

New Leasing Languages - How Green Leasing Programs Can Help Overcome the Split Incentive

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ABSTRACT

Approximately 52% of commercial building space in the U.S. is leased, representing nearly 35 billion square feet (EIA 2016). Unfortunately, typical leases often create a split incentive between building owners and tenants where the cost of investing in energy and water efficiency improvements is borne by one party while the other experiences the benefit of reduced utility costs resulting from those improvements. Overcoming this split incentive presents a significant hurdle for improving energy efficiency in leased space, but also a tremendous opportunity. Estimates of utility cost savings from green leasing range from \$0.26–\$0.51 per square foot in office space (Feierman 2015). With these savings figures applied to all leased space, up to \$17.85 billion in potential energy cost savings may be available. We need to dramatically transform the way leases are structured, particularly in the pandemic recovery period when cost-sensitive tenants drive negotiations and cities unveil increasingly stringent building codes and performance standards in pursuit of climate mitigation targets.

The Green Lease Leaders program promotes and incentivizes green leasing practices that equitably align the costs and benefits of utility efficiency investments for both parties. Since launching in 2014, it has recognized landlords, tenants, and their partners for industry-leading leasing efforts across nearly three billion square feet of building space. The 2020 Green Lease Leaders represent over one billion square feet and a diverse range of buildings from large and small commercial offices to industrial buildings to data centers, city government buildings, and coworking spaces. This paper will explore the impact of green leasing programs, tenant engagement, opportunities for expanding leasing programs to new space types, and potential solutions for improving the efficiency of leased space.

Introduction

The Leasing Challenge and Opportunity

The Electric Power Research Institute estimates that up to 16% of U.S. electricity consumption could be reduced over the next twenty years using currently available efficiency technologies (EPRI 2017). Further, there have been numerous academic and market studies in recent years showing a positive correlation between green building certifications and rents (Zhu et al., 2018). In spite of the substantial and demonstrable environmental and economic benefits of pursuing energy efficiency, investment is still hampered by other market factors. Chief among these is the split incentive between landlords and tenants where one party receives the utility bill benefits from an efficiency investment made by the other party, or situations where the payback period of a project is likely to exceed the property owner's holding period. This split incentive

represents a significant problem when it comes to energy efficiency and greenhouse gas reduction efforts, because approximately 52% of commercial building space in the U.S. is leased, representing roughly 35 billion square feet (EIA 2012).

Fortunately, a potential solution exists in the form of green leases. Green leases, also known as "high-performance", "energy-aligned", or "smart" leases, help to overcome the split incentive by creating win-win agreements for building owners and tenants that equitably align the costs and benefits of energy and water efficiency investments for both parties ([IMT](#), 2020). In 2014, the U.S. Department of Energy (DOE) and the Institute for Market Transformation (IMT) launched the Green Lease Leaders program. Green Lease Leaders is the premiere industry recognition program. It sets national standards for what constitutes a green lease and provides a platform for recognizing leaders in the field. Each year's class of Green Lease Leaders represent firms that effectively modernize their leases to spur collaborative action on energy efficiency and sustainability in buildings and actively use their leasing practices as a tool to drive greater investment in high-performance buildings and facilitate energy and resource savings.

The U.S Department of Energy's Better Buildings Initiative launched in 2011 with the goal of making buildings 20 percent more energy efficient over the next decade. Since the start of the program, more than 60 organizations have met one or more of their energy goals (DOE 2019b). However, to keep the possibility of limiting global warming to 1.5 degrees in sight, global greenhouse gas emissions need to drop by 55% by 2030 (IPCC 2018). Typical commercial lease cycles between 2020 to 2030 only allow for one or two opportunities to influence leasing transactions. Programs like Green Lease Leaders are essential for making progress toward these targets and promoting and assessing their adoption is a necessary step to ensuring that we are taking action toward a more energy efficient economy.

Best Practices in Green Leasing

Green leases offer a scalable solution to the split incentive problem because the process is generally comprised of a few key adjustments to leases despite the fact that leasing language can vary significantly between various landlords and tenants and the actual energy efficiency technologies that are implemented in individual buildings can be quite complex. Perhaps the most important concept is a cost recovery clause, which confronts the split incentive head on. Cost recovery clauses allow landlords to pursue capital projects that improve energy performance with the assurance that they can amortize and recoup capital costs from tenants. Eliminating this hurdle is a critical first step and sets up a framework in which both parties can reap the long-term savings and other benefits that efficiency provides.

Another important theme is transparency. This can be as simple as ensuring that landlords and tenants provide one another with a sustainability contact person at their respective organizations. Having a go-to resource when energy or sustainability questions arise is a critical first step in being able to communicate potential projects and operating parameters. Sharing utility data and building or space performance is another key element of transparency. For tenants, this means sharing utility consumption data for their space with landlords. This enables owners to assemble an accurate picture of whole-building utility performance, comply with local benchmarking and disclosure ordinances, identify potential areas requiring additional efficiency investment, and can also facilitate green building certification processes that allow owners to signal their sustainability efforts to the broader market. Landlords should be forthright with tenants as well, and sharing whole-building performance information is critical to establishing a

collaborative working relationship and providing context to tenants on how building performance may influence occupants and operating expenses.

Beyond lease clauses and transparency, there is also the actual technical issue of ensuring that a building’s equipment and systems are efficient. The Green Lease Leaders Reference Guides (IMT, 2018d & 2018e) identify technical best practices including: setting minimum efficiency standards for fit-out, requiring the purchase of on-site renewable energy if competitively priced, and submetering tenant spaces. Setting minimum efficiency standards provides the guidelines needed for the landlord and tenant to ensure that efficient equipment is installed. Requiring the purchase of competitively priced on-site renewable energy helps to mitigate the greenhouse gas emissions from using that equipment. Lastly, installing submeters in tenant spaces allows all parties to monitor their progress and ensure that the space is operating as planned. A full list of areas green leasing is known to address can be found in Table 1, below (IMT, 2020).

Table 1. Impact Areas of Green Lease Language

Energy	Water	Health and Wellness	Other
End use monitoring	End-use monitoring	Access to views	Carbon pricing
Energy consumption	ENERGY STAR integration	Air quality	Compliance with regulations
Energy management	Irrigation and landscaping	Cleaning materials	Data sharing
ENERGY STAR integration	Submetering	Lighting	Fit out requirements
Net-Zero			Pass-through clauses
Purchasing of on-site renewables	Water consumption	Outdoor premises	Recycling
Retrocommissioning	Water fixtures and plumbing	Pest management	Sustainable practices
RTU installation, maintenance and operation	Water management	Waste management	Transportation
Submetering			
Temperature setting			

A more conceptual best practice in green leasing is to recognize that leasing is a process and a relationship, and not just a document that is signed once and filed away. Taking on this

perspective requires deeper engagement with stakeholders on the periphery of the tenant-landlord relationship. Addressing energy- and lease-related challenges from site selection through lease negotiation and build-out to occupancy and operations provides a holistic and collaborative approach that provides value not just to tenants and landlords, but also to brokers, attorneys, architects, designers, and property managers. Proper training and education regarding green leasing best practices and the underlying objectives of the process can allow these service providers to win additional work. As demand grows for healthy, high-performing buildings, the individuals that can effectively identify and articulate the benefits of designing, leasing, and managing efficient spaces will have an advantage over those who cannot.

Other Industry Efforts

Fortunately, the challenge of the split incentive and the processes for working through that challenge are not just recognized and promoted by the Green Lease Leaders program. The scale of this challenge has led to several other initiatives and programs, including:

- The Landlord-Tenant Energy Partnership (LTEP), a similar program that provides participants with a foundation for pursuing energy efficiency across various commercial spaces.
- The Urban Land Institute's Tenant Energy Optimization Program (TEOP) and its 10-step process for executing sustainable spaces.
- ENERGY STAR for Tenant Spaces, a program that is still being finalized by the U.S. Environmental Protection Agency (EPA), and is scheduled to provide build-out standards and recognition opportunities for efficient spaces later in 2020.
- The National Apartment Association's (NAA) green lease addendum that provides key green lease clauses to be integrated into the typical Blue Moon Lease for multifamily housing.

Additional traction has also been made on a local level. The City and County of Denver launched a Smart Leasing program in 2019 and other jurisdictions such as Los Angeles, Tampa, and the State of Pennsylvania are currently considering similar programs.

Potential Impact of Green Leasing

The lease establishes the foundation of the landlord-tenant relationship and expanding the scope of the lease to address sustainability issues has the potential to add value, increase engagement, and contribute to broader sustainability efforts. Developing tools to overcome the split incentive is of increasing importance as cities, states, and the federal government increasingly look to the building sector to drive carbon reductions. For example, building performance standards, mandatory policies that drive increasing improvements to a city's building stock, are already catalyzing deep changes in the commercial real estate sectors of New York City and Washington, D.C (IMT 2020a). Due to the lease's role of establishing the foundation of the landlord-tenant relationship, expanding the scope of the lease can address a number of sustainability and landlord-tenant relationship issues, including energy and water use, information sharing, occupant health and wellness, and tenant retention.

Quantifying Lease-Related Energy Savings

As the original driver of green leasing, the energy savings made possible by green leasing have been studied the most. Quantification of the impact of green leasing is difficult, as the lease

itself does not result in direct energy savings but enables and facilitates action. A 2015 report by the Institute for Market Transformation has made the clearest attempt to quantify the potential energy savings of widespread green leasing in commercial office space (Feierman 2015). The analysis examined the potential energy savings from efficiency measures facilitated by specific green lease clauses within leased office space. The author found an energy savings potential of 11-22% in leased commercial office space can be facilitated through green leasing, which translates to \$0.26 to \$0.51 in savings per square foot. If extended to all commercial leased space, this could yield \$17.85 billion in annual energy savings across the U.S. This is particularly valuable in the pandemic recovery period when tenants and landlords must look to recoup lost revenues and control costs.

Table 2: Potential Savings Catalyzed by Implementing Energy-Aligned Leases

Green Lease Savings	Low Savings Case	High Savings Case
Tenant Space Energy Savings	6.9%	12.5%
Common Area Energy Savings	1.5%	4.0%
Core Building System Energy Savings	3.1%	5.8%
Potential Energy Savings (Average, per building, across entire market)	11.4%	22.3%

Table 3: Annual Energy Savings Potential in US Leased Space Catalyzed by Energy-Aligned Leases

Measure	Low Savings Potential: U.S. Leased Space	High Savings Potential: U.S. Leased Space
Total US Leased Space (billion square feet)	35	35
Savings (\$/ft ²)	\$0.26	\$0.51
Savings (\$) (USD, Nominal)	\$9,100,000,000	\$17,849,000,000
Savings (MMBTU/ft ²)	0.012	0.024
Energy (MMBTU)	420,000,000	840,000,000

Anecdotal evidence gathered through the Green Lease Leaders program adds color to the clarifying picture of the value of green leasing. The Green Lease Leaders website catalogs a number of case studies, created in partnership with awardees, that details how green leasing can benefit landlords and tenants. The following section features a few key examples.

Kilroy Realty Corporation, a publicly traded real estate investment trust (REIT) and a green lease pioneer, estimates that green leasing requirements save their tenants \$4,150,000 annually through energy and water efficiency (Banny 2019). Kimco attributes its green leasing practices to enabling it to take larger scale sustainability improvements in its shopping centers. Their Illumi-Nation LED retrofit program has led to a 30-40% reduction in same-site energy consumption, as well as better lighting quality, improved curb appeal, and enhanced safety and security (IMT 2018b).

Boulder Commons, the largest multi-tenant net-zero energy building in Boulder, Colorado utilizes green leases as a result of an innovative collaboration between Morgan Creek Ventures – the developer and landlord, the Rocky Mountain Institute – the anchor tenant, an architecture firm, and their legal teams. Through green leasing language and plug-load submetering, tenants track their monthly consumption to stay within an annual plug load budget. With this information, Boulder Commons aims to keep projected annual energy use intensity to 26 kBtu/sf, which is substantially lower than the average energy use in Boulder of 78 kBtu/sf (City of Boulder 2018). In addition to plug load budgets, a fixed energy charge on tenants' base rents enabled Morgan Creek Ventures' to invest in a solar PV project. Through these measures, green leasing ultimately enables Boulder Commons to make cost-effective energy decisions (IMT 2018a).

Beyond Energy Savings: Impact on Tenant Retention and Worker Productivity

Green leasing provides value beyond energy savings to both landlords and tenants. Many Green Lease Leaders cite their leases as key avenues to engage their tenants, improve tenant satisfaction and retention, and promote sustainability initiatives. For example, Federal Realty uses a welcome book to communicate the value of a green lease while building deeper relationships with tenants. Federal Realty's green lease includes preventative maintenance with a focus on health and wellness – including quarterly HVAC maintenance, integrated pest management and green cleaning programs (IMT 2018c). Forest City Realty Trust (now part of Brookfield Properties) provides training to their multifamily leasing agents to talk about the building sustainability features and claims that their sustainability initiatives, and ability to communicate them, are a key aspect contributing to their extremely high resident retention rate, which hovers around 100% (IMT 2018b).

Ultimately, green leasing aligns the incentives of the landlords and tenants, enabling building owners and managers to invest in both the human and built environment aspects of the building. Each occupant in a high-performance building benefits from building improvements that increase productivity, tenant satisfaction, and tenant retention. In a study by stok, LLC, a sustainable real estate services company, the quantified value added of high-performance buildings for increasing employee productivity, retention, and wellness surpasses the cost savings from energy improvements. Of the total value added of high-performance buildings, an estimated 43% comes from enhanced employee productivity, 41% from increased employee retention, 7% from improved employee wellness, 7% from utility savings, and 2% from maintenance savings (Attema 2018). Building improvements facilitated by a green lease grow thermal comfort, ventilation, air quality, and movement. According to the report from stok, LLC, these factors each increase occupant productivity by 8%-10% (Attema 2018).

The ability to design green leases can also serve as a differentiator for leasing attorneys, as buildings owners and tenants seek to structure lease language in ways that enable them to achieve their energy and carbon goals—whether imposed through a policy or set voluntarily through corporate sustainability initiatives. Already, the passage of building performance standards in several major cities is sparking conversations among landlords, tenants, attorneys, architects, and service providers anticipating the need to re-envision the lease as a vehicle that accommodates sharing of the costs and benefits of deep energy retrofits that will be performed on a scale and at a depth never before pursued. Building owners and tenants are looking to expert leasing attorneys and knowledgeable brokers for solutions. For example, The New York Climate Action Alliance is one such organization of legal experts that self-organized after the passage of

Local Law 97 in New York City (NYC Climate Action Alliance 2020). As more cities pass building performance standards of their own, they portend increased demand for green leases that will help owners make necessary improvements to their buildings.

The Impact of Tenant Engagement on Energy Efficiency

Beyond the legal elements of a lease, tenant engagement and transparent communications between tenants and landlords are critical foundational elements of any successful green leasing effort. In 2019 a research team from York University used longitudinal data from a large institutional real estate investor to estimate the impact that building interventions have on electricity consumption over time. The team analyzed specific energy efficiency interventions and found that tenant engagement programs resulted in a 12.5% reduction over 4 years (Clayton 2019). Further, combining tenant engagement efforts with building management system (BMS) software increased the total reduction in electricity consumption by another 20% over five years compared to buildings without any intervention. Tenant engagement efforts were critical for generating immediate efficiency improvements and showed increasing efficiency gains over time as engagement campaigns were repeated.

These results suggest that property owners and managers should implement holistic approaches to energy efficiency that combine “soft” interventions like tenant engagement with “hard” technical solutions like software and equipment upgrades to generate deeper, sustained electricity savings throughout the course of an asset’s hold period. This study sheds light on the collective impacts of design, operating efficiency, equipment maintenance, and tenant engagement – all components that can and should be addressed during lease-up and throughout the lease term – and how they interact to shape a buildings’ bottom line.

Setting Other Sustainability Goals

Green leasing can be a catalyst for reducing energy waste – a crucial first step toward optimizing building performance – and it can also open the door to additional opportunities for ambitious sustainability efforts. Despite the lack of federal policy on greenhouse gas reduction or climate-related goals, private companies, campuses, and other organizations are stepping up to the challenge and setting aggressive public sustainability goals. Many of these organizations are now looking beyond energy efficiency and catapulting into the next phase of sustainability activity – be that carbon reduction, renewables integration, or health and wellness.

Green leasing supports this next phase of sustainability activity as this modern lease structure addresses resilience to climate risks. Green lease provisions that enable renewable integration can lead to its financial viability. For instance, Brixmor Property Group set a goal to produce 15 megawatts of onsite renewable energy by 2022. With a portfolio of open-air shopping centers, Brixmor leveraged its green lease to create a pathway to solar developments and provide tenants an opportunity to achieve savings (IMT 2018a). As a landlord, lease clauses ensured Brixmor has the right to install renewable energy systems on the roof and at the property. As a tenant, provisions require the purchase of electricity from the landlord, or landlord designee, which provides an efficient and financially responsible manner to sell the power generated onsite. Together, the tenant and landlord both benefit from a reduced carbon footprint.

Impacts on ESG Reporting and Green Building Certifications

Green leasing can also have an impact on broader ESG reporting efforts, such as the Global Real Estate Sustainability Benchmark (GRESB). GRESB has evolved as the standard industry benchmark for investors seeking greater transparency on the ESG performance of their

real estate investments. Today, more than 100 investors, representing over \$22 trillion in assets under management, encourage their investment managers to report to GRESB, and the resulting Real Estate and Infrastructure Benchmarks cover more than \$4.5 trillion in real asset value (GRESB 2019). This reporting framework has unlocked a new view into key market trends that are driving the real estate market towards transparency and high-performing buildings such as the green lease. With increasing pressure to take action and improve GRESB scores from investors around the world, real estate firms reporting to GRESB are strongly incentivized to improve their operations and pursue opportunities to reduce their properties' impact on the environment. This market momentum was clearly reflected in GRESB's 10-year analysis, which unveiled a significant shift in practice towards green leasing. In 2012, 26% of participants had sustainability clauses in their lease contracts. In 2019, that number had increased to 86% (GRESB 2019).

Further, a green lease can facilitate obtaining green building certifications such as LEED, WELL (City and County of Denver 2019b), and ENERGY STAR. Green clauses share similar concepts with these popular green rating systems and can help expedite the process of obtaining the credits needed for these certifications. Ensuring that the negotiated lease includes clauses about sharing information throughout occupancy such as sustainability goals, building performance, and consumption between the landlord and tenant can lead to advanced monitoring, reduction strategies, and improved thermal comfort; all of which align with credits associated with LEED (USGBC 2016) and WELL (International WELL Building Institute 2019). Data sharing clauses that stipulate a request for tenant utility data facilitates access to whole building data that is required to be eligible for ENERGY STAR (EPA 2014) and LEED certification. Additionally, establishing building rules and regulations within the lease that incorporates energy, water, and waste management best practices guides landlords and tenants to conduct efficient and sustainable business operations that reduce consumption and cost and lead to high performing and healthy buildings eligible for certification.

Green Lease Leaders Program Footprint

Green Lease Leaders (GLL) sets national standards for what constitutes a green lease, while recognizing leaders in the field who are using the lease as a smart tool to drive greater investment in high-performance buildings. The program has averaged 494 million square feet represented by awardees per year. The 2020 class is the largest single year and represents 1.058 billion square feet alone. As of 2020, the Green Lease Leaders program has impacted an estimated nearly 3 billion square feet of building space: consisting of 294 million square feet in government buildings and 2.67 billion square feet of commercial space across multiple sectors, which equates to at 7.6% of total leased commercial space in the US.

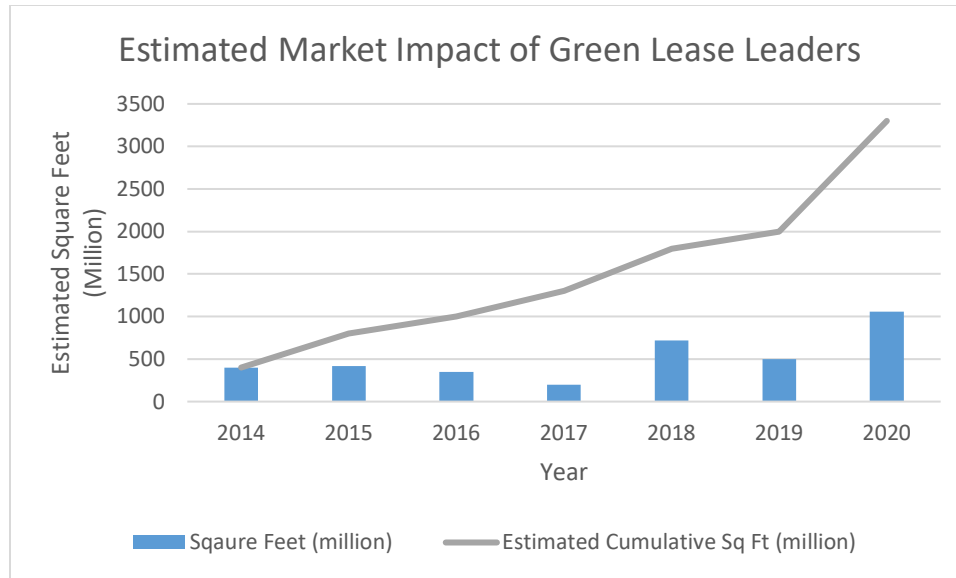


Figure 1: Estimated Market Impact of Green Lease Leaders

There have been 114 total awards given out to 87 unique recipients since the program’s inception in 2014 (IMT 2020c). Participation in the program has grown in recent years, with the number of awards given more than doubling in the 2019 and 2018 years when compared with the average of the first four years of the program (Table 3), and 2020 representing the largest cohort to date. Initially, the program had only one recognition award. In 2018, the program expanded to have gold and silver awards to address the variation in a growing market for green leases. The silver award acknowledges market actors who have crafted a template lease following GLL guidelines. The gold designation signifies an executed lease, signed by landlord and tenant following GLL guidelines. The split in designation is intended to provide a path forward for participants: first develop a green leasing strategy, and then implement it. In 2020 and 2019, the program awarded four gold awards to participants who received silver recognition in the prior year.

Table 4: Number of Awards Given by Green Lease Leaders per Year

Year	Number of Awards
2020	27
2019	20
2018	22
2017	8
2016	9
2015	13
2014	9

Throughout the program, the project team has made considerable effort to disseminate best practices and to grow awareness of green leasing. The project team has made presentations on green leasing to a number of key stakeholder groups, including to members of the Building Owners and Managers Association (BOMA), ULI, and the International Facility Managers Association (IFMA), at DOE's Better Buildings, Better Plants Summit, CoreNet, and Greenbuild, and to individual business and government entities.

Opportunities to Expand Green Leasing

Green leasing's impact goes beyond typical commercial office buildings, and there is incredible opportunity to continue to expand impact through local and regional programs, the inclusion of new building sectors, and research in impact and the relationship to larger corporate or municipal sustainability goals. The Green Lease Leaders program is poised to support a wave of new green leasing practices in diverse sectors by taking advantage of existing trends, pursuing big players in strategic sectors, and expanding the breadth and depth of the program through new resources. The need to equitably align the costs and benefits of utility efficiency investments for landlords and tenants is universal beyond commercial real estate properties, and growing in prevalence through city and local initiatives as well as in new sectors including data centers, multifamily, warehouses, and government.

Local and Regional Green Leasing

New York City Mayor Michael Bloomberg announced a "pioneering green lease agreement" in 2011 between the law firm, WilmerHale, and Silverstein Properties at 7 World Trade (Sobelsohn 2017). This ushered in a new era for green leasing with a strong role for local mayors and city programs. Programs such as Architecture 2030, the Mayors Challenge, and We Are Still In highlight the leadership of local officials and programs in pursuing sustainability and energy goals. State and local governments are choosing to "lead by example" on climate action, and some are beginning to investigate the role of green leasing in achieving their climate goals. Green lease researcher and professor John Sobelsohn suggests that the continued trend to embrace more green lease provisions is directly tied to more municipalities requiring some sort of sustainable construction compliance (Sobelsohn 2017). Green Lease Leaders has supported this trend in cities like Cleveland and Denver and will continue to expand in the state and local level.

In 2019, the City of Cleveland was the first city government to be recognized as a Green Lease Leader, both on the municipal level and through strong partnerships with local chambers of commerce and businesses. Cleveland incorporated green leasing into its Sustainable Municipal Building Policy, injected green leasing clauses during a major building retrofit, now requires their landlords to be a part of Cleveland's 2030 District, and forged many partnerships for stakeholder engagement (IMT 2019a). Cleveland instituted green leasing both in their municipal properties and through creating strong partnerships to meet small and medium businesses. Further, a state general services administration has applied for the 2020 year, representing the first organization at that level to make a commitment to green leasing. Cleveland began working with DOE and IMT through the Green Lease Leaders program in

2014, and it is now standard practice to introduce green leasing during the creation of an energy roadmap to identify ways to incorporate needed building improvements (IMT 2019a).

Denver is amongst a cohort of municipalities that have set bold climate goals to reduce greenhouse gas emissions by 80% by 2050. Leased commercial space in Denver is about 23% of the entire building stock, equating to about 9% of all of Denver's GHG emissions (City and County of Denver 2019a). In an effort to help meet these climate goals, Denver launched its Smart Leasing Program in June 2019. The program provides all stakeholders in the leasing process, including property managers, brokers, space planners, and attorneys with tools, resources, and training to better align the interests of tenants and landlords to achieve high performance, healthy, and energy-efficient buildings, and encourages them to take a Smart Leasing Pledge. Smart leasing seeks to capitalize on this opportunity for collaboration by urging real estate professionals involved in the search for, leasing, build out, and operation of commercial space to have conversations about energy efficiency and sustainability from the very beginning to set a strong foundation for the tenant-landlord relationship throughout occupancy.

Sector Expansion

Green Lease Leaders has taken significant strides to expand its reach into other sectors. Historically, most of the two billion square feet of space recognized by Green Lease Leaders are in commercial office buildings, but the 2019 Green Lease Leaders represent a more diverse range of buildings, including industrial buildings, data centers, city government buildings, and coworking spaces. In 2020, the program hopes to recognize its first multifamily Green Lease Leader. There are major opportunities to delve further into new space types such as industrial, multifamily, and data centers and expand the depth and breadth of support for leases in those spaces. As buildings age they have more potential for efficiency improvements, and therefore an increasing opportunity for the benefits of green leasing across sectors (GBA 2016).

Data centers consume ten to fifty times the energy per floor space of a typical commercial office building (DOE 2020). Already one of the most energy-intensive building types, data centers account for 2% of the total U.S. electricity use, and that percentage is projected to increase (DOE 2020). The energy intensity of data centers could equate to significant energy savings if green leases are utilized throughout the sector, making it a prime target for expansion. In the last two years, several data center and warehouse/industrial property owners and investors became Green Lease Leaders: Sabey Data Centers, Digital Realty, STAG Industrial, and Rexford Industrial. Sabey Data Centers decided to participate in the Green Lease Leaders program because of the opportunity to align the incentives and costs of energy efficiency projects and renewable energy according to John Sasser, the firm's Sr. Vice President Data Center Operations for Sabey Data Center. Sasser also noted that many of the green lease practices were already something Sabey was doing or could do, "with a little bit of effort" (Banny et al. 2019). Many of the current Green Lease Leader credits are applicable to data centers. However, an additional addendum on how existing credits can apply to data centers with clear guidance and resources would create a greater depth of engagement with the building sector and support increased participation. Providing stakeholders with quantified financial and energy benefits specific to the unique needs of the sector could also help to widen the breadth of applicable green lease guidance.

In 2020, Green Lease Leaders aspires to bring in its first application from the multifamily sector. Multifamily buildings can be challenging as multi-tenant buildings require more negotiations in lease arrangements, and lease requirements vary legally between states and

municipalities (GBA 2016). However, the creation of a standard lease addendum available to multifamily properties in a network could overcome this barrier, and green leasing material specific to multifamily housing is another potential area for program expansion. The National Apartment Association (NAA) is working with IMT and ULI to develop a Green Lease Addendum to its template Blue Moon Lease. Increasingly, multifamily owners and developers seek resources to gain Green Lease Leader status. With more than 82,000 members and 10 million rental housing units, NAA has the opportunity to not only enact an incredible number of green leases, but move the needle on consumer awareness for green leases and sustainability (NAA 2020). Additionally, Tower Companies, a Green Lease Leader, encourages options for increased access to daylight and quality views through their leases, which led them to get the first FitWel certification for a multifamily building in 2018 (IMT 2018c). This work is paving the way for future leasing work in the multifamily sector.

Warehouse and industrial spaces are becoming more prevalent and energy intensive as processes become automated. There is also an increased investment from the retail sector to build more distribution centers to meet online demand (Kirk 2018). 2017 Green Lease Leader Prologis is a pioneer in the industrial sector implementing its Clear Lease that focuses on sharing utility information and passing through costs at a fixed charge (Prologis 2018). Two real estate investment trusts in the industrial sector were recognized as a Green Lease Leader in 2019, Rexford Industrial and STAG Industrial. Both companies faced challenges in accessing energy data but ultimately found that green leasing not only helped fulfill company sustainability goals but increased occupant and tenant engagement in those goals. Together, these companies have over 100 million square feet of warehouse space and are early adopters of scalable green leasing practices (IMT 2019b). Developing green leasing in the warehouse and industrial sector will open the door for aligned sustainability initiatives across wider swaths of companies' supply chains.

Further Research

Deeper research, postmortem analysis with Green Lease Leaders, and case studies are needed to continue evaluating and quantifying the impact of green leases, especially in sectors outside of large commercial offices. One area of research could explore green lease impacts on corporate sustainability. Green building and leasing benefits include higher productivity, better occupant health, and the promotion of a culture of sustainability (GBA 2016) and can have significant financial impacts (Attema 2018). Corporate sustainability leaders point to those occupant-centric benefits as well as decarbonization and energy reduction goals in corporate sustainability.

A growing number of companies and organizations not only plan real estate decisions for the present, but also prepare for future advancements in smart building integration technology, resiliency, and occupant market trends by way of the lease language. Where cities are passing policies that require renewable energy, the lease allows owners to plan for future installations to meet the local mandates by outlining regulatory requirements in the lease. An emerging decarbonization strategy is the ability to dynamically shift the energy consumption of a building to times when renewable energy is plentiful or away from times of high energy costs. Coined, "grid-interactive, efficient buildings" (GEBs), these buildings use smart technology and storage to shift building energy consumption patterns to yield deeper carbon and dollar savings without impacting occupant welfare (DOE 2019a). While widespread GEBs are likely years away, green

leases constitute a substantial opportunity to enable and facilitate this next generation of smart buildings and the associated landlord and tenant relationship.

Continued and increased exploration of the financial and economic benefits of green leases could quantify impact and guide future tenants and owners. With the growing amount of space earning a green building certification, there is an opportunity to quantify the financial benefit of certifications, especially outside of commercial office space. Further research could quantify savings through reduced energy costs, higher future rent and building occupancy rates, and improved public image and marketing tools (GBA 2016). A 2019 US Department of Energy (DOE) study found that 27 out of 39 peer-reviewed and published academic papers pertaining to green or energy-related building attributes and financial performance identified a positive correlation between green building certifications and rents (Zhu et al. 2018). When combined with energy savings, marketing benefits, and higher occupancy rates, there could be significant financial incentive helping to drive increased adoption of green leases (Attema 2018). In a study of leases filed by public companies reporting to the U.S. Securities and Exchange Commission, there is an increase in green leases directly addressing green building measures through the last decade. In fact, 27% of the leases executed between 2011 and 2012 had operating expense provisions containing sustainability costs, but by 2015, 88% of them included all expenses relating to green building measures and certification (Sobelsohn 2017). With this increase in the number of green leases, there is more data and information, particularly beyond large commercial real estate spaces than ever before that could contribute to the body of knowledge on the impacts of green leases.

Conclusion

The expansion of green leasing into new sectors and additional research on the quantifiable benefits across building types is both a continuation of the work of the Green Lease Leaders program and in alignment with industry trends as green leases become standard leasing practice. Green lease researcher and professor Richard Sobelsohn predicted that “within the next five to seven years, we will no longer use the term ‘green lease’ because every lease will be green,” (Sobelsohn 2017), which is a sentiment echoed by Green Lease Leaders. John Sasser of Sabey Data Centers remarked on his participation as a Green Lease Leader that “this is not our Green Lease option. This is our regular lease that has these Green Lease components” (Banny et al. 2019). Nicole Strika of the Greater Cleveland Partnership agreed that “at the end of the day this is really just a lease. There's no need to just call it a Green Lease. You can hand it over and just say, "Here is your lease" (Banny et al. 2019).

The 2019 Green Lease Leaders represented portfolios totaling 501 million square feet, bringing the program’s cumulative impact to over 2 billion square feet of building space (IMT 2019c). The 2019 class also represented a uniquely diverse range of buildings, from large and small commercial offices to industrial buildings and data centers. For the first time, a city (Cleveland) and a shared workspace company (WeWork) received the recognition. Green leasing and tenant engagement efforts have the potential to significantly alter the landscape of energy efficiency investment and energy use patterns in commercial real estate. These practices can also lead to major improvements in occupant comfort and health, and lead to economic benefits for stakeholders throughout the leasing supply chain. The sizable footprint of the Green Lease Leaders program, its expansion beyond commercial office space into other sectors, and parallel industry efforts in local government and other industry organizations are all clear indicators that green leasing is continuing to grow as a best practice across markets and building types.

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