

IMPACT OF ENVIRONMENTAL MANDATES ON COMMERCIAL REAL ESTATE

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Humankind’s Stewardship of the Earth

Humankind’s poor stewardship of the environment resulted in the Dust Bowl of 1930-1936. Reductions in soil conservation measures and encroachment onto inferior lands made the farming community more vulnerable to wind erosion, soil moisture depletion, exhausted soil nutrients, and drought¹. The displacement of native deep-rooted grasses that trapped soil and moisture during drought periods resulted in the erosion of topsoil and also led to massive dust storms². Many crops were damaged by deficient rainfall, high temperatures, and high winds, as well as insect infestations and dust storms that accompanied these conditions³. The economic devastation that followed resulted in the destruction of 35 million acres of farmland⁴ and the emigration of 2.5 million people from Oklahoma, Nebraska, Texas, Kansas, New Mexico, and Colorado⁵ mostly in a westward direction in a quest for work.



Source: National Oceanic and Atmospheric Administration (NOAA), George E. Marsh, Stratford, Texas, April 18, 1935.

¹ <https://drought.unl.edu/dustbowl/> National Drought Mitigation Center at the University of Nebraska
² Dust Bowl, History.com Editors, HISTORY, <https://www.history.com/topics/great-depression/dust-bowl>, March 14, 2022, A&E Television Networks, Last Updated August 5, 2020, Original Published Date October 27, 2009
³ Warrick, RA (1980) Drought in the Great Plains: A case study of research on climate and society in the USA. quoted in <https://drought.unl.edu/dustbowl/> National Drought Mitigation Center at the University of Nebraska
⁴ An additional 125 million acres were threatened with erosion
⁵ Dust Bowl, History.com Editors, HISTORY, <https://www.history.com/topics/great-depression/dust-bowl>, March 14, 2022, A&E Television Networks, Last Updated August 5, 2020, Original Published Date October 27, 2009

Responsible guardianship of the environment is important for the future of the planet and for human flourishing. Current environmental⁶ challenges include limiting greenhouse gas emissions that cause climate change, which damages the environment and spawns rising sea levels.

Climate risk also includes heat stress, water stress, extreme rainfall and flooding. In addition to harming actual commercial real estate (CRE), vital infrastructure can be severely damaged or destroyed. If this type of damage is recurring it may call into question the long-term viability of an asset or an area. This may challenge CRE values in certain U.S. markets.⁷ At a minimum, climate change induced property damage losses cause insurance premiums to increase.⁸

Since the operation and construction of buildings account for an estimated 40% of global greenhouse gas (GHG) emissions⁹, government regulatory focus on emissions reduction centers on commercial real estate; in New York City, commercial real estate is 67% of city-wide GHG emissions, while in Washington, DC it is 75%. The office sector represents approximately 30% of total emissions in NYC.¹⁰

Environmental considerations and reporting are becoming an even greater part of the commercial property loan underwriting process¹¹ for rating agencies and commercial lenders.

Categories of Emissions – Scopes 1,2, and 3

There are three categories of greenhouse gas emissions:¹²

- **Scope 1:** Generated at the property
- **Scope 2:** Generate elsewhere but consumed at the property and paid by the landlord
- **Scope 3:** Consumed and paid directly by tenants; all forms of property capital expenditures (CapEx)

Scope 1 includes direct greenhouse gas emissions that occur from sources at the property. Examples include the actual facility itself and company vehicles. Scope 2 includes indirect emissions associated with the purchase of utilities that are generated elsewhere but consumed at the property and paid for by the landlord. They include electricity, steam, heating, and/or cooling production. Scope 3 includes indirect emissions resulting from activities from assets not owned or controlled by the reporting organization. Scope 3 is further divided into upstream and downstream activities. Upstream activities are Scope 3 emissions generated upstream from the business's activities and include the purchase of goods and services, capital goods, fuel and energy related activities, transportation and distribution, waste generated in operations, business travel, employee commuting, and leased assets. Downstream activities are Scope 3 emissions generated downstream from the business's activities and include transportation and distribution, processing of solid products, use of sold products, end-of-life treatment of sold products, leased assets, and franchises. The following chart¹³ details the emission intensity and scope concentration of each property type.

⁶ Environmental concerns are a major component of ESG which stands for Environmental, Societal, and Governance issues which have become increasingly important to nations, states, municipalities, corporations, and individuals. This report will focus on the environmental component which is particularly germane to CRE.

⁷ See Stewart Rubin and Dakota Firenze, "Rather Than The Flood - A Comprehensive Look at Climate-Induced Water Disasters And Their Potential Impact on CRE in the US," AFIRE's Summit Magazine, Q1 2021

⁸ Randy Drummer, "Property Owners Face Rising Insurance Rates With Mounting Losses Linked to Climate Change - Environmental Issues Add to Factors Driving Double-Digit Increases in Premiums," CoStar News, April 21, 2022

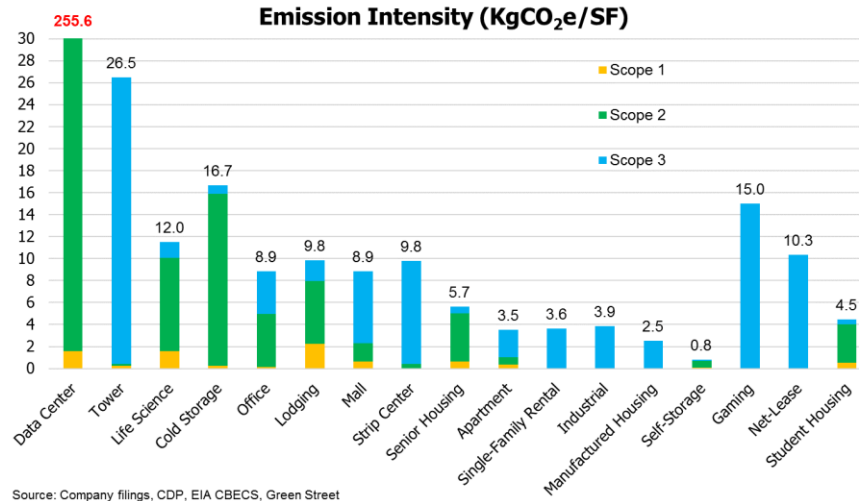
⁹ Dave Bragg, Mike Kirby, Peter Rothemund, Jared Giles, "Heard on the Beach - an Imperfect Storm," Green Street, September 13, 2021

¹⁰ Daniel Ismail, Dylan Burzinski, Michael Manos, "NYC Local Emissions Regulation Update," Green Street, November 24, 2021

¹¹ Mark Heschmeyer, "Environmental Disclosures Play Bigger Role in Commercial Property Loan Investing," CoStar News, April 21, 2022

¹² These definitions and descriptions are sourced from the U.S. Environmental Protection Agency

¹³ This chart was recreated and presented with permission by Green Street



The types of commercial real estate that are impacted most by environmental emission requirements and those expected to suffer the greatest negative value impact are data centers, lodging¹⁴, and cold storage. Medium level impact will be felt by office, retail, and industrial facilities, while low impact will likely be experienced by self-storage and manufactured home communities. Facilities that serve a “public good” such as hospitals or affordable housing may receive gentler treatment from regulators¹⁵.

Government Regulations

There are no federal regulations on greenhouse gas emissions in the U.S., and a national carbon tax is unlikely in the foreseeable future. Nevertheless, the emissions level of a property will impact leasing, lending, and valuation, as many investors, lenders, insurers, and tenants prioritize greener buildings. In fact, many tenants will not consider a building without high energy efficiency and low emissions.

Overall, a growing focus on emissions is likely in the U.S. This trend started at the local level in urban, coastal markets and has since gained traction in many other locations. Environmental building regulations range from the less stringent, which include emissions reporting requirements, to the more rigorous, which include emissions caps with associated fines for exceeding limits. Many of these state and local laws are set to phase in over the next 10 years, with the largest penalties commencing closer to 2030.

At least 16 states and Puerto Rico have enacted legislation establishing GHG emissions reduction requirements, with more requiring state agencies to report or inventory GHG emissions. Other states, such as New Mexico, North Carolina and Pennsylvania, have recently committed to statewide GHG reduction goals through executive action, but do not currently have binding statutory targets.¹⁶ Accordingly, large cities in these states are more likely to legislate such laws in the coming decade or two. In fact, climate action plans are in place in 25 of the 50 largest cities in the U.S.¹⁷ Seven cities, including New York, have passed laws mandating performance standards of existing buildings with a penalty structure imposed if buildings don’t meet energy/carbon standards¹⁸.

¹⁴ This area in particular is a priority for sustainability issues and includes three scopes, see Sean McCracken, “Hoteliers Say Sustainability Efforts Must Ramp Up Immediately, Industry Impacts Include Financing, Operations,” CoStar, March 17, 2022

¹⁵ Dave Bragg, Mike Kirby, Peter Rothemund, Jared Giles, “Heard on the Beach – an Imperfect Storm” Green Street, September 13, 2021

¹⁶ National Conference of State Legislatures, <https://www.ncsl.org/research/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies.aspx>

¹⁷ E-mail correspondence with George Miroshnikov of the Syska Hennessy Group on December 2, 2021

¹⁸ IBID

New York City's climate laws are the most comprehensive and consequential that have been enacted in the U.S.¹⁹ New York City legislators enacted five environmental laws in 2019 including:

- 1) LL92/94: requiring Green Roofs and Solar PV²⁰ on new construction and major roof renovation projects,
- 2) LL33/95: requiring Building Energy Letter Grades²¹,
- 3) LL96: NYC-funded PACE financing tools,
- 4) LL97: annual building GHG emission limits + fines, and
- 5) LL98: establishes requirements for large wind turbines.

New York City's Local Law 97 (LL97) is by far the most significant and set ambitious targets to reduce greenhouse gas emissions from real estate over the next several decades. In addition to its robust requirements, the law may also serve as a framework for other U.S. cities to follow. LL97 is one of the first environmental laws passed in the U.S. that has actual consequences. LL97 penalties include an annual carbon fine of \$268 per metric ton of carbon dioxide equivalent (mtCO₂e) over the limit. Failure to submit a report results in a \$0.50 per square foot per month fine. The ceilings for carbon emissions and accompanying fines will become effective in 2024. In 2030, lower emission regulations will go into effect causing more buildings (without remediation) to become non-compliant. Owners may face paying substantial sums for remediation during a time of structural decline in office demand (particularly for older buildings) caused by the popularity and proliferation of remote work. The Urban Green Council, a building sustainability nonprofit that advocated for New York LL97, estimates the "retrofit economy" that will emerge from the law will be worth \$20 billion over the next decade²². Massachusetts Institute of Technology urban studies professor David Hsu estimates that the law will create 141,000 new jobs by 2030²³.

The LL33/95 law requiring letter grades for energy usage went into effect in 2020. The NYC Department of Buildings reported that 48% of buildings in the city received a grade of D or F²⁴. Although there are no government-imposed fines associated with receiving a poor grade, it does reflect a building characteristic that may lower the market rent, value²⁵, and the ability of the owner to refinance²⁶. Low grades could also be used in lease negotiation. Corporate green building mandates and the letter grading system will likely direct firms seeking rental space toward better scoring buildings.

Southern California's South Coast Air Quality Management District (SCAQMD) passed the Warehouse Indirect Source Rule (ISR) in May 2021. The law mandates payments for truck visits to industrial buildings and functions as a tax on Scope 3 activities. This law may possibly be copied in other jurisdictions in the U.S.

Washington, DC as well as Montgomery County, MD, passed laws mandating minimum energy performance and fines for non-compliance that went into effect in 2021 for DC and will go into effect for

¹⁹ NYC 1.5°C Climate Action Plan and commitment is correlated to the target set in the Paris Agreement. The Paris Climate Agreement set a goal for limiting warming this century to less than 2 degrees Celsius, with a more optimistic goalpost of staying below 1.5°C. The U.S. left the Paris accords in 2017 and rejoined in 2022.

²⁰ Solar PV (Solar Photovoltaics) is the generation of electricity using energy from the sun.

²¹ LL33/95 establishes a building energy grade rating scale based on property ENERGY STAR scores and mandates all buildings ≥ 25,000 GSF post their letter grade signage at all public entrances (to be updated annually per LL84 submission).

²² <https://www.urbangreencouncil.org/content/news/20b-building-energy-retrofit-market>

²³ <https://www.bisnow.com/national/news/top-talent/city-emissions-laws-creating-ecosystem-of-firms-for-sustainable-shift-112069>

²⁴ Samantha Maldonado, "Nearly Half of NYC Buildings Fail to Make the Green Grade," The City, December 2, 2021

²⁵ <https://www.globest.com/2022/03/10/obsolescence-could-trigger-a-massive-downward-repricing-in-office-space/>

²⁶ Loan covenants such as LTV, DSCR, and occupancy rates for existing loans can also be impacted.

Montgomery County in 2026.²⁷ Energy data verification rules will be effective in 2023.²⁸ Washington, DC's Building Energy Performance Standards seek to cut building emissions in half within a decade.²⁹ Boston's Building Energy Reporting and Disclosure Ordinance aims to halve emissions from mid-sized and large buildings by 2030 and eliminate them by 2050.³⁰ Boston instituted maximum carbon emissions levels that are subject to fines for non-compliance that go into effect in 2024. In February 2021, the Seattle City Council passed a measure to end most natural gas use for space heating in new commercial buildings and some apartments. The ordinance applies to replacement heating systems in older buildings as well as the use of natural gas to heat water in new hotels and large apartment buildings.³¹

Over the next few years, several new laws and mandates are set to go into effect. New York City Local Law 154 banning the use of natural gas will go into effect on new commercial buildings with seven stories or fewer in 2024 and, in 2027, for buildings that rise above seven stories³². In 2024, buildings in Washington, DC with 10,000 gross square feet or more will be required to benchmark their energy usage (currently only required for buildings >25,000 GSF). Effective 2025, California State - Executive Order B-18-22 will mandate that 50% of state-owned buildings shall retrofit to net-zero ready standards.³³

St. Louis's minimum energy performance became effective in 2021³⁴, while Colorado's minimum energy performance standards will become effective in 2025.³⁵ Washington State has implemented minimum energy performance standards and mandatory energy audits, effective 2026.³⁶ Bans on new natural gas were implemented in the California jurisdictions of Berkeley, San Jose, San Francisco, Los Altos, Oakland, East Palo Alto, and 50+ more.³⁷ They were also put into effect in Brookline, MA³⁸ and Westchester County, NY³⁹. Denver⁴⁰, New York State⁴¹, and Cambridge, MA and Newton, MA⁴², are considering a ban on new natural gas. There are efforts to mandate electrification of all new buildings in many municipalities, including New York City,⁴³ and San Jose, California.⁴⁴

In the United Kingdom, the new minimum energy efficiency standard legislation known as The UK Environment Act is now law. Under the new legislation, buildings will need to comply with escalating environmental standards starting in 2023 and escalating in 2027 and again in 2030. If buildings do not meet criteria, leasing will be precluded. According to Cushman and Wakefield only 4% of the affected properties are grade B⁴⁵ or higher and 25% are grade C or higher⁴⁶. Class B or higher becomes the threshold for

²⁷ <https://doee.dc.gov/publication/guide-2021-building-energy-performance-standards> and <https://www.montgomerycountymd.gov/green/Resources/Files/energy/building-energy-performance-standards.pdf>

²⁸ IBID

²⁹ <https://doee.dc.gov/service/building-energy-performance-standards-beps>

³⁰ <https://www.bostonglobe.com/2021/09/22/metro/city-council-approves-major-emissions-cuts-large-buildings/>

³¹ <https://www.seattletimes.com/seattle-news/seattle-city-council-passes-measure-to-end-most-natural-gas-use-in-commercial-buildings-and-some-apartments/>

³² https://www.urbangreencouncil.org/sites/default/files/gas_bill_summary_12.15.2021.pdf

³³ <https://www.green.ca.gov/buildings/resources/executiveorder/>

³⁴ <https://www.stlouis-mo.gov/government/departments/public-safety/building/building-energy-improvement-board/beps-targets.cfm>

³⁵ <https://energyoffice.colorado.gov/press-releases/colorado-adopts-nation-leading-policies-to-reduce-ghg-pollution-from-buildings>

³⁶ <https://www.commercialsearch.com/news/building-performance-standards-are-de-rigueur-for-the-future/>

³⁷ <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-ban-monitor-calif-count-reaches-50-as-west-coast-movement-grows-67732585>

³⁸ <https://www.wbur.org/news/2021/06/03/brookline-fossil-fuel-natural-gas-ordinance>

³⁹ <https://www.coned.com/en/our-energy-future/electric-heating-and-cooling-equipment/about-the-westchester-natural-gas-moratorium>

⁴⁰ <https://denverite.com/2021/01/26/denver-aims-to-ban-natural-gas-from-the-menu-of-energy-options-for-new-homes-and-buildings/>

⁴¹ <https://www.reuters.com/business/environment/new-york-set-ban-natural-gas-new-buildings-environmental-groups-2022-04-04/>

⁴² <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/mass-building-gas-ban-movement-expands-after-2020-setback-62026427>

⁴³ <https://www1.nyc.gov/office-of-the-mayor/news/852-21/mayor-de-blasio-signs-landmark-bill-ban-combustion-fossil-fuels-new-buildings>

⁴⁴ <https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/climate-smart-san-jos/existing-building-electrification>

⁴⁵ This is a U.K. Environment Act grading system

⁴⁶ Mike Philips, "'You Just Go, My God'. The Shocking Size of London's Green Office Overhaul," Bisnow, November 22, 2021 and Mike Philips, "The Facts Are In: Green Buildings Sell at Higher Values, While the Rest Decline," Bisnow, January 12, 2022

permissible leasing in 2030. The need for capital expenditures would soon impact values and increase obsolescence in certain older buildings.

Scope 1 and 2 GHG emissions are the focus of U.S. laws directed toward CRE. However, non-legal pressure may manifest itself in the form of limiting certain Scope 3 activities such as business travel. For a possible glimpse of the future – look to Europe – where cutting business travel is a priority and the concept of *Flygskam*⁴⁷ has currency.

On March 21, 2022, regulators proposed new rules that would require registrants to include climate-related disclosures in their statements and reports.⁴⁸ If enacted, it would be, by far, the most comprehensive and prescriptive legislation to date related to emissions disclosure. The additional disclosures would apply only to public companies but could become best practice in the industry and will likely have widespread impact if passed in its current form.

Environmental CapEx – The New CapEx

Bringing buildings into compliance with environmental mandates requires reducing greenhouse gas emissions, which often includes displacing carbon fuels, capturing leaking methane, and phasing out hydrofluorocarbons (HFCs)⁴⁹. Environmentally favorable and health-positive building characteristics include good air quality, upgraded ventilation, heating, lighting, and water systems, and outdoor space. Upgrading office space to improved levels requires substantial capital investment. The movement towards net zero emissions⁵⁰ should effectively increase obsolescence rates for certain older existing assets.

Capital expenditures (CapEx)⁵¹ as a share of Net Operating Income (NOI) has increased substantially and its impact is much more pronounced amongst older buildings. According to CoStar, all forms of CapEx constituted 24% of NOI for buildings less than 10 years old, 37% for buildings between 11 and 30 years of age, and 49% for buildings over 30 years of age. The new category of environmental-related CapEx, which include various remediation techniques, upgrades, and system replacements, will increase it more. Depending on the scope and magnitude of required environmental CapEx, some older office building may become obsolete. Newer properties will likely fair substantially better. CapEx in general is going up because of added leasing costs, repairs and maintenance needed to *amenitize* and generally *magnetize*

⁴⁷ Flight shame or *flygskam* is an anti-flying social movement, with the aim of reducing the environmental impact of aviation. It started in 2018 in Sweden and gained traction the following year throughout northern Europe. *Flygskam* is a Swedish word that literally means "flight shame". The movement discourages people from flying to lower carbon emissions to thwart climate change. Source: <https://www.independent.co.uk/travel/news-and-advice/flygskam-anti-flying-flight-shaming-sweden-greta-thornberg-environment-air-travel-train-brag-tagskryt-a8945196.html>

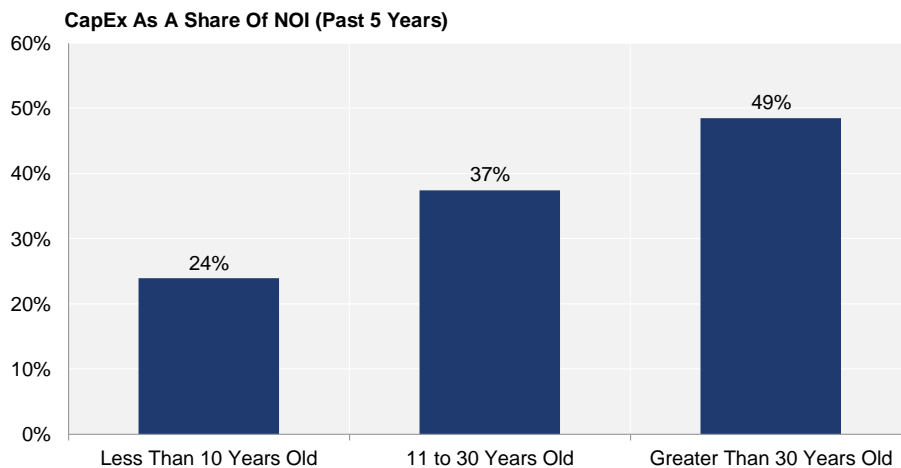
⁴⁸ <https://www.sec.gov/news/press-release/2022-46>. The comment period on this proposed rule will remain open for 30 days after publication in the Federal Register, or 60 days after the date of issuance and publication on sec.gov, whichever period is longer.

⁴⁹ Hydrofluorocarbons (HFCs) are greenhouse gases (GHGs) commonly used by federal agencies in a wide variety of applications, including refrigeration, air-conditioning (AC), building insulation, fire extinguishing systems, and aerosols. HFCs have high global warming potential (GWP), raising concern about their impacts as they become increasingly used as replacements for ozone-depleting substances (ODS), and as economic growth spurs demand for new equipment, especially in the refrigeration/AC sector. Source: United States Environmental Protection Agency (EPA) <https://www.epa.gov/snap/reducing-hydrofluorocarbon-hfc-use-and-emissions-federal-sector-through-snap>. HFCs unlike most other greenhouse gases are not waste products but are intentionally produced. HFCs were developed as alternatives to ozone depleting substances that are being phased-out under the Montreal Protocol. Unfortunately, HFCs have a global warming potential 1000 to 3000 times that of CO₂, and their use has increased from almost nothing in 1990 to 1,100 million tonnes of CO₂e in 2010. Source: Environmental Investigation Agency. <https://eia-global.org/campaigns/Climate/what-are-hydrofluorocarbons>

⁵⁰ What is Net Zero? When an entity (i.e. city, jurisdiction, corporation, etc.) aims for *net* zero emissions — as opposed to simply zero emissions — it's essentially pledging to balance out its climate pollution, so that overall, it doesn't harm the global climate. It seeks to offset its pollution or emissions by investing in or buying green credits such as building solar panel farms, planting a mangrove, or a forest. This theoretically has no net effect on environment, however, the building itself pollutes and does not help the immediate area. Certain jurisdictions including NYC LL97 mandate that the green credits must be purchased in the immediate area (i.e. five boroughs), Certain entities may choose to pay others to reduce emissions on their behalf. Examples include restoring forests, as well as adding trees and vegetation that can remove large quantities of carbon dioxide from the air.

⁵¹ Defined as including tenant improvements, leasing commissions, capital items (i.e. roof, boiler, etc.), as well as expansion of building and/or adding outdoor space.

buildings to attract workers to the office in the face demographic stagnation, as well as persuade employees to work in the office as opposed to remotely. Environmental mandates will likely cause an additional increase in share of NOI CapEx expense.



Sources: NCREIF NFI-ODCE; CoStar Advisory Services
 Note: Age of the property is based on the date of the reporting period.

As of 21Q4

CapEx Erodes Margins, Particularly For Older Office Properties
 Capital Expenditures As A Share Of NOI By Age Of Office Property

Initially, increased CapEx will likely take the form of heavier investment in more energy efficient systems and/or the purchase of green credits. We expect a higher capital expense burden for the average office building – higher still for Class B buildings and moderately higher for Class A office buildings.

This may result in headwinds to prices for certain properties and must be considered in underwriting and valuation. Particularly exposed are smaller office proprietors and owners of older buildings. Higher rents and/or lower energy costs will likely ensue and may, to a certain extent, mitigate against higher remediation costs. The cost of one-time fixes for new systems and other retrofit expenditures could vary widely. When underwriting, new Net Cash Flow (NCF) line items may include additional CapEx for environmental compliance, whether it takes the form of retrofitting improvements and remediation or the purchase of carbon credits.⁵²

There are also significant environmental costs during construction. Urban jurisdictions are increasingly taking this into consideration as evidenced by the recent nixing of the Tulip Building in London.⁵³ Therefore, in many cases it may be more environmentally friendly to upgrade an existing building into compliance rather than build new. It may also be economically profitable and maximally productive to do so. We believe that astute investors that recognize the value-add equation of green transformation for various types of CRE and understand pricing irregularities, will likely achieve outsized gains.

Remediation and Compliance Pathways

There are three ways a property owner can bring a high-emission building into compliance 1) remediate/cut emissions, 2) buy carbon credits or National Renewable Energy Credit (RECs), and 3) pay a penalty. Remediation efforts to cut emissions in buildings can be expensive. Property owners will be required to invest in things such as more energy efficient systems, on-site solar and the purchase of green power

⁵² Buying RECS in NYC is difficult since it is limited to the five boroughs of the city. Certain other jurisdictions have similar restrictions.

⁵³ <https://www.bisnow.com/london/news/office/could-esg-agenda-scupper-londons-sky-high-ambitions-112143>

purchase agreements. This method, if properly executed, can result in higher property value and greater returns for existing owners and investors. The purchase of one National Renewable Energy Credit represents one megawatt-hour (MWh) of renewable electricity that is generated and delivered to the grid, which in turn reduces average grid emissions⁵⁴. RECs that sold two years ago for \$0.50 to \$1 per megawatt rose to as high as \$7 per megawatt in August 2021 before settling at \$5 to \$6 per megawatt by the beginning of 2022. Buying RECs may ultimately contribute to net-zero emissions goals and satisfy certain environmental mandates, however, it does nothing to improve the emissions at the property-level. The third option for property owners is to pay fines to the jurisdiction imposing the mandate. This option neither helps the environment, nor improves the actual building.

Environmental Compliance Will Accelerate Certain Existing Trends

Increased focus on environmental concerns will likely accelerate certain existing trends. Remote work, which became essential during the pandemic, has now extended over two years. Although many have returned to the office,⁵⁵ most office workers are on a hybrid schedule while still others are primarily working from home. As gas prices have surged in 2022 and violent crime rates have increased – many have sought to continue working remotely. The environmentally friendly nature of avoiding driving miles from home to office and back (which is a classic Scope 3-type GHG emissions generator) may buttress the remote work trend into the future.

Business travel was reduced substantially during the pandemic and is still far from its pre-pandemic levels. The ubiquity of Zoom and other video call services will likely lead to some longer-term reduction in the need for certain business travel relative to the pre-COVID period. In addition, cutting business travel reduces a company’s Scope 3 greenhouse gas emissions by avoiding airplane flights, a significant generator of GHG⁵⁶. Businesses and individuals discouraging air travel is already taking place in Europe. Avoiding *flygskam* or “flight shame” may become a consideration in the U.S. as well, although likely to a much lesser degree than in Europe due to fewer (rail) alternatives.

The trend of Office-to-Logistics and Office-to-Apartment conversions may accelerate as a result of more Class B office space becoming even more obsolete as a result of environmental mandates. Some buildings may be demolished, while others may be repurposed after significant investment to reimagine them as another use and to make them environmentally friendly⁵⁷.

Rent Premium For Environmentally Friendly And New Buildings

LEED-certified buildings constitute only 3% of the office building universe in the U.S., while Energy Star⁵⁸ buildings represent slightly less than 1%. Buildings that are both LEED-certified, and Energy Star constitute just 0.78%⁵⁹. According to Cushman and Wakefield, LEED-certified buildings made up 46% of urban deliveries in the last 10 years.⁶⁰

⁵⁴ <https://www.usourceenergy.com/blog/recs-are-expensive-now-what-alternatives-to-meeting-your-sustainability-metrics/>

⁵⁵ Kastle Systems, Back to Work Barometer <https://www.kastle.com/safety-wellness/getting-america-back-to-work/>

⁵⁶ <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>

⁵⁷ See Stewart Rubin and Dakota Firenze, “Multiple Fundamental Shifts Spawn Office To Industrial Conversions,” February 2022

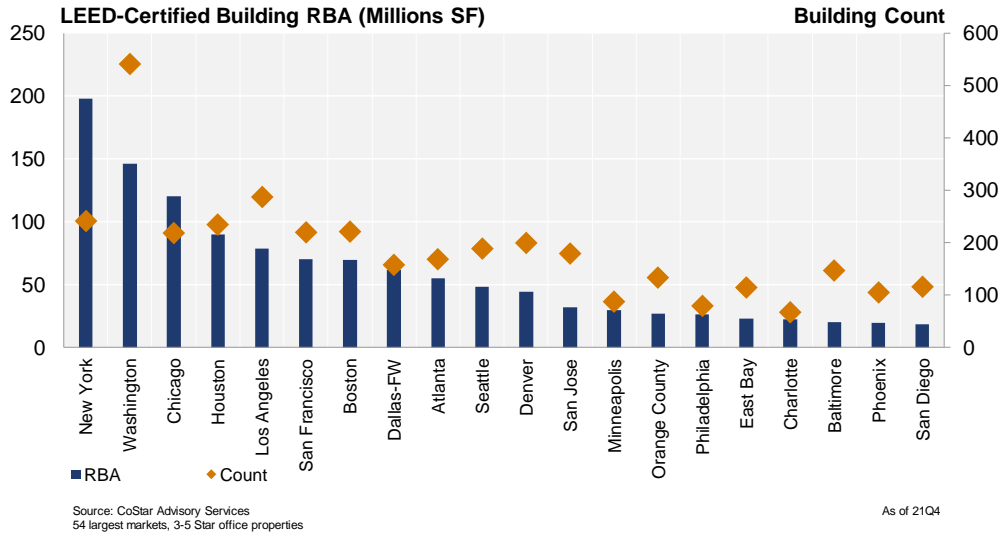
<https://www.newyorklifeinvestments.com/assets/documents/perspectives/multiple-fundamental-shifts.pdf>

⁵⁸ ENERGY STAR® is a joint program of the Environmental Protection Agency (EPA) and the Department of Energy (DOE). Its goal is to help consumers, businesses, and industries save money and protect the environment through the adoption of energy-efficient products and practices. The ENERGY STAR label identifies top-performing, cost-effective products, homes, and buildings. Source:

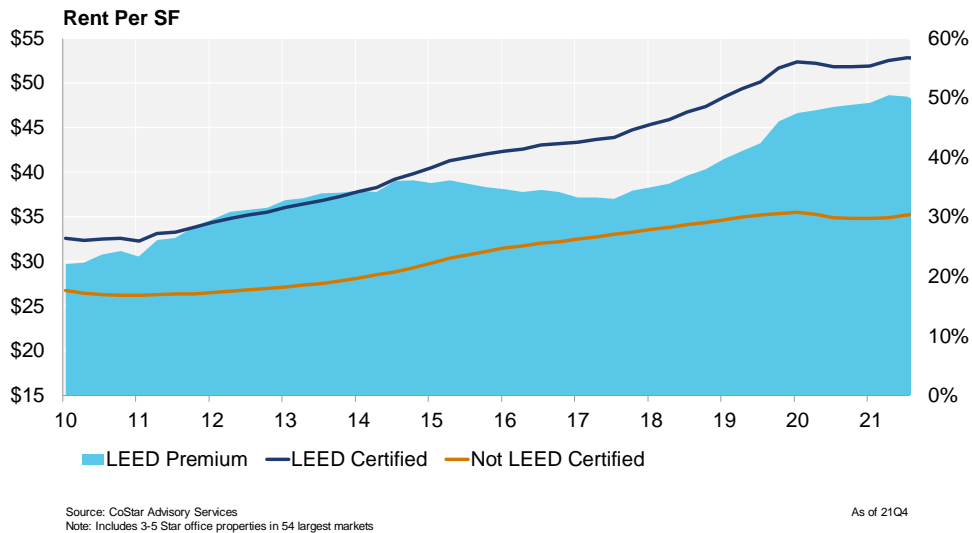
<https://www.energy.gov/eere/buildings/energy-starr>

⁵⁹ CoStar data

⁶⁰ “Green is Good: Sustainable Buildings Outperforming In Class A Urban Markets” Cushman & Wakefield August 2021

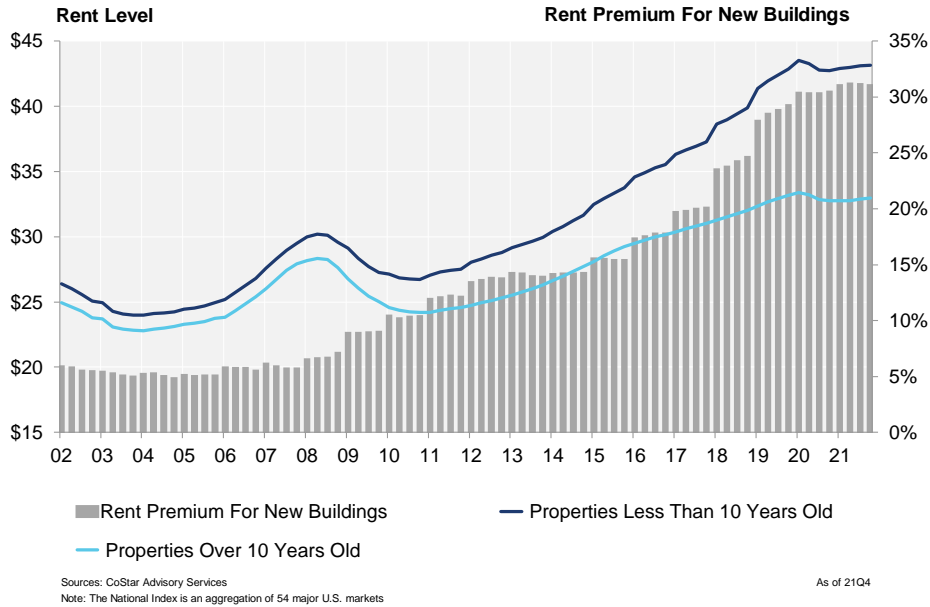


The increased focus on Environmental, Social and Governance (ESG) has widened the rent premium for LEED-certified buildings. The rent premium has increased and now commands approximately 50% higher rents for LEED-certified buildings compared to 35% 10 years ago. LEED-certified buildings⁶¹ are concentrated in major cities such as New York, Washington, DC and Chicago (see chart).

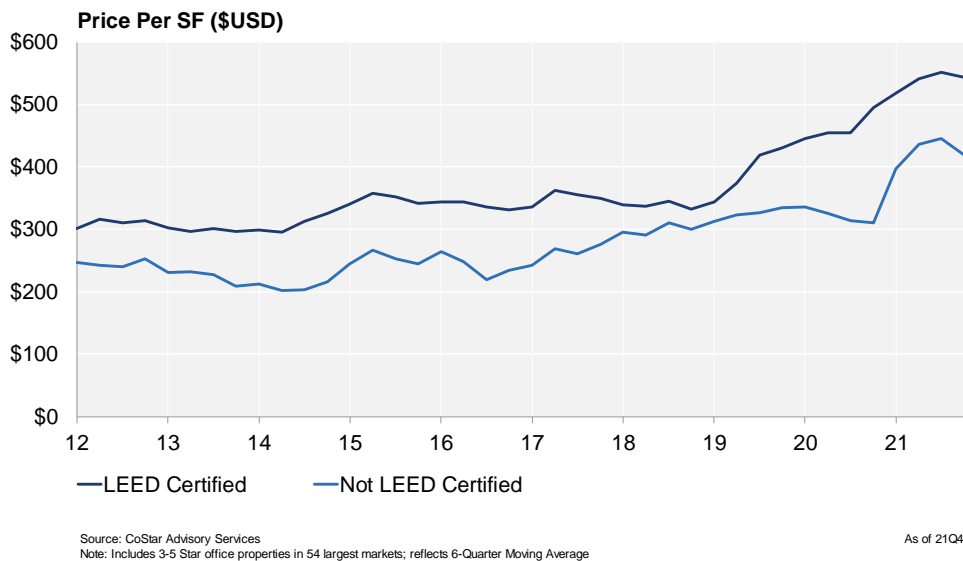


There is a high correlation between LEED-certified buildings and buildings less than 10 years of age, which may lead one to believe that the premium is associated with the desirability of relatively new construction and all the efficiencies that it brings. However, upon further examination, it is revealed that this is not the case. The rent premium for buildings less than 10 years of age compared to other buildings is 32%, far lower than the 50% premium for LEED-certified buildings.

⁶¹ LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world. Available for virtually all building types, LEED provides a framework for healthy, highly efficient, and cost-saving green buildings based on a rating scale up to 100. Energy Star consumes less than 35% of a typical building – this is a relative score.



The price premium for LEED-certified buildings is also higher at approximately \$543/SF versus \$419/SF for non-LEED-certified office buildings or 30% higher, according to CoStar. Cap rates trend lower for LEED-certified properties at 5.4% versus 5.9% for other buildings, according to CoStar.



[Greenflation During Protracted Transition Period Toward Green Energy](#)

It is hoped that in the long run, decarbonization will render the U.S. less susceptible to the gyrations of the oil market. However, the unintended consequences of the transition to green energy may be inflated prices.

According to Isabel Schnabel, German economist and a member of the executive board of the European Central Bank: “Renewable energy has not yet proven sufficiently scalable to meet rapidly rising demand... The combination of insufficient production capacity of renewable energies in the short run,

subdued investments in fossil fuels and rising carbon prices means that we risk facing a possibly protracted transition period during which the energy bill will be rising. Gas prices are a case in point.”⁶²

Electric powered energy is generally thought of as being more environmentally friendly than fossil fuels. Accordingly, there is a big movement to electrify more processes including locomotion, (i.e. cars, trucks, etc.), heating, cooling, and ventilation. While recently much of the price increase of commodities that are used in green energy has been caused by the Russia/Ukraine War, another longer-term component has been the demand increase due to the battle against climate change. The commodities needed to power the green transition are in greater demand and, therefore, are becoming more costly. Copper is required in every spool of electrical cable. Lithium is a critical component of electric car batteries. Aluminum is the most extensively used non-ferrous metal. Aluminum is also important in vehicle manufacturing to lower weight which improves gas mileage in internal-combustion engines vehicles and extends battery range in electric vehicles. In addition to glass and silicon cells, solar panel components typically include an aluminum frame and assorted wiring to facilitate current flow. Copper, aluminum, and lithium prices are 70%⁶³, 72%⁶⁴, 672%⁶⁵ above pre-COVID levels, respectively.

Green energy systems and high tech products also use nickel (up 150%⁶⁶ since pre-COVID), cobalt (up 147%)⁶⁷, manganese (up 277%)⁶⁸, and vanadium (up 59%)⁶⁹, which have experienced significant price increases since the beginning of the pandemic and may sustain higher levels of demand during this transition.

Environmental Mandates Accelerate Functional Obsolescence

The movement towards net zero should effectively increase obsolescence rates for certain older existing assets. This will be a particular challenge for older Class B office buildings. In the United Kingdom, strict environmental laws will substantially challenge the viability of numerous buildings. According to Colliers, one in ten offices in Central London risk being obsolete by 2023.⁷⁰ The Royal Institution of Chartered Surveyors (RICS) issued new guidance on appraisals in the U.K., considering cost to comply with ESG mandates.⁷¹ This U.K. law may foreshadow similar challenges in the U.S.

Zisler Capital Associates published a report stating that in the U.S., “as much as 70% of the total inventory faces an alarming period of repricing due to fast-paced obsolescence, accelerated by COVID but exacerbated by evolving environmental and health standards.”⁷² The report also suggests that for 30% of the existing U.S. office stock, retrofitting and upgrades may be economically unfeasible.⁷³

⁶² Stated at Virtual ECB Panel, January 8, 2022

⁶³ Nasdaq Market Activity data as of May 4, 2022

⁶⁴ Nasdaq Market Activity data as of May 4, 2022

⁶⁵ Benchmark Mineral Intelligence data as of April 2022

⁶⁶ Investing.com data as of May 4, 2022

⁶⁷ Investing.com data as of May 4, 2022

⁶⁸ Bloomberg LP data as of April 20, 2022

⁶⁹ Investing.com data as of May 4, 2022

⁷⁰ <https://www.colliers.com/en-gb/news/09-08-21-10-percent-of-london-office-stock-may-become-unusable-in-2023-due-to-low-epc-rating>

⁷¹ Mike Phillips “New RICS Valuation Guidance Could Slash The Worth Of Less Green Assets,” Biznow, December 16, 2021

⁷² <https://www.globest.com/2022/03/10/obsolescence-could-trigger-a-massive-downward-repricing-in-office-space/> and Randall Zisler, Ph.D. “The Alarming Repricing of Office Buildings: Obsolescence, ESG, and Healthy Buildings” Outsourced Research by Zisler Capital Associates, LLC, February 7, 2022

⁷³ <https://www.globest.com/2022/03/10/obsolescence-could-trigger-a-massive-downward-repricing-in-office-space/> and Randall Zisler, Ph.D.

“The Alarming Repricing of Office Buildings: Obsolescence, ESG, and Healthy Buildings” Outsourced Research by Zisler Capital Associates, LLC, February 7, 2022

Conclusion

In the long run, we believe green mandates will benefit humankind, the planet and CRE. It will render CRE more efficient and less expensive to operate. In the short run, it will increase operating costs and CapEx, which will impact rent, occupancy, and values, as well as accelerate obsolescence in older buildings. Environmental laws and the movement towards net-zero will challenge the values of older buildings, particularly Class B office buildings and lodging facilities. Some older buildings will become functionally obsolete as a result and may need to be recommissioned for other uses. There are no federal regulations on greenhouse gas emissions and a national carbon tax is unlikely in the foreseeable future. Nevertheless, many investors, lenders, insurers, and tenants prioritize greener buildings and that preference will impact property leasing, lending, and values. Energy-efficient, healthy buildings should benefit in the form of higher occupancy and rent levels and lower cap rates.

Scope 1 and 2 emissions are the focus of U.S. laws as they apply to CRE. However, non-legal pressure may manifest itself in the form of limiting certain Scope 3 activities such as business travel. Data centers, lodging, cold storage, and older office buildings are examples of property types that are most exposed to these trends as they have high emissions and are not socially-redeeming uses such as affordable housing.

New York City's climate laws are the most comprehensive and consequential and Local Law 97 is by far the most significant. LL97 set ambitious targets to reduce greenhouse gas emissions from real estate over the next several decades. Over the next few years several new laws and mandates will go into effect in various jurisdictions nationwide. In the U.K., owners of buildings that do not meet certain green criteria will be precluded from leasing space. The U.K. law may be a precursor for similar laws in the U.S. These laws and mandates will favor newer, state-of-the-art buildings constructed to higher green standards. The rent premium for environmentally friendly, environmentally compliant, healthy and new buildings will likely increase. Favorable building characteristics include good air quality, upgraded ventilation, heating, lighting, and water systems, and outdoor space.

There are three ways to bring a high emission building into compliance including 1) remediate/cut emissions, 2) buy carbon credits or RECs, and 3) pay associated fines/penalties for non-compliance. Capital expenditures (CapEx) as a share of NOI has increased substantially and its impact is much more pronounced amongst older buildings. Environmental mandates will likely cause an additional increase in CapEx expense. *Greenflation* is one of the unintended consequences of environmental laws. Compliance with environmental mandates – both legislative and corporate – will accelerate certain existing trends including remote work, reduced business travel, and the decommissioning of office buildings in favor of other uses. Other consequences from environmental laws and mandates will include revised highest and best use analysis and a pivot to LEED-certified, newer, and greener buildings.

With the current transition comes opportunity for disciplined investors that can identify retrofit opportunities and recognize pricing anomalies. The disruption may cause value declines that become buying opportunities for discerning investors who can differentiate promising prospects from buildings with fatal functional obsolescence. The short-term disruption and the long-term transformation will likely reward those that recognize and understand the new green landscape and its impact on various property types.

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