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Energy Efficiency Lease Guidance

Center for Market Innovation

About NRDC

The Natural Resources Defense Council (NRDC) is a national nonprofit environmental organization with more than 1.3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. Visit us at www.nrdc.org.

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NRDC's Center for Market Innovation (CMI) works to harness the power of markets to create positive and profitable environmental change. The marketplace has already demonstrated that environmentally sound practices and economic vitality can go hand-in-hand. CMI takes that proven equation further, by designing new financing mechanisms and mobilizing capital to advance the solutions we need to disarm the toughest ecological challenges. CMI strives to articulate and help implement value propositions that will lead to sustainable outcomes through rational, economic decision-making. We also engage markets to design, develop, and implement policies that will direct investment toward clean, sustainable technologies. In sum, CMI is helping finance the shift to the green economy.

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Energy Efficiency Lease Guidance

Existing commercial buildings offer substantial opportunities to save energy and money, and reduce carbon emissions. Yet, landlords often defer opportunities to invest in commercial building retrofits that appear to generate reasonable financial returns, because their underlying leases divide those returns between landlord and tenants, dramatically reducing the economic benefit to the landlord. This *split incentive* for operating efficiency is a result of standard leasing practices that share operating and capital expense responsibilities between landlord and tenant, diminishing the landlord's recovery of capital invested in efficiency. The result is usually inaction, even in the face of rising energy prices and other pressures to improve the sustainability of buildings.

NRDC recently convened a forum including a number of New York City's leading landlords, tenants, attorneys, brokers, engineers, environmental advocates, utilities and government officials to address the specific opportunities presented by the commercial leasing process for landlords and tenants to collaborate to optimize the energy efficiency of commercial office buildings. The forum included a major focus on the barrier posed by the split incentive to reducing energy use. As a result of the forum, the following guidance was developed—for both owners and tenants—to help the parties negotiate lease provisions that will overcome the split incentive and, more broadly, establish a framework within which building owners and occupants can maximize the energy efficiency of their operations. The guidance includes a set of principles and detailed instructions for fulfilling them. This guide is intended to facilitate investment in energy efficiency, rather than address all of the sustainability considerations that may be desirable in a green building, and might be thought of as a patch to address the split incentive contained in many commercial leases. Without addressing the split incentive, the cards will remain stacked against landlords and tenants who want to make major energy-saving investments in commercial buildings.

The **benefits for landlords** of using this guidance include:

- Tying capital cost recovery to associated savings
- Imposing controls on rising tenant demand for electric service (high Watts/sf)
- Separating energy expenses from other operating costs for better tracking and expense recovery
- Attributing energy consumption to tenants more accurately

The **benefits for tenants** of using this guidance include:

- Greater assurance of efficient operations and control over operating costs
- Ability to measure energy consumption, including submetering wherever possible
- Better measurement of base building energy use for accurate allocation of operating expenditures
- Efficiency standards for major equipment replacement

How to Use This Document

The purpose of this guide is to provide direction for negotiating commercial leases that enable resource efficiency. By highlighting three principles—intended to be reflective of a general understanding between landlords and tenants seeking to invest in energy efficiency—this guide addresses the major barrier to more efficient buildings in a way that makes energy efficiency a shared objective between landlord and tenant. It also provides an accurate explanation of the incentives, so that landlord and tenant have sufficient information, as well as sufficient economic motivation, to make the most energy efficient choices.

For motivated negotiators, the three principles presented in this guide are designed to be the basis for lease negotiations and on-going conversations regarding energy efficiency and the split incentive. The principles, which need not appear in the lease itself, but which do have a series of legal implications, are as follows:

- Landlords should operate the building, and Tenants—their premises—as efficiently as is feasible.
- For any given system, installation, or piece of equipment, responsibility for capital expense and benefit of savings should reside with the same entity.

  Alternative: All of the savings achieved by virtue of a system improvement should be available to pay for the improvement.
- To the extent feasible, both consumption and demand for resources throughout the Building should be measurable and transparent to both the Landlord and Tenant.

For each principle we have outlined a series of important steps—some required, others simply preferred—to take in order to fulfill the corresponding principle. Also, we have highlighted various points of negotiation, which the landlord and tenant may want to consider when preparing to implement the principles (the outcome of which will not affect fulfillment of the applicable principle information). Lastly, we have provided explanations of the types of lease provisions that typically need to be revised to satisfy each particular principle.

1 The Landlord Should Operate the Building—and the Tenant, the Premises—as Efficiently as Possible

This principle is intended to commit both the landlord and tenant to resource efficiency as an objective of both landlord and tenant activity in a building. The provisions below provide substantive content to that commitment by addressing the absence in commercial leases of:

- Guidelines for ensuring resource-efficient building operations that recognize that all buildings are different, and that therefore no single standard can be applied;
- Efficiency standards for new installations, replacements and maintenance;
- Provisions that limit growth in standby demand on the electrical grid and over-sizing of mechanical systems; and
- Requirements for benchmarking energy use which would provide a baseline that is essential for measuring progress toward reducing the use of resources in a Building.

Lease amendments/revisions to accommodate the provisions described with respect to Principle 1 may be required in sections typically labeled *Landlord Services, Repair, Condition of Premises, Maintenance and Repairs, and/or Services and Utilities.*

REQUIRED COMPONENTS:

1.1 Landlord must benchmark energy use for the Building annually, using Energystar Portfolio Manager (EPA PM) or a measurement tool that interfaces with EPA PM—such as the New York State Energy Research and Development Authority's (NYSERDA) Focus on Commercial Real Estate tool (if building is in New York). Landlord should maintain records of the normative score, energy use intensity, and carbon intensity.

1.2 Landlord and Tenant must agree that:

A. *Occupied temperature of the building should not be lower than ___ in the summer or higher than ___ in the winter; unoccupied temperature of the building should not be lower than ___ in the summer or higher than ___ in the winter.*

Recommendation: The landlord and tenant should agree on reasonable temperatures based on system capacities such that the building does not require overheating or overcooling in order to satisfy a single, more restrictive lease. See the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) Standard 55-2004 Thermal Environmental Conditions for Human Occupancy.

Sample temperatures might be:

- Summer occupied: 72° F at 60 percent relative humidity
- Winter occupied: 68° F
- Summer unoccupied: 82° F
- Winter unoccupied: 60° F

If a building has the capacity to maintain 50 percent relative humidity, it may be possible to operate the building at 75° (summer occupied). Most buildings do not have independent humidity control, however. Landlords should consistently negotiate for the highest summer temperature and the coolest winter temperatures consistent with system capacities and tenant comfort.

B. *Chilled water provided to Tenant should not be colder than __.*

Recommendation: 50° F in the winter; 44° F in the summer.

Specifications of tenant or landlord equipment may require adjustment of the recommended temperatures. The tenant and landlord should consider whether an upper bound is necessary.

C. *Condenser water provided to the Tenant should be permitted to drop as low as ___ in the winter and to rise as high as high as ___ in the summer.*

Recommendation: 65° F in the winter; and 85° F in the summer.

Modulating condenser water temperature can offer substantial energy savings. When outdoor air conditions permit, many—but not all—systems can handle a lower condenser water temperature and operate much more efficiently. Investigation of building systems should ascertain whether the recommended temperatures can be effectively applied in a given building.

D. *Ventilation should meet or exceed the most recent ASHRAE standard for indoor air quality.*

Recommendation: Standard 62.1—2004 Ventilation for Acceptable Indoor Air Quality. Alternative compliance through demand controlled ventilation is preferred.

1.3 Landlords should perform a retro-commissioning study of base building systems that consume energy or water every ____ years.

Retro-commissioning is a process of ensuring that base building systems function in accordance with their design specifications. A detailed description of retro-commissioning and a retro-commissioning study, as well as guidelines and references, appear in Appendix A. Given the wide variation in building types and systems, no single set of guidelines for efficient building operations is feasible.

The retro-commissioning study should identify improvements of three types:

- ***No cost improvements:*** Improvements that require a change in practice or redeployment of existing resources such that neither the Landlord nor Tenant incur additional out-of-pocket expenditure;
- ***System recalibration:*** System adjustments that may require modest out-of-pocket expenditure by the Landlord or Tenant rather than substantial new installations; and
- ***System upgrades:*** New installations that may have significant associated expenses.

The retro-commissioning study should produce a systems manual for building operations that identifies the principal operational requirements for optimizing efficiency and tenant comfort.

The "Base Building" may not be defined in the lease. Amendment may require a definition, such as "*the structure and shell of the Building, the common, public, service, and utility portions of the Building and each building system up to the point at which it connects to facilities the responsibility for the operation and cost of which is borne by any tenant.*"

1.4 Tenant has a reciprocal obligation to retro-commission its space every____ years.

Recommendation: Three years between retro-commissioning studies is optimal; five years the outer limit. (A program of Enhanced or Ongoing Commissioning—see Appendix A—is preferred.) A basic energy and operational audit of lighting, plug loads, data centers, and supplemental HVAC may be a better alternative to retro-commissioning in tenant-leased space, particularly for smaller tenants.

Before completing a retro-commission, the following points should be considered by both the Tenant and Landlord:

A. *The interval between retro-commissioning studies vs. enhanced commissioning.*

B. *Responsibility for the cost of the base building study.*

Recommendation: This expense is best considered a cost of operations and treated as such in the lease. The tenant and landlord may also prefer to amortize the cost of retro-commissioning over multiple years, e.g. the interval between retro-commissionings in which case the amortized cost may be included in the calculation of the base year for new tenants, an increment that should be outweighed by operating savings resulting from the study itself.

C. *Qualifications and independence of the retro-commissioning provider.*

Recommendation: Employ a retro-commissioning provider accredited by the Associated Air Balance Council (AABC) Commissioning Group (ACG), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the Association of Energy Engineers (AEE), Building Commissioning Association (BCA), or NYSERDA (if building is in New York).

The value placed by tenant on the building's (or landlord's) engineer accreditation may outweigh the respective concerns regarding the independent analysis.

D. *Sharing of the base-building study with the Tenant, and the Tenant's system study with the Landlord.*

Recommendation: The landlord and tenant should share their results. The landlord, however, may reasonably wish to redact portions of the study.

E. *Performance of the Tenant systems study by the same retro-commissioning provider that performed the base building study*

Recommendation: Performance of whole building retro-commissioning—tenant and base building together—is preferred.

1.5 Within an agreed upon timeframe, Landlord and Tenant should implement recommendations identified by the retro-commissioning study that have no cost.

The landlord and tenant may have to agree on what constitutes *no cost*. Items that can be performed *in house* with existing staff may reasonably be considered no net cost. The landlord and tenant will need to agree how to handle modest adjustments, e.g. to a building management system that requires utilization of a controls contractor.

1.6 All installations of resource-consuming equipment or systems in the Base Building and in Tenant space should meet _____standard whether they are installed by Tenant or Landlord. This provision should apply to fit-out of new space as well as replacements in currently leased space.

Recommendation: The most recent update of the ASHRAE 90.1 standard, issued in 2007, is preferred. Prescriptive standards issued by NYSERDA are also a good reference.

1.7 Landlord and Tenant agree that Tenant space should have access to _____ Watts/sf of electric service.

Recommendation: Commercial office space should be presumed to require not more than 3 Watts/sf of demand (not connected load).

This provision and provision 1.8 are intended to limit the oversupply of electric service to a building. The greater the service, the higher the standby requirements on the electric grid and the resulting demand for peak power supply. Further, the larger the potential electric load available to the tenant, the larger the Base Building HVAC system required to cool tenant systems, resulting in increased construction costs. Depending upon the circumstances, oversized HVAC systems may operate less efficiently under part-load conditions, leading to higher operating expenses.

Amendments/revisions to accommodate the provisions described here may be required in lease sections typically labeled *Condition of Premises, Electricity,* or *Electric Service.*

1.8 *Option 1* — After a year of occupancy, Tenant should lose __ percent of unused service. For example, a Tenant actually using 2.5 Watts/sf may be dropped from a lease stipulated 6 Watts/sf to 3 Watts/sf (to cushion for future growth).

***Option 2* — Landlord should have the right to charge Tenant for unused capacity. For every Watt/sf reserved for Tenant, but in excess of the maximum usage of Tenant in a given year, the Landlord should assess a fee.**

Recommendation: Consider provision of future increases of electric service for tenants that increase the density of employees and space usage, a more efficient use of space and resources that should be encouraged. It may also be necessary to provide for increases if the Tenant opts to sublet space. Tenants will be reluctant to surrender service if it diminishes the prospects for subletting.

There may be other solutions to this particularly complex challenge, part of which begins at the construction of the building rather than with the negotiation of a lease. Rising tenant demand can, however, affect equipment sizing in a retrofit scenario or compel the need for installation of additional cooling systems. Rising tenant demand for electricity has follow-on effects on mechanical systems and the electrical grid that must be addressed. A payment to the landlord for unused electric service can be justified by the cost associated with over-sizing of HVAC systems (see notes above). The amount of the fee could be calibrated to the cost of the excess cooling capacity and reduced pro rata from the charges to other tenants. Note that a submeter is required to utilize either of these options.

Before deciding upon 1.7, 1.8 (Options 1 and 2), both Landlord and Tenant should consider:

A. *The method of measurement of demand/unused capacity.*

Recommendation: Interval meter measurement at the submeter is the preferred method of establishing peak usage.

B. *Unused capacity fees ($/Watt).*

C. *Degree of precision (e.g. 1 Watt, 0.1 Watt).*

PREFERRED COMPONENTS:

1.9 Tenant should share operational requirements and preferences, concerns, and interests with Landlord's contractors engaged to improve efficiency in the Building.

The tenant's preferences do not create additional lease obligations for the landlord.

1.10 Within an agreed upon timeframe, the Landlord should implement the recommendations of the retro-commissioning study that cumulatively do not exceed an agreed upon dollar value so long as the recommendations do not violate the terms of any other existing lease obligations.

The aim of retro-commissioning is to improve calibration, operation, and synchronization of existing systems, not to call for the installation of new ones. A relatively low number, under $1/sf (in 2009) is reasonable for the cost of implementation.

1.11 The Tenant has a reciprocal obligation to implement recommendations of the retro-commissioning study up to an agreed upon cumulative dollar value.

Just as the requirement that the landlord implement retro-commissioning is trumped by the landlord's other lease obligations, tenant's obligation is trumped by the requirements of tenant's business operations.

2 For Any Given System, Installation, or Piece of Equipment, Responsibility for Capital Expense and Benefit of Savings Should Reside with the Same Entity

This principle is intended to redress the chief cause of the *split incentive*—the operating expense pass-through clause. Leases without operating expense pass-through clauses are inherently *greener*, because they place all incentives for resource efficiency in the hands of the single entity for whom it is practical to make resource efficiency investments—the landlord.

2.1 The Landlord should assume responsibility for all base building operating expenses, increasing rent annually to account for rising operations costs.

Recommendation: The proposed language is intended to supplant the operating expense pass-through clause, which is the fundamental source of the split incentive in commercial real estate.

Amendments/revisions to accommodate the provisions described here may be required in lease subsections typically labeled *Additional Rent, Operating Expenses,* or *Operating Expense Escalation.*

A. *Annual rate of increase.*

Typical methods for accounting for rising operating costs in a non-operating expense clause lease include an increase in rent tied to the Consumer Price Index (CPI) or a fixed percentage (often between 2 percent and 3 percent). The tenant should expect the landlord to secure a rate of increase sufficient to insulate the landlord from price spikes in a given service or commodity.

Principal 2 Alternative: **All, or a substantial portion, of the savings achieved by virtue of a system improvement should be available to pay for the improvement.**

In the event that elimination of operating expense escalation in favor of a fixed annual increase is not desired by the landlord and/or tenant, the guidance offered below is intended to address shortcomings typical in commercial leasing that limit capital cost recovery by the landlord, such that the full value of resource savings are not available to pay for the associated improvements.

The Landlord should have the right to pass through capital expense based upon the (Projected/Actual) dollar savings.

The provision should apply to individual and "packages" of efficiency improvements, such that an improvement with a faster payback period can improve the economics of improvements with longer payback periods.

The provision should ensure that items of shorter lifespan that are coupled with items of longer lifespan are replaced with items of comparable efficiency for the entire lifespan of the item with a longer lifespan, for example, lighting that produces savings necessary to support a chiller investment must be replaced with comparably efficient lighting during the useful life of the chiller. Comprehensive energy efficiency projects should be treated in the aggregate as a single improvement.

The recommended provisions are explicitly intended to supersede *useful life*, required by Generally Accepted Accounting Principles (GAAP) provisions and other comparable amortization concepts, which typically require that capital investment be amortized over each piece of equipment's useful life or some period relating to accounting or tax depreciation methodologies. A green lease pass-through provision should require amortization of comprehensive packages of retrofit investments based on the resulting energy savings.

To the extent that incentives associated with carbon emissions reductions become available, they should be applied to the capital expenditure and reduce the amortization proportionately.

Amendments/revisions to accommodate the provisions described may be required in lease sections typically labeled *Additional Rent, Adjustments of Rent, Operating Expenses,* or *Operating Expense Escalation*.

CONSIDERATIONS FOR IMPLEMENTATION:

A. *Projected vs. actual dollar savings.*

If the landlord has agreed to benchmark usage (1.1 above) and annual reporting (3.5 below), the tenant will have some capacity to assess the value of the improvements, mitigating the need to measure actuals. If the landlord performs a retro-commissioning study (1.3 above) and has agreed to share it, the tenant will have additional context for assessing the value of a given improvement, and the need for actuals is further mitigated.

B. *Rigor of measurement of actual savings.*

Measurement of actual savings, or reduction in the rate of increase in actual expenses, is preferred. ASHRAE Guideline 14 should be used for measuring savings. Accurate measurement of a major retrofit requires the development of a counterfactual model to represent what would have happened had the improvements not been made, accounting for interactivity of building systems, and changes in weather, occupancy and other factors (See Appendix B).

Neither party should insist on actual measurement if the expense of the measurement itself is more than a modest fraction (between 5 and 10 percent) of the expected savings.

C. *Reporting of actual savings, if required*

On an annual basis, the landlord will report the actual reductions in Operating Expenses achieved.

D. *Entity responsible for monitoring and verification of savings, if required.*

Landlord and tenant should agree up front on the identity of the entity that will monitor and verify savings.

E. *Responsibility for the cost of measurement and verification, if required.*

It may be simplest to consider measurement and verification an operating cost subject to normal provisions for operating costs in the existing lease.

F. *Update: NYC's Energy Aligned Lease Provision.*

The NYC Mayor's Office of Long Term Planning and Sustainability (OLTPS) recently released a specific model lease provision—called the "energy aligned lease provision"—which embodies one method of addressing the split incentive issue. The model energy aligned lease provision was developed by a working group of major NYC landlords, tenants and property managers convened by OLTPS and led by real

estate attorney Marc Rauch. A copy of the provision is available here.* The energy aligned lease clause bases the landlord's capital expense pass through on *projected* energy savings, but incorporates a buffer to protect tenants against the possibility of underperforming retrofit measures. Under the provision, landlord is entitled to amortize (i.e., pass through to tenant) its retrofit capital expenses to the extent of 80% of projected annual energy savings, until landlord has recovered the entire capital expense. The energy aligned lease provision effectively extends landlord's payback (i.e. capital recovery) period by 25%, and allows tenants to benefit immediately from any retrofit that delivers actual energy savings that equal or exceed 80% of projected savings. Savings projections are made by an independent energy expert approved by both landlord and tenant.

2.2 The lease should treat resource consumption expenses separately from other operating expenses by applying a separate "expense stop" for expenses associated with consumption of natural resources so long as Tenant is not billed for savings that fall below the Base Year for that consumption.

Recommendation: This provision can be paired with 2.4 (optional) below to generate a project with shared savings for the landlord and tenant.

Many leases treat taxes as a distinct operating cost with its own Base Year, and make increases in those costs distinctly allocable to tenants. Treating resource expenses in this fashion will help to prevent savings from resource-saving projects from being eclipsed by rising costs in other categories of expenditure (e.g. insurance, cleaning, etc) and motivate more careful tracking and monitoring of energy use. If actual savings decrease base building expenses below a tenant's base year for resources, the tenant should ensure it is not charged for capital expenditure for those savings below the base year (which accrue to the landlord).

2.3 Base year operating expenses should not include any portion of capital expenditure relating to energy conservation measures.

This provision removes a disincentive to the landlord to invest in resource-savings capital improvements. Absent this provision, base year operating costs are inflated, and at the end of the amortization period, the landlord would incur a net loss in rent, as the reduced operating costs (lower because the amortization pass-through has been completed) would continue to be compared to the inflated Base Year.

Similarly, no portion of capital expenditures should be included in base year operating expenses or subsequent years' pass through expenses with respect to any energy conservation measures placed into service prior to a given tenant's lease commencement date. Base year operating expenses may be variously referred to as the *Base Year Operating, Base Year,* and the *Base Operating Expense.*

PREFERRED COMPONENTS:

2.4 Savings associated with a capital investment that exceeds Landlord's lease obligations (i.e. beyond what is required to maintain proper functioning of the Building, such as an innovative resource efficiency project, e.g. cogeneration) should be shared at a ratio of x percent Landlord/y percent Tenant of *(Projected/Actual)* dollar savings.

This provision is intended to offer "shared savings" to landlord and tenant. One way to achieve this might be to allow the landlord to amortize capital costs for all or part of an additional year, beyond the period necessary to fully cover the upfront cost, as an incentive. For a building where operating expense clauses predominate, a major efficiency investment can subject a landlord to risk of losses if those savings are not

* http://www.nyc.gov/html/planyc2030/html/about/ggbp.shtml#more

achieved, assuming capital sharing is based on actual savings. If projected savings match results, however, the landlord's investment of time and capital yields little or no return since cost and savings are shared among the tenants. This option provides a mechanism whereby the landlord and tenant can negotiate a sharing of the return on investment.

Amendments/revisions to accommodate the provisions described may be required in lease sections typically labeled *Additional Rent, Adjustments of Rent, Operating Expenses,* or *Operating Expense Escalation*.

2.5 Upon written permission from the Tenant, the Landlord may apply a price per ton of carbon emissions reduction to the savings from a capital project.

The resulting annual value of the reductions in carbon dioxide emissions should be incorporated into the operating expense savings from the capital improvement, and the total savings used in determining the amortization period for the improvements following the guidelines established in 2.1 above.

Tenants with carbon savings goals may be willing to pay additional rent for a carbon-saving project. As carbon markets evolve, carbon savings goals may be largely covered by the provisions of 2.1 above. As of this writing, however, tenants with carbon savings goals may wish to negotiate a price per ton of carbon that exceeds the shadow price of carbon on the nascent carbon markets.

2.6 The Landlord and Tenant agree that the components of operating expenses subject to vacancy adjustment in the calculation of additional rent are those operating expenses that vary with occupancy, not those that are fixed [relevant only if the lease allows for vacancy adjustment].

Variable components of resource consumption expenses are as follows [to be defined by the parties].

Recommendation: While not essential for fulfillment of the alternative principle, this provision is recommended. It is intended to eliminate an implicit mark-up of energy costs on base building resource use to the extent that fixed components of resource use are adjusted for vacancy, i.e. if the Building is heated regardless of its occupancy status, heating expenses are fixed and should not be grossed up. Misapplication of vacancy adjustments are common and create a disincentive for Landlords to pursue resource-saving improvements.

3 Consumption and Demand for Resources Throughout the Building Should be Measurable and Transparent to the Landlord and Tenant, to the Extent Possible

This principle is fundamental to any serious effort to address resource efficiency. Progress toward environmental goals is impossible to measure without data.

3.1 Landlords should submeter resource use in Tenant space wherever it is technically feasible and within reasonable financial parameters.

Submetering of water, gas and steam may not be technically feasible or effective but should be considered where it is. This provision is principally intended to eliminate the practice of billing tenant electricity consumption on a flat annual $/sf basis—typically called Electric Rent Inclusion (ERI). Without access to measurement of electric usage, the tenant cannot assess progress toward resource savings goals. Tenants with direct meters have already satisfied this provision.

A. *Responsibility for the cost of the submeter*

The submeter itself affects measurement of energy and motivation to save, but does not directly save energy for either the landlord or tenant. Therefore, both parties may debate which is the beneficiary of the meter and should bear the cost. Presumably some of the cost could be covered through the submeter mark-up itself. For small tenants, the landlord may ask slightly higher rent to compensate for the loss of revenue typically earned from ERI.

B. *Relationship of submeter to actual billing.*

Recommendation: It is preferable, from an efficiency perspective, for bills to reflect actual usage so that energy saving efforts have a direct, measurable impact.

The presence of a submeter need not necessarily eliminate a fixed per square foot charge for tenant electric (ERI) that landlords may be reluctant to give up. It would mark a meaningful step toward energy efficiency for the tenant simply to have a meter with which to monitor actual consumption.

If the landlord foregoes the fixed per square foot charge, the landlord and tenant should negotiate the administrative charge, if any, for management of the submeter bill. A percentage fee (usually between 2 to 12 percent of the submeter bill) is typical. The submeter mark-up is not an element of the split incentive, i.e. it does not create a disincentive for efficiency for the landlord. In fact, higher submeter mark-ups create an incentive for tenants to conserve.

3.2 Where submetering of Tenant space is infeasible, the Landlord should submeter the Building by floor.

3.3 Where submetering is infeasible and the Tenant has ERI, the Tenant may initiate a survey of equipment and systems. The Landlord should credit the Tenant for demonstrable efforts to save. Surveys should be performed annually.

Under ERI, the survey is generally intended to justify the landlord's increase of the ERI Factor (the $/sf charge for electric). If ERI is to remain in force, the tenant must be given some incentive to conserve. Therefore, the survey must identify and credit savings efforts.

3.4 Base Building electric usage should be calculated, to the maximum extent feasible, utilizing submeters to exclude Tenant spaces.

Base building electric usage, frequently called *Building Electric Current*, is the proportion of the reading of the master meter (the meter for the whole building) that is attributable to the base building as opposed to tenant spaces. Most leases with operating expense escalation make a percentage of the base building electric usage an escalatable cost. Base building electric usage should reflect the proportion of the master meter electric attributable to the base building only, excluding tenant spaces. Lack of submetering leads to inaccuracy in determining the base building component of overall electric consumption. If, for example, occupied tenant spaces that are not submetered are included in the base building electric expense shared with tenants, the landlord shifts a disproportionate share of base building electric to the tenants and will have a disincentive to save on base building usage.

3.5 *Option 1* — The Landlord should annually report to the Tenant the benchmarked resource usage of the Building (see 1.1 above) as well as the Tenant's contribution to the score—by calculating the difference between the Building score, with and without Tenant usage. The Landlord should also provide a comparison between Tenant's proportion of the Building's rentable square footage relative to its proportion of the Building's resource use.

PREFERRED COMPONENTS:

3.5 *Option 2* — Landlords should annually report to Tenants the total resource usage of the Building in terms of kilo-watt hours (kWh) and MMBTUs or, alternatively, in MMBTU equivalents and in gallons of water. Tenant's relative consumption should also be reported as in Option 1.

3.5 *Option 3* — Landlords should annually report to Tenants the total carbon emissions of the Building in tons. The Tenant's relative consumption should be reported as in Option 1.

Recommendation: Option 1 should be considered a minimum. The preferred approach is to apply the terms of all three options.

3.6 Tenant should annually report to Landlord any electric, gas, steam, or water usage in Tenant space that is directly metered by the distributor of the commodity, i.e. that does not flow through Landlord's meter.

Appendix A: Retro-Commissioning

Retro-commissioning: A systematic investigation process for optimizing building performance by identifying and implementing relatively low-cost operational and maintenance improvements.

Retro-commissioning Study: A Retro-commissioning Study is the result of the Investigation Phase of retro-Commissioning, as described in "A Retro-Commissioning Guide for Building Owners," published by the United States Environmental Protection Agency in 2007, which culminates in a list of findings and recommended retro-commissioning measures to be implemented.

Resources:

ACG Commissioning Guideline for Building Owners, Design Professionals and Commissioning Service Providers. AABC Commissioning Group. 2005. http://www.commissioning.org/commissioningguideline/ACGCommissioningGuideline.pdf

California Commissioning Guide: Existing Buildings. California Commissioning Collaborative. 2006. http://www.documents.dgs.ca.gov/green/commissionguideexisting.pdf.

Guideline to the Commissioning Process for Existing Buildings, or "Retro-Commissioning." NYSERDA. 2006. http://www.documents.dgs.ca.gov/green/commissionguideexisting.pdf

A Retro-Commissioning Guide for Building Owners. United States Environmental Protection Agency. 2007. http://www.peci.org/Library/EPAguide.pdf.

Enhanced Commissioning

The Continuous Commissioning Guide for Federal Energy Managers. Office of Energy and Renewable Energy of the Department of Energy. 2002.
http://eber.ed.ornl.gov/commercialproducts/FEMP%20Continuous%20Cx%20Guidebook.pdf

Appendix B: Measurement and Verification

Leases frequently allow capital expenditure sharing with tenants for items that save operating expenses. However, in most cases those capital items are still limited to a useful life-based amortization. Allowing capital recovery to the extent of savings can represent a significant increase in the rate at which landlords recoup expenditure on upgrades to building energy systems.

Unfortunately, since commercial real estate has not received significant "at risk" energy investment (i.e. investments where the contracts for improvements are subject to savings performance) performance data that could be used to justify savings estimates is relatively scarce. An engineer's projections from an energy study can serve as a good starting point, but may be insufficient to convince a tenant to surrender Additional Rent for a capital upgrade. For a significant capital expenditure, a tenant would be well advised to ensure a rigorous regime of measurement and verification (M&V), or in the alternative to negotiate an adequate buffer percentage under an energy aligned lease clause, as described in 2.1F above.

The first broadly accepted M&V standards emerged in 1997 under the auspices of the US Department of Energy as the International Performance Measurement and Verification Protocol (IPMVP), later substantially revised and expanded in 2001. IPMVP provides a general framework of approaches to measurement that command broad national and international consensus. Then, in 2002, the American Society of Heating Refrigeration and Air-conditioning Engineers (ASHRAE) released its Guideline 14, a technical document outlining in great detail a set of measurement methodologies and providing guidance about how to choose among them.

Caution should be taken with IPMVP protocols, which were developed by the Energy Services Company (ESCO) industry largely to provide a set of tools for measuring itself. The various IPMVP protocols vary widely in terms of their rigor and validity. IPMVP Protocol C and ASHRAE Guideline 14, to which it is linked, are the optimal methodologies for a retrofit of significant scope and expense. Landlord and tenant should seek to balance the cost and effort involved in M&V against the magnitude of the expenditure and the cost sharing.

Requiring more rigorous M&V will, in fact, have a reinforcing effect on the market for energy efficiency in commercial buildings, yielding data that can be used to make better retrofit choices and for investors to use in underwriting.

Resources:

Guideline 14 – 2002. Measurement of Energy and Demand Savings. ASHRAE. 2002. 166 pp. ISBN/ISSN: 1046-8940x. http://resourcecenter.ashrae.org/store/ashrae/newstore.cgi?itemid=9012&view=item.

International Performance Measurement and Verification Protocol. Concepts and Options for Determining Energy and Water Savings. Volume I. Rev 2. 2002. http://www.evo-world.org/index.php?option=com_content&task=view&id=272&Itemid=223.

International Performance Measurement and Verification Protocol. Concepts and Practices for Improved Indoor Environmental Quality. Volume II. Rev March 2002. http://www.evo-world.org/index.php?option=com_content&task=view&id=272&Itemid=223.

International Performance Measurement and Verification Protocol. Concepts and Practices for Determining Energy Savings in Renewable Energy Technologies Applications. Volume III. August, 2003. http://www.evo-world.org/index.php?option=com_content&task=view&id=272&Itemid=223.

Appendix C: Tenant Fit-Out Guidelines

The many firms and organizations involved in the Energy Efficiency Lease Guidance explicitly chose not to address tenant fit-outs, as guidelines for green construction have been covered elsewhere. Landlords for the most part (there are a few notable exceptions) are not comfortable with blanket high performance fit-out requirements, fearing they might dampen the potential to lease space. However, there is a growing number of landlords that are looking to gain competitive advantage in today's challenging leasing environment by offering efficient and transparent energy management systems that can assist tenants in completing high performance fit-outs..

NRDC's Center for Market Innovation is currently engaged in a high performance demonstration project which is intended to move beyond commonly cited barriers to scale demand for high performance fit-outs through (i) demonstrating live fit-out projects that are achieving strong returns on their efficiency investments, and (ii) developing and publicizing a process for high performance fit-outs that others can follow. For more information on CMI's high performance demonstration project, click here.

We offer a few good references:

Lord, Mychele. *Green Office Guide: Integrating LEED into Your Leasing Process*. U.S. Green Building Council. 2009. http://www.usgbc.org/Store/PublicationsList_New.aspx?CMSPageID=1518.

See for lighting. *ANSI/ASHRAE/IESNA Standard 90.1 – 2007. Energy Standard for Buildings Except Low-Rise Residential Buildings*. ASHRAE. 2007. ISSN 1041-2336.

The New York State Energy Research and Development Authority provides a useful set of standards on the website for its Existing Facilities Program. http://www.nyserda.org/Programs/Existing_Facilities/default.html.

Creating a High Performance Workspace. G/Rated Tenant Improvement Guide. City of Portland. Office of Sustainable Development. Version 2. January 2004. http://www.portlandonline.com/shared/cfm/image.cfm?id=112733.

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