

Decarbonizing
New York City Offices

Strategies for Success

Overcoming Challenges
to Decarbonizing
Large Commercial Buildings

for Commercial Tenants, Building Owners and Consultants



Common Challenges to Decarbonization Efforts

Challenge 1:

A tenant does not feel responsible for complying with building performance standards, such as LL97.

Challenge 2:

Improving the performance of a leased office space after a tenant has moved in is a logistical burden.

Challenge 3:

Owners and tenants find high-performance office fit-outs to be cost-prohibitive or complicated.

Challenge 4:

Energy consumption data is underutilized or not being shared in an accessible manner with the parties best suited to interpret the data.

Challenge 5:

Team members with relevant expertise are not effectively engaged during the decision-making process.

Purpose:

The emergence of ambitious legislation and climate goals, such as NYC’s Local Law 97 (LL97) and NYS’s Climate Leadership and Community Protection Act (Climate Act), are driving the commercial real estate industry in New York to transition towards high-performance, low-carbon buildings. To meet these rapid emissions reduction goals, commercial building owners and tenants—who control base building and leased space systems, respectively—have a responsibility to increase the energy efficiency of their operations and strategically transition existing fossil fuel-burning equipment to efficient alternatives. While the transition to high-performance building practices will have its challenges, identifying potential barriers early on and proactively addressing them can help ensure mutually beneficial results for all parties involved.

To help guide commercial real estate stakeholders—such as building owners, tenants, and their legal and design teams—this resource identifies common challenges to decarbonizing commercial buildings along with various strategies for overcoming these barriers. In particular, this resource highlights coordination opportunities for stakeholders to reduce energy consumption and carbon emissions within leased office spaces. Not all challenges will be applicable to all situations, so teams should focus on the strategies that are relevant for their specific circumstances.

This resource is part of a series of actionable resources developed for the Decarbonizing New York City Offices project, an initiative dedicated to reducing carbon emissions in leased commercial spaces.



For each Strategy for Success listed within, you will see icons representing tenants, owners, and consultants. Icons in color show that the corresponding strategy is relevant to that particular stakeholder.

Challenge 1:

A tenant does not feel responsible for complying with building performance standards, such as LL97.

Historically, policies and laws that address energy and emissions reductions have targeted whole building performance. As such, owners are responsible for compiling the necessary data and adhering to the mandates, or face penalties for noncompliance.

Even though tenants typically account for more than half of the energy consumed in commercial buildings, they often have no legal obligation to reduce their consumption. Given the role tenants play in whole building energy consumption, improving the building's performance cannot be achieved by one group alone. Owners and tenants must work together to optimize systems serving both the base building and tenant spaces to achieve the emissions reductions needed to comply with regulations, such as LL97. Without both parties working together, a building may not achieve the required reductions and therefore be at risk of failing to comply with critical regulations.

Strategies for Success

Ways to engage with a tenant in order to comply with building performance standards, such as LL97



Leverage Sustainability Goals

Many commercial tenants have public sustainability commitments and even carbon reduction targets, but may not clearly understand how performance at the building-level contributes to their organizational metrics. Building owners must also meet performance goals for their real estate portfolios, in addition to complying with mandates such as LL97.

During site selection, owners and prospective tenants should share relevant performance goals and commitments. Once a tenant selects an office space, but prior to lease negotiations, the owner and tenant teams—including sustainability and operations representatives—should explore mutual benefits and strategies for energy reductions tenant-controlled spaces, which positively impacts whole building performance. These conversations should also include strategies that equitably distribute responsibilities to meet LL97 requirements to ensure that both parties understand their respective roles and responsibilities. The results of these discussions should be memorialized in relevant documents, such as the lease and/or building rules and regulations.



Explore the [Guide to Selecting High-Performance Commercial Spaces](#) for more information



Utilize High-Performance Leases

Energy efficiency is not typically addressed under conventional office lease agreements. Conversely, high-performance leases include explicit energy-aligned terms in an effort to reduce energy consumption and carbon emissions, as well as to minimize financial and operational risks.

At the core of this pragmatic approach to advanced leasing practices is a mutual agreement of both tenants and landlords to collaborate and create shared benefits. Within these high-performance leases, both parties agree upon legal language that equitably mandates compliance with increasingly stringent energy and carbon emissions reduction requirements and presents remedies should either party fail to meet building performance targets.



Explore the [High-Performance Clause for a Letter of Intent](#) for more information



Explore the [Guide to Developing High-Performance Leases](#) for more information

Strategies in Action

Brookfield Properties collaborated with its tenant, Fried Frank, during lease negotiations to establish a methodology for equitably calculating owner and tenant carbon budgets, creating a shared motivation to meet the entire building's performance target and emissions limits. Brookfield now uses this methodology as a successful model for other tenants.

Challenge 2:

Improving the performance of a leased office space after a tenant has moved in is a logistical burden.

Office retrofits with occupants already in place are often costly and disruptive, leaving many owners and tenants hesitant to undertake efficiency upgrades mid-lease. The time of tenant fit-out, however, presents one of the easiest, most cost-effective intervention points to make meaningful energy efficiency improvements. During this phase of the leasing cycle, owners and tenants are already dedicating resources and time on design and equipment choices that will be more difficult and costly to change once the space is occupied.

Strategies for Success

Ways to enable sustainability upgrades during the fit-out phase



Implement Owner-Led Design Upgrades

Owners should implement a variety of sustainability measures in tenant spaces themselves before bringing in a tenant. By working with their consultants to provide tenants with a “move-in-ready space” that allows for easy integration between owner and tenant systems, owners improve whole building performance and prove to tenants that they are willing partners in the effort to decarbonize. When tenant space optimization is done in tandem with base building improvements, energy and cost savings can be maximized as both owners and tenants are implementing energy and emissions reduction measures (ERMs).



Leverage Lease Renewals to Make Upgrades

Owners and tenants, with the expertise of their design and engineering teams, should identify opportunities to make strategic upgrades to existing tenant spaces—for example, identifying upgrades that can be made to tenant space in conjunction with lease renewals. Additionally, owners should discuss offering incentives, such as early lease renewals or extensions, to tenants in exchange for tenants making energy efficient upgrades to their existing space.



Define Design Criteria for Tenants

Owners, with the support of their consulting architects and engineers, should provide tenants with high-performance fit-out criteria to guide the design of their space. Design criteria for tenant spaces should include ERMs and other sustainability practices, such as complying with third-party certifications like LEED or reducing embodied carbon along with operational carbon. Guidelines should be codified into leasing requirements and building regulations. Where possible, tenant improvement allowances, incentives, or other financial resources should be used to implement ERMs.

Strategies in Action

Empire State Realty Trust (ESRT) and Vornado Realty Trust (VNO) provide fit-out guides and resources to their tenants in the form of sustainability toolkits or high-performance guidelines that tenants must adhere to as they fit-out their spaces. ESRT developed custom High Performance Design and Construction Guidelines in 2009 that are included as a dedicated section in all leases in addition to Green Lease Clauses, which earned Green Lease Leaders Platinum in 2023 and provide customized support for all tenants in their sustainability efforts. Vornado and ESRT have found particular success in standardized, high-performance fit-out requirements not in a standalone clause, but instead as embedded components in the applicable building system sections of the building regulations.



Explore the [Guide to High-Performance Office Fit-Outs](#) for more information.

Challenge 3:

Owners and tenants find high-performance office fit-outs to be cost-prohibitive and complicated.

NYC's Energy Conservation Code requires that any system alterations at the time of tenant fit-out must comply with the current energy code. However, not all tenant fit-outs involve every system, often due to concerns that fit-outs are too costly, leading to many upgrades being value engineered out of work scopes. This situation can leave inefficient equipment in place, thus locking in years of wasted energy- and cost-saving opportunities. Furthermore, the NYC Energy Conservation Code is updated every few years, but long lease durations for tenant spaces can result in tenant systems underperforming compared to increasingly advancing energy standards. As such, implementing high-performance measures that perform above code requirements as early as possible in the lease term—e.g. prior to move in—means that the benefits of energy and emissions reductions, and cost savings, are maximized over the full term of the lease.

Strategies for Success

Ways to improve energy efficiency during and after fit-outs



Assess Costs Beyond Initial Cost and Simple Payback

Many stakeholders evaluate ERMs based on a simple payback period of 1-3 years, meaning that ERMs must generate enough operational savings within a relatively short time frame to cover the upfront cost of any measure. Instead, building owners and tenants should work closely together during the fit-out phase to evaluate the cost of a measure over the lifetime of the lease, as opposed to the shorter payback period. When taking a total cost approach, measures generate significant savings, especially for long-term leases.



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Implement No- and Low-Cost Strategies

While tenant fit-out presents an ideal time to improve building performance, this is not the only opportunity to implement impactful changes. Owners and tenants should consistently evaluate performance to ensure that systems are performing as expected and can implement low- or no-cost, minimal effort strategies to lower energy use even after tenants have moved in. This includes strategies such as lowering fan speeds, aligning operating hours and system use with actual occupancy, and raising server room temperatures. As one large Class A developer noted, “even the Amazons and the Googles have recognized that you don’t need to cool computers cooler than people.” Additionally, owners and tenants should take advantage of low-cost efficiency improvements, like lighting and appliance upgrades, as needed over the course of the lease term.



Apply for Financial Incentives

Tenants, with the support of owners as needed for the application process, should apply for incentives or other financial resources from sources such as the ones listed on page 14. Financial tools, such as rebates, direct loans, and tax credits, can allow for strategic and comprehensive ERMs to be implemented that otherwise may be viewed as an upfront financial burden.

Strategies in Action

In commercial office spaces, automatic shades have the potential to significantly drive down space cooling costs by lowering heat gain, without the need for manual adjustment. However, their relatively high upfront costs can dissuade both tenants and owners from installing automatic shades in their space or throughout the building. By calculating the cost of this ERM over the full duration of the lease rather than at the time of fit-out, tenants and owners will understand how automatic shades and other potential high impact measures are a worthwhile investment, as they can produce energy and cost savings over several years.

Challenge 4:

Energy consumption data is underutilized or not being shared in an accessible manner with the parties best suited to interpret the data.

Understanding how energy is consumed provides insights into whether systems are functioning as intended, as well as the appropriate actions needed to remedy inefficiencies or further optimize performance. Tracking and sharing data has a plethora of benefits, such as identifying underperforming systems, verifying savings, and setting efficiency targets.

While the benefits are clear, energy consumption data is frequently not collected or shared between tenants and landlords in an informative manner. This lack of transparency can be attributed to a variety of factors, including an insufficient number of meters or sensors in place to track usage in tenant spaces, energy consumption being reported in aggregate rather than at the tenant-level, and the difficulty of monitoring tenant-specific metrics, such as data on occupancy and density.

When building owners can collect granular energy data, they may need additional support to translate the findings into specific actions to improve operations or to identify which information to share with tenants to motivate them to optimize energy consumption. Tenants additionally may struggle to receive this data from building owners in an accessible or timely manner.

Strategies for Success

Ways for owners and tenants to improve data collection and sharing



Collect Data

To overcome the old adage “you can’t manage what you don’t measure,” owners and tenants must proactively collect energy consumption and emissions data. A variety of tools exist to support data tracking and collection:

Submetering tenant spaces offers various benefits. Energy savings incurred can go directly to the tenant, and both tenants and owners are able to view tenant electricity use in their space. This visibility can create opportunities for dialogue between owners and tenants, particularly if the tenant electricity consumption does not mirror occupancy trends or performance goals.

Benchmarking Platforms, such as ENERGY STAR Portfolio Manager, are digital resource management tools to compare a building or space’s energy use to a yearly baseline, national medians, or similar assets in a portfolio.

Building Management Systems (BMS), also referred to as a Building Automation System (BAS), is a control system installed in buildings that monitors and manages various building systems, such as heating, ventilation, air conditioning (HVAC), and lighting. A BMS can automatically regulate and control internal environmental conditions, such as temperature, to predefined set points. In addition to monitoring building systems, a BMS can also optimize energy use to ensure that the system is as efficient as possible. Tenants and owners should share visibility into BMS systems to assure tenants of services offered and assure owners that tenants are operating efficiently in their spaces.

Real Time Energy Management (RTEM) systems continuously collect and transmit a building’s current and historical performance data to the cloud. An RTEM system can detect equipment faults so they can be addressed before they become failures or impact occupant comfort. Building owners can use this data to optimize the building’s

energy consumption and show—in real time—how a property is performing. An RTEM system works with an existing BMS by utilizing additional sensors and advanced analytics to automatically manage energy consumption and equipment performance, diagnose system issues in real time, and identify operational improvements.



Share Data with the Right Entities on an Ongoing Basis

Owners and tenants have an obligation to share data with each other so that they can both be informed of how the building and office space are performing. Owners and tenants must identify appropriate points of contact to share data with, such as an energy manager, facilities personnel, or an office manager, depending on the size and structure of each organization. This ensures that the information is being shared with the internal teams who need it and know what to do with it. To ensure accountability, owners and tenants should identify data sharing requirements and strategies in the lease.

Furthermore, owners should engage with tenants to share insights and recognize successes through interactive means, such as tenant town halls, regular operations and maintenance (O&M) coordination meetings, monthly energy reports, push notifications, display screens in lobbies or elevators, etc. Ongoing communication between owners and tenants regarding system performance and energy consumption provides an avenue for sharing best practices and quickly resolving any issues that may arise.

Strategies in Action

Since 2009, Empire State Realty Trust (ESRT) has worked on innovative education and engagement strategies to elevate universal tenant awareness on energy efficiency and emissions reduction principles and ideas. Within their buildings, the company has deployed an array of successful techniques, from tenant town halls for open dialogue to screens in elevators and open hallways that change regularly and display energy and building facts as well as building-wide events. They have also implemented campaigns, such as brown bag lunches and composting, to encourage tenant behavioral change and active participation in whole building sustainability goals. ESRT tenants and the general public can all access a full Tenant Sustainability Toolkit on the ESRT website to learn how to improve performance and reach efficiency targets, and tenants can take advantage of the consulting expertise and customized support from the company’s own experts at no cost to them.

Challenge 5:

Team members with relevant expertise are not effectively engaged during the decision-making process.

Subject matter experts with critical expertise are often not engaged early or throughout the leasing cycle, thus undermining opportunities at critical steps for energy and emissions reductions. For instance, leases may include unnecessary or wasteful energy use requirements, such as the maintenance of specific temperature and humidity levels, even when the space is unoccupied. Additionally, inefficient base building systems or conditions may hamper a tenant's ability to meet their own energy performance goals.

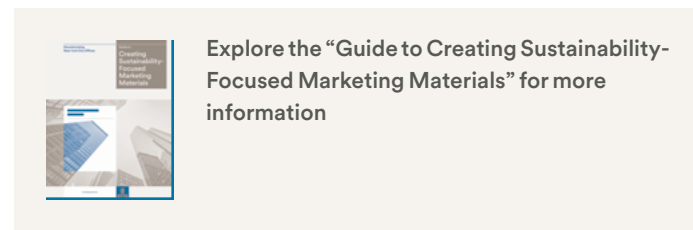
Strategies for Success

Ways to better engage experts throughout the leasing cycle



Leverage External Experts at Site Selection

Tenants should bring on engineers and energy specialists during the site selection phase to help parse a building's systems and performance attributes. Involving energy experts early in the leasing process will help ensure that tenants choose an optimal high-performance building that supports their environmental goals. Gathering key building performance information upfront and prioritizing high-performance, low-carbon building attributes when selecting an office space can result in numerous benefits, such as lower upfront investments during fit-out and operating expenses, improved occupant comfort, health, and talent retention, and reduced LL97 fine exposure. Tenants will then possess the key building system and performance information needed to effectively develop a fit-out scope of work that will optimize their leased office space.



Foster Discussion Amongst Internal Experts

Tenants and owners should involve and foster dialogue amongst critical team members, such as representatives from internal real estate sustainability, leasing, construction, and facilities teams, early and throughout the leasing process. Before the lease and fit-out scope of work are finalized, experts must be engaged to ensure that energy and carbon reduction goals are reflected in these documents.

For example, sustainability and leasing teams need to collaborate in advance of lease negotiations to ensure that high-performance provisions are incorporated into the lease language. Additionally, design, construction, and facilities representatives need to be informed of performance goals or mandates, such as LL97 compliance or high-performance leasing terms, well in advance, so that the design and equipment selected for the new office fit-out complies with the requirements.



Leverage Peer-to-Peer Learning

Building engineers and operators within a portfolio are often troubleshooting and implementing new approaches. When these strategies generate energy savings while maintaining, or improving, building performance and tenant operations, these lessons learned should be shared across a portfolio for wide-scale implementation. In most scenarios, it will be more effective for the building's own engineers to exchange these ideas amongst themselves rather than receiving it from central sustainability staff, so owners should create opportunities for this type of internal knowledge exchange amongst peer groups.

Strategies in Action

Vornado Realty Trust has been holding meetings with all their buildings' chief engineers to train them on more responsible operational practices that can enhance building energy savings. They've found that their engineers are more willing to implement newer techniques when its success has been corroborated by their peers. In one case, a building engineer increased the startup time of the building's fans from one minute to five minutes, resulting in a \$30,000 savings in one month. As this chief engineer shared his experience with other engineer staff, more have followed suit with his approach.

Sources for Financial Incentives:

New York State Energy Research and Development Authority (NYSERDA)

NYSERDA administers a variety of programs targeting a wide range of building sectors and stakeholders, such as building owners, tenants, and consultants.

For more information, visit NYSERDA's ["Find a Program"](#) website.

NYC Mayor's Office of Climate and Environmental Justice (MOCEJ)

Through the NYC Accelerator, MOCEJ offers resources, training, and one-on-one expert guidance to help building owners and industry professionals improve energy efficiency and reduce carbon emissions from buildings in NYC.

For more information, visit the [NYC Accelerator](#) website.

Con Edison (ConEd)

Con Edison's programs are offered to building owners and tenants that purchase electricity and natural gas from the utility to support energy efficiency upgrades.

For more information, visit Con Edison's ["Save with Rebates and Energy Saving Incentives"](#) website.

National Grid

National Grid offers their business customers energy saving programs to reduce operating expenses, decrease facility maintenance, and increase employee productivity. Incentives are only available for natural gas and steam upgrades in New York City but are available for all fuel types across New York State.

For more information, visit National Grid's ["Energy Saving Programs"](#) website.

New York City Energy Efficiency Corporation (NYCEEC)

NYCEEC offers direct loans to contractors, project developers, and building owners for both construction and permanent financing of energy efficiency and clean energy projects. Financing covers a wide range of cutting-edge technology.

For more information, visit the [NYCEEC](#) website.

NY Green Bank

NY Green Bank's market-focused approach to structuring investments helps address market gaps and barriers, and allows the organization to remain flexible in designing and offering products to effectively finance the deployment of sustainable infrastructure.

For more information, visit the [NY Green Bank](#) website.

Federal Programs, such as the Inflation Reduction Act (IRA)

The IRA, signed into law by President Biden in 2022, is the largest climate investment in history. The IRA contains many incentives for buildings to reduce their carbon emissions, including tax incentives and rebates, grants for efficiency upgrades, and more.

For more information, visit the [Inflation Reduction Act Guidebook](#).

Company Profiles:

Brookfield Properties

Brookfield Properties

Brookfield Properties develops and operates real estate investments on behalf of Brookfield Asset Management—one of the largest alternative asset managers in the world. We're reimagining real estate through sustainable solutions. Our developments and properties are efficient, resilient and future-fit, supporting the needs of our tenants and communities—today and tomorrow.

www.brookfieldproperties.com

EMPIRE STATE REALTY TRUST

Empire State Realty Trust

Empire State Realty Trust (ESRT) advances environmental, social, and governance (Sustainability) principles as we lead the industry with our expertise and consistently show our commitment to our employees, tenants, and the communities where we operate. We establish and execute our sustainability program to reduce our buildings' environmental impact and foster health and resiliency for our tenants. We do this with a focus on accountability with global frameworks, financial performance, and care for the well-being of ESRT's people.

www.esrtreit.com

VORNADO REALTY TRUST

Vornado Realty Trust

At Vornado, we believe that a building's sustainability is grounded in meaningful stakeholder collaboration with our tenants, employees, and communities. Our policies and elite standards—from energy efficiency to green cleaning—are implemented across our entire portfolio. Our approach with our tenants involves forging relationships and partnerships that lead to transformative projects, improving the health and wellness of our community.

www.vno.com

The Building Energy Exchange is a center of excellence dedicated to reducing the effects of climate change by improving the built environment. BE-Ex accelerates the transition to healthy, comfortable, and energy efficient buildings by serving as a resources and trusted expert to the building industry.