percent. Investors are often institutional investors, firms, or insurance companies with large amounts of capital. Examples of such investors are Prudential, CalPERS, CalSTRS, Nissan, and others.

In general, a high level executive, such as a vice president, will be in charge for an investor or investor group such as CalPERS or TIAA-CREF. This person has overall responsibility for managing the portfolio and is the key person for strategic decisions. Separate divisions or departments provide services like finance, analysis, engineering, operations, legal, etc. The hierarchies of property managers and engineers mimic the organizations of sole owners.

Each building is typically operated as a unique investment with a specific objective and the goal to generate high rates of return. A goal may be to purchase a property, reposition it, and then sell it to generate profit. Another objective may be to buy and hold a property making returns on the leases and increased value. Identifying buildings belonging to these firms from utility records may be more difficult than for sole owners because the owner of record may be an independent corporation.

The property firms have varying degrees of control. Some investment firms may delegate complete control to the property firm. For example, some investment organizations such as CalPERS, delegate the management of all aspects of the building up to and including the purchase and sale of real estate. This is indicative of a long-term relationship with mutual trust and understanding. In other cases, the owner may be more involved in decision-making, for instance, having an upset limit for investments above which the owner is to be informed/involved.

Each building has its own capital and operating budget, which can be for multiple years, that is strictly observed. Depending on the arrangements with investor organizations, capital requests may go back to the owner or ownership group. If there is a primary owner with controlling interest the decision goes to that owner.

If a building is being **held**, projects with two-year paybacks are typically done. Projects with three or four year paybacks will be considered as well. If a building is to be “flipped,” there is a must do list to get it ready for sale that includes items that are visible, items that would be showstoppers with respect to the sale, and/or items the expense of which can be recovered or more than recovered in the

sale that would otherwise significantly reduce the value of the property. Energy efficiency measures are typically not in these categories. If a building is to be flipped in a year or two, energy efficiency investments are not likely to be made.

Upgrades can be included in the building financing and energy efficiency projects could potentially be financed as part of a purchase. For this to happen, the cost and potential return of such projects needs to be known. Given the secrecy surrounding building purchases and the limited period of time set aside for due diligence, it is difficult to get energy efficiency into the financing or the purchase.

Our informants reported that they have completed most of the available efficiency projects. What they mean is that they have completed many of the efficiency projects that utilities have promoted. The engineering personnel with whom we met believe that there are still energy efficiency measures that can yield significant savings and were particularly interested in retro-commissioning. One of the firms that we interviewed has more than 100 Energy Star Buildings.

The best overall strategy appears to be one of top down and bottom up. The top managers need to provide policy guidance and support for efficiency efforts. Energy efficiency needs to be on the agenda of the engineering staff and it needs to be implemented through the existing budget process. Additional components are to (1) identify buildings that there are new to the portfolio and/or likely to be held and target them, (2) develop tactics that can finance energy efficiency as part of acquisitions, (3) identify buildings that are likely to be sold, track the sales, and follow-up with the new owner.

## **Fee Based Property Management Firms**

Fee based property management firms provide an array of services for building owners ranging from asset management, financial management, tenant relations, facilities management, construction management, etc. Typically, these firms are multi-line businesses that own and develop their own property or offer real estate services. Examples of these types of firms are CBRE; CAC; Jones, Lang, LaSalle; and others.

Fee based property management firms may manage a single building or whole portfolio of buildings for individuals, small investor groups, corporations, or large investment funds. The control that the property management firm has over buildings can range from nearly complete to a very limited administrative role.

These are fee for service businesses with growth contingent upon providing services to more properties or increasing the array and/or value of services provided to existing clients. These firms are constantly searching for new high value services. Some of these firms have explored ways to offer energy efficiency services but these efforts appear to have met with mixed results.

The turnover in customers for fee based property managers is fairly high, some of which is due to the “churn” of buildings, and some of which has to do with service and the perceptions of service. It’s not uncommon for owners to become disenchanted with the cost and levels of service offered by a particular property management firm.

Buildings operated by fee based property managers are frequently listed under property names. Utility account managers may work with engineering staff or building managers for one or a few buildings. Several account managers may work with staff representing different buildings managed by the same fee based property management firm. Thus, utilities or public goods charge programs may not work in a comprehensive way with either the fee based firms or the owners they represent.

Like other firms, fee based property management firms are hierarchically organized, the levels of which are determined by the number and size of buildings involved. They typically have divisions or groups within the company that provide specialized services such as legal, engineering, market analysis, finance, etc. There is a facility manager or junior level property manager that may have offices at the building site. Three or four of these managers may report to an intermediary manager who then reports upwards to a property manager or senior property manager. The senior manager likely reports to a vice

president or senior officer. When dealing with owners of one or two buildings, the hierarchy may be organized by geography with the intermediate managers overseeing facilities within their geographic region.

For firms that manage property for others, the interface with the owner is typically in the upper levels (senior manager or vice president) of the organization. For owners with numerous and/or large buildings that are important clients, the interface is likely at the presidential or vice presidential level.

The person interfacing with the owner is responsible for periodic reporting; informing the owner about important issues, for example, the need for a chiller replacement; capital requirements; presenting and dealing with financial analyses; making recommendations; and other types of information.

If an engineer is recommending an update, upgrade, or replacement, this person is likely to discuss the issue with the owner. If the owner is thinking about investments or disposing of the building, then financial analysts and perhaps someone knowledgeable about property disposition might join the conversation.

The nature of the relationship with the owner depends on the amount of control that the owner cedes to the management firm. When the owner has nearly complete control, the property firm mostly reports information and engages in policy discussions. In general, managers who interface with the owners tend to err on the side of providing more information unless told not to do so. For an investor group or the owner(s) of one or two buildings, the owner interface might occur at a regional manager or property manager level.

Engineering services is typically a separate hierarchy. A chief engineer coordinates with the facility manager who reports to a director of engineering or equivalent. Someone typically transfers information back and forth with the person who has the relationship with the building owner higher up in the hierarchy.

Buildings are typically operated by the chief engineer in accordance with agreed upon operating and capital budgets and budgets for leasing and tenant improvements. There is an exception for unanticipated rises in energy cost. These budgets are usually developed by facility managers closest to the facility and reviewed by higher-level managers.

Four important findings came from our interviews with fee-based managers. They are willing to work with their clients and the utility if there is something new rather than a repeat of what has previously been done. They report that there is an interest on the part of owners in sustainable buildings and LEED. They also report that there is substantial discussion taking place among owners and property managers about global warming and how to respond. Owners are interested in positioning themselves to minimize the economic consequences in terms of loss or reduced increases in equity and increased costs of operations. Some of the fee-based managers are also interested in modifying tenant energy behaviors. The concept was that through communication and appealing to a general spirit of community good, tenants could modify their behaviors in ways that will significantly reduce their energy consumption.

The basic strategy for this group is comprised of two components. The first is to identify owners and get them to ask their property management firms to assess the efficiency of their properties, develop energy plans, and to provide performance data. The contents of this pitch should be better buildings, increased asset value, reduced energy use, and environmental responsibility. A second theme is that the owners of the firm in conjunction with their utility can make this happen. Part two of the strategy is to work with high-level managers in the fee based firm, for example, a manager of asset services, a director of engineering, or high level property managers to identify and provide the necessary services. These are complementary strategies that have to be done in tandem.

## **Investment Funds with Large Portfolios of Commercial Building Properties**

Large institutional investors provide a substantial amount of the capital that is invested in commercial office buildings. Examples of large institutional investors are TIAA-CREF, CalPERS,

CalSTRS, and many other large state employee retirement funds. In addition to the public funds, there are also large private investors, for example, insurance companies such as Prudential.

To provide some idea of the size of investments, TIAA-CREF has \$370 billion in assets. It has 10.7 billion in direct real estate assets and \$60 billion in direct and indirect real estate holdings. It has 23 properties in California, four to five office buildings and some industrial properties.

The CalPERS investment portfolio has \$223.5 billion in assets, \$16.8 billion of which is real estate investments. CalPERS co-invests with Hines in commercial property. Hines manages two funds for CalPERS, National Office Partners (NOP) Limited Partnership and Hines CalPERS Green Development Fund. The first fund was formed in 1998 and the second in 2006.

The business model is to invest in property to achieve high and stable long-term gains. The public pension funds may hold properties directly or invest in funds that specialize in property portfolios. Information about holdings can be found in public filings for public investment funds. Direct investments in buildings are relatively easy to identify but indirect investments through funds are not because the information about the buildings the funds hold is private. Investment funds diversify their holdings with respect to the types of buildings and geography helping to manage risk due to environmental hazards, economic changes in different sectors of the economy and geographic regions. Funds may have different objectives such as value, growth, green buildings, etc.

The funds usually have a small number of investment managers who deal with real estate. One informant described his role as resembling a manager of mutual funds as opposed to a manager of a mutual fund. The difference is in the plural of the word “fund.” He oversees co-investment partners who manage investments and who have the authority to buy and sell properties, price the real-estate assets, and supervise the day-to-day operations of the building portfolios. For example, CalPERS has 11 core co-investing partners in six areas: office, residential, industrial, retail, general development, and other. They also have what they call non-core partners. It appears that core partners have more authority and latitude than non-core partners.

The investment manager is mostly concerned with the direction of the funds and the return on investment so they either follow the advice of the managers at the property firms or let those managers make the decisions about energy efficiency without conferring with them. One investment manager told us that she would be interested in having more information about cost effectiveness, return on investment and efficiency programs but that it would need to be very concise. A second investment manager suggested that information should go directly to the policy makers at the property management firms with the implication that the investment manager would not use or act on the information.

Investment managers are coming under increasing pressure to implement energy efficiency / carbon reduction. California Executive Order S-20-04 *requests* that CalPERS and CalSTRS “target resource efficient buildings for real estate investments and commit clean technology funds to advance sustainable and efficiency technology.” This may have been the driver for the CalPERS Green Fund in late 2006. The investment manager told us that they co-invest and delegate the decision-making to Hines, that then manages construction of LEED Platinum certified buildings. He cited an example of a 45-story, 665,000 square-foot LEED Certified Platinum Level building being constructed in Atlanta, GA. They now have about 20 buildings in the Green Building Portfolio.

As noted above, there is already pressure on some investment managers to increase the energy efficiency of their portfolio. We believe that institutional investors are in a position to influence property managers to increase the efficiency of buildings just as CalPERS has done. Potentially there is a three-pronged strategy that could be aimed at the boards of institutional investor organizations, investment managers, and property managers with the following goals: (1) get institutional investors to develop policies that include the monitoring of the energy and environmental performance of building operations; (2) target investment managers with information that can help them understand the energy efficiency opportunities, subsequent returns, non energy benefits such as indoor air quality, and how they could benefit from utility programs; (3) provide guidance and assistance to investment managers as



to the tools that are needed and how property managers can measure energy and environmental performance and the value of efficiency investments; (4) provide the tools and training to property managers.

## **Firms that Supply Engineering and Maintenance Services to Large Portfolios of Commercial Office Buildings.**

Increasingly large property firms are outsourcing building engineering and maintenance services to third parties. There are a number of benefits from this. Able Engineering and ABM are two such firms in Northern California. Able reported that they have about 300 clients providing services throughout California and across the country. ABM provides services nationwide. It is unclear as to how many buildings this may translate. Most of the large commercial property firms, for example, Boston Properties, CAC, Shorenstein, and SWIG, make use of engineering service firms.

These firms provide the engineering staff for buildings including a chief engineer, assistant/associate engineers as needed, and additional support staff. For smaller low-rise suburban style properties, they provide what one described as a “truck service team” or another called a “pod” that rove among several buildings belonging to one or more owners. The engineers provide a full range of services including budgeting and capital planning, facility auditing, operational corrections and enhancements, etc.

Like property managers, this is a fee for service model. The key service is to provide qualified engineering personnel and engineering services. Engineering service firms are interested in identifying value added services that they can provide. If the engineering services firm wishes to do something outside of the scope of the contract the engineering services firm will seek approval for the release time and cost. Customer satisfaction is the key to continued customer relationships. Engineering firms are currently being pressed to provide more quality service at lower cost. Owners and property managers are looking to the engineering service firms to help achieve cost reductions including reduced energy use and cost.

Larger property firms contract with an energy services firm for a chief engineer and supporting staff for each of several buildings. These chief engineers report to a director or manager of engineering at the property firm or perhaps an intermediate level manager if there are enough chief engineers to warrant an intermediate level of management.

The chief engineers also report to a manager at the energy services firm. In situations in which there are multiple engineers working for the same firm, the engineering services firm typically holds periodic monthly or quarterly meetings with them.

The existing relationships with the utility are typically between chief engineers who interact with account representatives to deal with service related issues. A given account representative may know several chief engineers for one or a few companies. For a company with a number of buildings spread throughout the service territory no one representative may know all of the chief engineers or necessarily all of the buildings.

Chief operating engineers have substantial decision-making influence and are heavily relied upon for data collection, identification of building needs, plan development, creating operating and capital budgets, and management of plans. Depending on the situation the chief engineer may develop a budget and present it to the owner or an owner’s representative may present a budget amount and ask what can or what needs to be done for that amount of money. Such budgets are usually constructed based on information provided by vendors and contractor organizations are used for complex projects.

One firm reported that they provide templates for their engineering staff to support these functions. We were also told that they encourage engineers to develop five-year capital plans. There has been some resistance to this among certain owners and managers of buildings with high turnover who do not want documents in files that point to potential deficiencies or cost items when due diligence

is done prior to a sale. In the absence of a paper plan, engineers may have the plan in their head or perhaps not at all.

There is a very high-level of information transfer among operating engineers in Northern California. An informant indicated that engineers implement a measure and share if it works or fails, which leads to replication of successful measures. Engineers working for the same owner will call upon one another for information, operational, and technical support.

The service firms confirmed that there is widespread interest and adoption of energy efficiency, particularly lighting. The service firms reported that many of their clients are considering LEED certified buildings, although there is skepticism about LEED certification translating into increased rental per square foot. Some buildings have installed automated stairwell or garage lighting and some installed energy management systems. The comment with respect to energy management systems is that the payback is unclear. According to the engineering firms, property managers desire a payback of less than two years.

There are potentially several strategies that are available for working with and through service firms. These strategies include: (1) working through the service companies to provide information and education for engineers, (2) working through the service companies to organize collaborative groups of operating engineers from firms with one or two buildings engaged on a geographic basis and targeted with program and technical information, (3) since owners are pushing the engineering service companies on performance and the chief engineers display competitive tendencies, it may be possible to engage them with energy benchmarking using the EPA benchmarking tool and providing assistance in learning how to use it and in tracking/interpreting results, (it should be noted that some firms may not want this information because of its potential use in due diligence) and, (4) work with service firms to promote and perhaps to develop retro-commissioning services as an offering.

## **Additional Observations about the Office Lease Market**

The large amount of available capital is driving up the prices of buildings and causing **substantial turnover in their ownership**. This presents both a barrier and opportunity for energy efficiency. Firms are unlikely to make energy efficiency investments in buildings that they are about to sell in the near term (within two years) unless the payback is very short (eight months or less). Even then, there is reluctance to spend effort managing a project with such short-term benefits. The opportunity is that the cost of efficiency can be included in financing for the purchase of a building if the measures and their implementation costs can be identified in the due diligence period prior to the sale.

Many firms have completed numerous efficiency projects in recent years. However, there is **widespread recognition that there is still more that can be done**. New efficiency technologies for office buildings are needed. Probably more importantly, holistic approaches can deliver additional savings. Operating engineers recognize the need for building analysis. There is widespread interest in retro-commissioning. And, there is very little systematic energy planning being done by the owners and managers of buildings outside of the existing capital budget exercises. There may be substantial untapped potential.

It is difficult for engineering personnel to obtain analysis money because the outcomes of analysis are uncertain and managers have less risky options for investment. Utilities and public goods charge programs are an obvious source of funds that can be drawn upon for commercial office building analysis. It is important that decision-makers know this. **Analysis and benchmarking are keys to developing long-term energy plans** and the plans are a key to getting upgrades into capital budgets.

A recent report has rekindled interest in the principle agent or split incentive problem (Meier, 2007). The widespread notion that owners provide the capital and tenants reap the benefits of energy efficiency investments (split incentives) is not consistent with our data. Because of the way leases are

structured in large commercial office structures, **the incentives are not split or may only partially accrue to the tenant**. Owners benefit from reducing net operating costs and increasing asset value.

It is important to report potential changes in asset value when making recommendations based on building analysis. Because accurate estimation of asset value depends on terms in the leases that may not be accessible, it may only be possible to provide examples and estimates, but it is important to do so.

Tenant improvements typically occur when leases are signed. Tenants taking large amounts of space, a whole floor or more, largely control the improvements. If extensive changes are made, changes must conform to local codes such as California's Title 24. Another way to increase efficiency is to use leasing agents and owners to **make sure that potential tenants taking large amounts of lease space are aware of utility and public goods charge programs** that provide incentives.

There may be some large areas in existing buildings with long term tenant leases or leases that have been renewed without extensive tenant improvements that may have lighting and other energy using systems that are relatively inefficient. It makes sense to **work with owners to target efficiency upgrades in these spaces when leases are renewed** or perhaps well before leases are renewed.

## Summary and Conclusions

Traditionally utility and public goods charge programs have tended to promote energy efficiency in commercial office lease space on a building-by-building basis. There are a relatively small number of firms that control large amounts of lease space and about 25 firms that build a substantial percentage of new office lease space. We argue that existing building-by-building approach should be complemented by an approach that targets all buildings owned by a property company or at least all buildings being served in a jurisdiction or service territory by a single firm. Those who make investment decisions differ from those who make decisions about measures. We believe that a top down approach may accelerate the rate at which energy efficiency penetrates the commercial building market. In order for such a strategy to work it is important to realize that property firms differ and that there are other types of firms and organizations that make or support investment decisions. We identified five such organizations:

- Firms that are sole owners and manage their own buildings
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In the case of sole owners, the owner or the top management in the firm must buy into the concept of energy efficiency for the portfolio. For owner/manager investor organizations the concept must be sold to the managers of the trusts. With respect to fee based property manager firms, the managers who deal with the owners must buy into the concept and then work with owners to sell the concept. Fee based managers may also be able to develop services that deliver portfolio energy services for owners. The boards of large institutional investors can set policy and investment managers can direct the managers in the property management firms to actively take on energy efficiency for their buildings and real estate holdings. Engineering service firms are in a unique position to bring together building engineers for specific owners and for fee based management firms to manage energy efficiency for groups of buildings with diverse ownership.

General strategies for promoting energy efficiency at the ownership level are to:

- Target high-level decision makers
- Frame the basis for energy efficiency in terms of values that investors and upper level management may care about such as asset value, image, occupant comfort, carbon emissions, sustainable buildings
- Benchmark the buildings owned or managed by a firm or organization
- Develop energy efficiency plans for all buildings in a portfolio
- Prioritize buildings with respect to improving energy efficiency
- Assist firms to develop an overall strategy and multiyear budget and capital plan to implement energy efficiency
- Get owners/managers to actively support monitoring the energy consumption and performance of buildings and systems and act on the information
- Actively engage front line personnel in monitoring and improving building performance thereby reducing energy consumption
- Use utility incentive programs to support the necessary analysis and to actively create and implement the plans
- Develop programs that can engage tenants to address plug loads and lighting energy use and get building managers to promote those programs.

Other important findings in addition to those above are that:

- The large amount of available capital is driving up the prices of buildings and causing **substantial turnover in their ownership**. This presents both a barrier and an opportunity to energy efficiency.
- While most of the major firms claim to have completed major energy efficiency improvements over the years there is **widespread recognition that there is still more that can be done**. There is particular interest in retro-commissioning.
- The widespread notion that split incentives are a barrier to energy efficiency in the office lease submarket does not accurately capture the situation. Owners are in a position to obtain most of the benefits from energy efficiency investments.
- There is widespread interest in **sustainable buildings** (LEED) among owners serviced by fee- based managers.
- There is also widespread interest in how **global warming** may affect buildings and about how to respond.
- There is interest on the part of managers in programs directed at **tenant behaviors for both demand response and general energy consumption**.

## Works Cited

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