



**The ESG Climate Change Evolution of
Commercial Real Estate Finance:
Turning Over New (Green) Leaves**

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Introduction

The Intergovernmental Panel on Climate Change's Sixth Assessment report, released most recently in spring 2022, sounded the alarm on the current state of the Earth's climate. Today, with just 1.1 degrees Celsius in warming, every region in the world is facing climate impacts on a scale not previously anticipated. These impacts include more severe and longer-lasting droughts, extreme heat, record flooding, more powerful hurricanes, larger and more frequent wildfires and increased sea-level rise. The Sixth Assessment also found that to avoid the worst effects of climate change, total greenhouse gas emissions must fall by 43% from 2019 levels before 2030.

While the element of human suffering cannot be discounted, the negative impacts of climate change are a major economic issue. In the last 50 years, the U.S. has suffered a total of US\$1.4 trillion dollars in losses due to weather and climate disasters. In 2021 alone, there were 20 separate weather and climate disasters in the U.S. with damages in excess of US\$1 billion—just two US\$1 billion disasters shy of repeating the record set the year before in 2020.

The commercial real estate industry is undergoing an exciting metamorphosis to confront the challenge of reversing climate change. Whether one holds the view that climate change is an existential threat to civilization and the number one peril to the global economy, or the opinion that climate change is either murky science and overblown doomsday speak or an inevitable result of the Earth's natural cycles, one thing is certain: The primary players in the commercial real estate market—property owners, tenants, lenders and investors in both real estate assets and in commercial mortgage-backed securities—are now taking active steps to confront climate change by using various environmental, social and governance (“ESG”) strategies and tools as part of their everyday business.

Two clear objectives are being served by this shift in the industry:

- Economic gain, both in short-and long-term returns, and
- Avoiding penalties, sanctions and other costs by ensuring compliance with current or future government regulations.



The commercial real estate industry operates in a for-profit market, of course, meaning that profit is paramount. It is not purely out of charity or kindness to Mother Nature that companies are taking steps to address climate change. Nonetheless, this strategy will enable market participants to be good corporate citizens and meet their corporate sustainability targets, thereby contributing to the overarching goal of transitioning to a net-zero carbon emission economy. These changes all cost money—large sums of money—by all segments of the commercial real estate market. However, **the costs being incurred today that are necessary to create a net-zero commercial real estate industry are far less than the costs that will be paid if no action is taken.** And harkening back to the “first-mover” theory of college economics, the first companies to make this transition with both coherent and credible business plans, and who incur these additional costs now, stand to enjoy outsized economic gains in the future. For the purposes of this article, when we refer to costs, we mean only economic costs, and not public health costs, environmental justice costs, biodiversity costs and other non-economic costs of climate change (which are outside the scope of this article).

While the private efforts of the commercial real estate industry to transition to a net-zero carbon economy are promising, these efforts alone will be insufficient to reverse the course of climate change. For all the power and dynamism that capitalism has demonstrated over the course of American history, the private sector cannot achieve this noble goal on its own. Help is needed, and the primary additional catalyst required to combat climate change is proper government funding and incentives at federal, state and local levels.

This paper is organized in three parts. **Part I** discusses the economic costs of climate change, and in particular, the costs to the commercial real estate industry. **Part II** provides several examples of how commercial real estate owners, tenants, lenders and investors are using ESG strategies with greater regularity in making the market. **Part III** outlines the important role government needs to play to create a reliable and clear framework for the commercial real estate finance sector to help lead the transition to a net-zero economy, where greater economic growth can be realized and the impact of climate change can be reversed.



Part I: The Economic Costs of Climate Change

To meet the Paris Agreement's goal of limiting global warming to an upper limit of 2 degrees Celsius above pre-industrial levels, the World Green Building Council estimates that the entire real estate sector needs to decarbonize by no later than 2050. It is estimated that the operation of buildings alone (often referred to as "operational carbon") is responsible for 28% of the world's greenhouse gas emissions. If adding in all the carbon that is required to construct these buildings—such as the manufacturing of carbon-intensive materials like concrete, steel and plastic (often referred to as "embodied carbon")—that number rises to about 40%. By this measurement, the real estate industry is the greatest source of global carbon emissions—greater than the carbon emissions from transportation, agriculture and general industry.

As cities continue to grow at a rapid clip worldwide, the real estate sector's carbon footprint will also continue to expand. Currently, more than half of the world's population lives in cities. Globally, 1.5 million residents are added to urban populations every week, and it is estimated that by 2050, more than 6.7 billion individuals will live in cities. To accommodate this growing population, the real estate industry will need to develop or renovate an additional 2.5 trillion square feet of additional buildings, the equivalent of building one New York City every month for the next 40 years.

The good news is that the commercial real estate finance industry has recognized that climate change is an economic threat that must be addressed, and that decarbonizing real estate is a necessary step in addressing this threat. This realization is a big step from just a few years ago when the notion of the planet's unnatural warming due to man-made activity was often met with jeers and criticism.

Higher Temperatures and Severe Weather Events

It is clear today how high the stakes really are. Research shows that greenhouse gas emissions in the United States were at least 5% higher in 2021 than in 2020, creating devastating effects. 2021 was the sixth hottest

year on record, according to NASA and the National Oceanic and Atmospheric Association (NOAA). Since the year 2000, the Earth has experienced 21 of the 22 hottest years ever recorded. Cities like Boston, Milwaukee and Baltimore sweated through their hottest years ever recorded.

The combination of warmer air temperatures, warmer oceans and disrupted jet-streams is causing an increased number of severe weather events, including hurricanes, storm surges, flooding and wildfires. 2021 was the third most active hurricane season for the Atlantic, with 21 named storms and wind speeds above 110 miles per hour. The NOAA reported that high-tide flooding has risen 400% in the past two decades for the Southeast coast of the U.S., including places like Miami, Florida and Charleston, South Carolina. New York City has been impacted similarly, where high-tide flooding has doubled since 2000 and now occurs up to 15 times per year.

The science also tells us that warmer temperatures lead to drier soil, drought and increased lightning strikes, thus creating more dangerous wildfires. A 2022 United Nations report estimates that in a moderate warming scenario, the likelihood of extreme catastrophic wildfires globally will increase by up to a third by 2050 and up to 52 percent by 2100. In a business-as-usual scenario, that number increases to 57 percent by 2100. In short-term trends, we already see wildfires are on the rise—in California, by August 2021, the amount of acres of land destroyed by wildfire was three times that which had been impacted just one year earlier in 2020. The Dixie Fire which began in July 2021 burned almost 1 million acres of land alone.

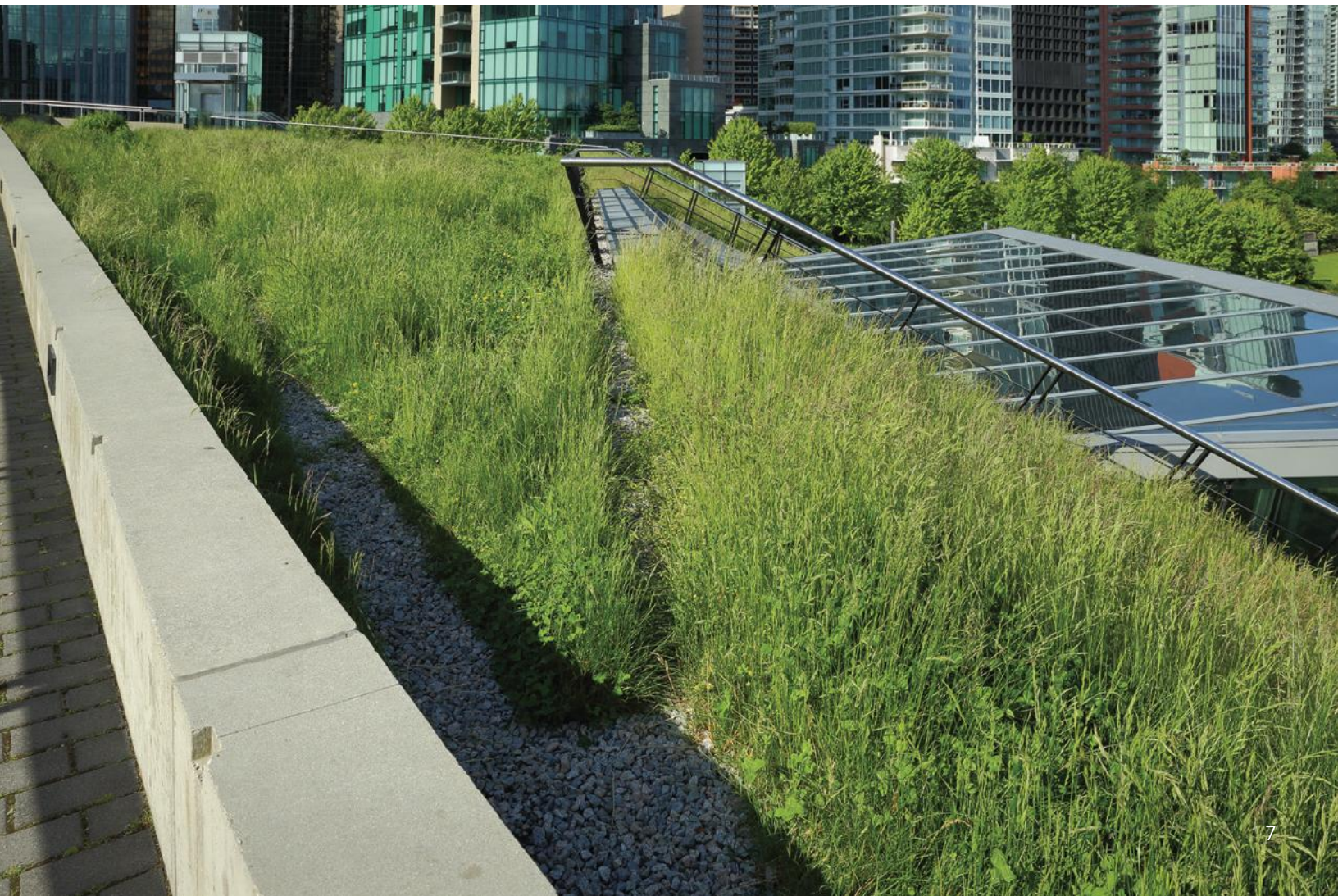
The potential impact of these extreme weather events on commercial real estate is massive. The built environment, for all its engineering achievements and impressive presence in our lives, is not impervious to high winds, flooding or fire. According to the NOAA, damages from hurricanes over the past five years account for over one-third of all hurricane damage going back to 1980—and this figure does not include the devastating effects of Hurricane Ian from earlier this year, which is estimated to have caused between US\$41 billion

and US\$70 billion in wind and flood damage alone. Swiss Re estimates that the growing risk of wildfires in the United States will make insurance premiums unaffordable and coverage for such events could be pulled entirely from some regions, causing a “coverage gap” of US\$1.2 trillion. Flood insurance in some parts of the U.S. is already unaffordable, even with government intervention, and a 2022 study conducted by Climate Central estimates that by 2100, at least US\$108 billion in privately held land value will be destroyed due to rising sea levels.

Investing in Decarbonization

Just about every industrial process contributes to the emission of greenhouse gases, meaning that every industry across the globe will need to invest in decarbonizing over the next several decades. A recent study conducted by McKinsey estimated that, to meet the Paris Agreement’s goals, the world would need to

invest an annual average of US\$9.2 trillion dollars in hard assets between 2021 and 2050, up from US\$5.7 trillion today. But the costs of inaction are even higher. A study prepared by Swiss Re Institute in April of 2021 concluded that by 2050, the global economy’s gross domestic product (GDP) would be 10% *less* in a business-as-usual scenario than if the Paris Agreement’s targets are met, with the most affected regions losing up to 50% of their annual GDP. In actual dollars, this global loss in GDP equals close to US\$23 trillion in value. Separately, a new survey from Deloitte found that “insufficient action to address climate change could cost the U.S. economy US\$14.5 trillion by 2070.” However, it said, if the U.S. decarbonizes over the next 50 years, its economy could gain US\$3 trillion in annual GDP and add nearly 1 million more jobs than it would have otherwise. “Our analysis shows that achieving net-zero emissions by 2050 isn’t just an aspirational goal—it’s an economic growth imperative,” wrote the authors.





Part II: ESG in Commercial Real Estate Finance

Landlords and Tenants

Landlords of commercial real estate properties are participating in the ESG evolution of the market. These landlords are focused on ESG for their businesses and their investors; they also are looking to their lenders to understand ESG and to help finance ESG-eligible properties.

Many prominent real estate developers have made public statements of their intentions, as a signal to its current and potential investors and the banks with which they look to do business. For example, Blackstone, the world's largest asset manager, recently announced its "Emissions Reduction Program," which aims to reduce Scope 1 carbon emissions (i.e., direct carbon emissions from sources controlled by the owner) and Scope 2 carbon emissions (i.e., indirect emissions associated with the purchase of electricity) for new assets globally where they control the energy usage by 15% in aggregate over the first three years of ownership. Not to be outdone, Brookfield Properties, another of the world's largest investors in real estate, is on record stating their commitment to reach net-zero emissions by 2050 or sooner across all assets under management, and to achieve an approximately two-thirds reduction in Scope 1 and 2 emissions for US\$147 billion of assets by 2030 or sooner.

The ROI of Green Buildings

While it is true that energy efficiency retrofits carry a large price tag upfront, there are many benefits landlords will enjoy which can more than make up for those costs. Green buildings are more attractive to tenants and other end-users of real estate, and therefore command higher rents. One study recently showed that buildings with green certifications are in higher demand, commanding a rent premium of 6.0% and a sales premium on average of 7.6%. Another source reported that buildings with higher Energy Star scores earned nearly 3% more in rent and had almost 10% higher occupancy. Companies can also benefit from spending capital to own greener and more sustainable buildings as a recruiting strategy. Many reports have been published documenting how millennials and members of "Gen Z" are choosing jobs

based on their employer's sustainability profile, and will accept lower pay to work at a company that values and supports ESG principles in the workplace. Tenants and employees are also customers, and businesses that promote sustainability as part of their corporate culture can see higher sales and better employee retention in their stores, too.

But beyond the benefits of tenant, employee and customer demand, net zero or net negative buildings may actually increase real cash-on-cash returns. First, energy efficiency upgrades are famously cost effective, reducing operating expenses and providing average returns on investment of 30 to 40 percent, depending on the property owner's energy costs. Second, as electric cars are adopted worldwide, charging infrastructure will need to proliferate to satisfy the increased demand. A company that provides charging infrastructure may lease parking spots at commercial buildings, or commercial building owners may install their own charging stations and charge patrons for their use. Finally, other green upgrades, such as adding solar panels to the roof of a building—otherwise untapped "floor" area—can be a source of revenue in multiple ways. First, the landlord may receive rental income by leasing the roof to a third party who installs solar panels. Second, if the landlord itself owns the solar panels, it may sell excess electricity into the grid through net metering, which often means selling electricity at retail prices (which is a premium to the rate paid to generation utilities). Third, the landlord may receive certain investment or production tax credits, which may then be sold in the market. And lastly, the landlord may receive the rights to environmental attributes such as renewable energy credits, which may also be sold to third parties in the market.

As described below, C-PACE financing is now available in more and more states to cover 100% of the upfront costs of energy efficiency upgrades. The first ever C-PACE financings closed in New York City—111 Wall Street and 730 Third Avenue—demonstrate the long-term savings a landlord can recoup by spending capital now to make their buildings more energy efficient. First, at 111 Wall Street, which was refinanced in part with a

US\$89 million C-PACE loan in June 2021, the capital improvements added were reported to lower operating costs by saving more than US\$3.3 million annually in energy operation and to reduce carbon emissions by more than 40 percent. Similarly, at 730 Third Avenue, where financing included US\$28 million C-PACE loan, the borrower is expected to lower its carbon emissions by such an extent as to avoid almost US\$100,000 in annual fines under the city's carbon emissions law known as Local Law 97, also discussed below. C-PACE can lower the overall cost of capital for a project, compared to more expensive and legally complex forms of financing such as mezzanine debt or preferred equity. C-PACE has the added benefit of being able to pass the costs on to commercial tenants as additional rent or common expenses, and to be passed on to hotel guests in the hospitality market as an extra line item on the invoice at check-out.

For most sectors of the commercial real estate world, tenant demand—and tenant satisfaction—is the ultimate driver of success. Tenants are willing to pay a premium for space in green buildings. But commercial

tenants, like any other for-profit enterprise, are not in the business of paying more out of civic benevolence. So why are they willing to pay a handsome premium for spaces in green buildings?

One reason tenants are willing to pay a premium for space in green buildings is to meet corporate sustainability goals. More than 700 of the world's largest publicly traded companies—about a third in total—have committed to some kind of net-zero target. Nike, for instance, has committed to reducing its carbon footprint in its owned and operated real estate by 65% by 2030. The Home Depot has committed to reduce its emissions in line with the Paris Agreement goals and has committed to powering its operations through 100% renewable energy by 2030. And Microsoft went carbon neutral in all its direct operations as of July 1, 2013, including in its data centers, a famously energy-intensive asset class. It has done this in part by investing in energy efficiency upgrades to its buildings, but also by investing in software that can more easily and accurately track the energy intensity of its buildings.



In a recent survey conducted by JLL of nearly 1,000 executive leaders, investors and corporate tenants, 83% of corporate tenants agreed that climate change is a financial risk, 79% of corporate tenants anticipated that carbon emissions reductions will be a part of their corporate sustainability strategy by 2025, and 42% of corporate tenants believe their employees will increasingly demand green and healthy spaces. Put another way, tenants are willing to pay a “green premium,” because renting spaces in green buildings will, directly or indirectly, reduce risks for tenants, help tenants meet corporate-level sustainability targets and will assist in employee recruitment and retention.

In addition, despite the upfront rent premium, tenants who rent space under triple net leases or modified gross leases may reduce costs elsewhere by renting space in a green building. For instance, an energy efficient building will have far lower energy costs than a “non-green” building, reducing both direct energy usage and common area maintenance fees for which tenants may be responsible. If a green building has resiliency upgrades, insurance costs may also be reduced for insurance maintained by the tenants and for common areas—costs that are often borne, at least in part, by tenants.

Renting space from a landlord who has invested in green infrastructure can also have more direct perks, such as increased foot traffic in the context of retail tenants. Take the example of a shopping center owner who invests in electric vehicle charging stations. These charging stations draw additional patrons to the shopping center who might not otherwise shop there and require such patrons to spend time at that shopping center while their EVs charge—a tenant in that shopping center is a direct beneficiary of the uptick in foot traffic and engagement brought on by such charging stations.

In their acclaimed 2020 book *Healthy Buildings*, authors Joe Allen and John Macomber sum up the green building movement as serving two important and interdependent goals—reduced greenhouse gas emissions and happier workers: [see box]

“Healthy Building strategies are good business strategies. Because it turns out that the true cost of operating our buildings is not energy, waste and water (the drivers of the “green” building movement); it’s the people inside...when we make our building healthy, we make the people in those buildings healthier and more productive, and that translates into a healthier bottom line.”

J. Allen, J. Macomber, “Healthy Buildings: How Indoor Spaces Drive Performance,” Harvard University Press (2020).

Lenders

Reaching net zero by 2050 will require an unprecedented amount of capital. Commercial real estate owners will require billions of dollars in financing to retrofit properties to make them more energy efficient, more resilient to increasingly severe natural disasters, and compliant with new and existing climate regulations. This backdrop presents opportunities to lenders willing to make green loans or issue debt and bonds with ESG labels. Just as real estate developers are facing increased pressure to set goals to achieve net zero, build climate-friendly assets and comply with carbon emission and similar laws, so too are lenders faced with these pressures to meet this client demand, compete with

other financing sources and comply with their own set of regulations. Therefore, lenders who invest the time to understand climate change, green investing standards, and climate-impact measuring and monitoring tools and standards will have a major head start over the rest of the market.

Many banks signaled their commitment to the ESG evolution in various 2021 public statements to their shareholders, employees, customers and potential borrowers of their capital. Included in this group are:

- Bank of America, who committed US\$1 trillion by 2030 to accelerate the transition to a low-carbon economy,
- JPMorgan Chase who published a sustainable development target of US\$2.5 trillion over 10 years, including US\$1 trillion to finance green-related activities, and
- Wells Fargo who pledged to achieve net-zero greenhouse gas emissions by 2050, including financed emissions, and to deploy \$500 billion in sustainable finance between 2021 and 2030.

Green Loan Standards

Commercial real estate lenders have begun to allocate capital to green and other ESG projects. In the past few years, there have been a handful of CMBS securitizations backed by green buildings with LEED certifications. In these deals, the issuers followed the International Capital Market Association's Green Bond Principles and obtained an opinion from a third-party ESG rating and research firm. In the last year alone, Wall Street has brought at least three single-borrower single-asset CMBS securitizations to market with a "social" ESG designation backed by affordable housing portfolios in New York and Florida. The voluntary framework known as the Social Bond Principles was the construct for these deals where a similar third-party opinion was given.

Balance sheet loans with green or ESG labels have also started to appear in the market where the underlying property is required to comply with the standards set forth under the LSTA's Green Loan Principles or Social Loan Principles, respectively. Credit must be given to Freddie Mac and Fannie Mae, who have been issuing

green bonds for many years, backed by "impact loans" secured by multi-family properties required to improve their energy efficiency in the form of electricity or water usage. Now, the market is witnessing private-label Wall Street lenders following these government-sponsored entities and joining this new rush of green capital.

Another sign of this evolution is the recent activity of the Commercial Real Estate Finance Council ("CREFC"), the leading trade organization for three hundred institutional members representing commercial and multifamily real estate investors, lenders, and service providers. CREFC launched its own Sustainability Initiative in 2021 and is currently working on developing a set of standard best practices climate-related disclosure items for future CMBS securitizations.

C-PACE Financings

C-PACE is another green financing tool gaining traction across the U.S. C-PACE is a special financing tool that is authorized by state and local legislation that allows private lenders to make loans that pay for energy efficiency and resiliency upgrades to a building. Earlier this year, Hawaii became the 30th state to formally adopt C-PACE. According to one source, more than 350,000 building owners have used C-PACE to invest more than US\$10 billion in necessary improvements to their properties.

C-PACE loans are considered a special assessment on the property and are paid back through a special line item on the borrower's property tax bill, which means that they receive priority payments in line with property taxes and ahead of first mortgage lenders. However, C-PACE loans also provide special protections for those first mortgage lenders whom they prime, because C-PACE cannot be accelerated, and in many jurisdictions, the cost of the C-PACE improvements must be cash flow positive when taking into account energy savings from the financed upgrades.

C-PACE is a highly specialized lending area due to the patchwork of rules and regulations that vary from state to state and sometimes from city to city within a state. The C-PACE market has increased 150% year-over-year since 2017, excepting only 2020 due to the COVID-19 pandemic. Although becoming more common among

balance sheet lenders, historically C-PACE has been viewed as credit negative by rating agencies in CMBS lending, and triple A bond buyers have been concerned about the super-priority of the special assessment. However, the ESG evolution is unfolding here, too. Earlier this year, CREFC held a special webinar asking the question whether C-PACE has a home in the CMBS industry. Additionally, some CMBS loan documents are allowing C-PACE loans, either expressly with small, capped amounts subject to rating agency approval or indirectly with the inclusion of solar panel financing being a so-called type of “permitted indebtedness.”

Investors

The increased frequency and impact of extreme weather events is rapidly changing the way that real estate investors allocate capital. Investors are increasingly seeking out investments with high marks in the ESG category as they are looking for safer and more resilient green assets. This trend is evidenced by the participation in the industry-led Global Real Estate Sustainability Benchmark (“GRESB”) Real Estate Assessment, a reporting framework for listed property companies, private property funds, developers and investors that invest directly in real estate. GRESB recently reported more than US\$7 trillion of global real estate investment is managed by institutions who monitor and track green building performance.

Those who invest the time and money to understand climate investing now will have an advantage over latecomers in several ways. Early investors in net-zero real estate assets will have the opportunity to sell those assets that they bought or renovated early in the transition at a premium. Conversely, investors who eschew investments in outdated, inefficient assets will avoid sinking money into properties that will quickly become obsolete or otherwise incur heavy fines for failure to comply with applicable regulations. In addition, as described above, net-zero or net-negative assets can increase cash-on-cash returns on individual real estate investments due to energy cost savings, solar leases and sale of environmental attributes. Finally, first movers may take advantage of federal and state government incentives designed to push early investors into net zero investments.

Let us consider some hard data in support of this rush into green bonds and other ESG investments. According to Climate Bond Initiative and Bloomberg reports, sales of green bonds worldwide exceeded US\$500 billion in 2021 and are estimated to reach up to US\$1 trillion by year-end 2022. Looking more broadly at ESG assets, of which green bonds are a part, the total amount of ESG assets today is roughly US\$35 trillion and could reach as much as US\$50 trillion by 2025. The economic reasoning fueling these investments is rooted in the better performance and resiliency of the ESG-marked assets.

The prevailing sentiment among investors is that, as compared to investments without any certified ESG designation, green bonds carry less risk in that they will hold their value better in an economic downturn, thus performing better in secondary trading. The market swoon in 2022 has proven this view to be correct. Globally, ESG funds were down roughly 12% this year through June 10, while the MSCI World Index saw nearly a 15% decline in the same period. Add in high gas prices, the geopolitical crisis concerning Ukraine and the world’s dependence on Russian oil and gas, and ESG investments look even more appealing to investors in both the short- and long-term. A survey conducted earlier this year by a global data, market research and advisory company reported that ESG investments are indeed expected to rise based on responses from more than 75% of the money managers surveyed.

Because green bonds enjoy these economic advantages over traditional bonds, investors in other countries have been willing to pay a premium (or what is called a “greenium” among ESG market participants) as compared to regular bonds. However, this has yet to be realized in the U.S. CMBS market, as green and other ESG issuances have just started to come to market. But if the U.S. takes its cues from the EU, then the realization of a greenium is a matter of when, not if. In Europe, where the ESG lending and ESG bond issuance market is more advanced than in the U.S. thanks to more progressive government policy, a greenium is more commonly realized. Approximately 10 basis points can be saved, as debt that is properly labeled “green” outperforms regular issuances. A pricing advantage for green CMBS bonds in the U.S. can also be expected

as market demand from ESG accounts will exceed supply until more issuers come to market with new ESG-certified deals.

Finally, the rating agencies who rate CMBS bonds have also evolved in recent years, with an increased focus and attention to climate change and ESG factors with respect to commercial real estate. The first evidence was a flurry of merger and acquisition activity where the agencies added climate data analytics expertise under their corporate banners. For example, Standard & Poor's acquired a controlling stake in Trucost plc, a leader in carbon and environmental data and risk analysis. Moody's Investor Service acquired Four Twenty Seven, a leading provider of data and analysis related to physical climate risks. And Morningstar acquired Sustainalytics, a globally recognized leader in ESG ratings and research.

More recently, ESG and physical climate risk scores and grades now appear in certain CMBS pre-sale reports for investors' use and review. Scores are provided for

individual properties and "top 10" loans and include both a general description of climate risk considerations for credit and include pool specific commentary. The most common physical climate risks that are evaluated are extreme temperatures, flooding, hurricanes, water scarcity, sea level rise and wildfires. And earlier this year, one of the major rating agencies started producing ESG questionnaires to be completed by CMBS issuers where the questions ask for detail on any local carbon emissions, energy efficiency or similar ESG laws and whether C-PACE is part of the financing or is permitted in the future. More developments like these on the part of the rating agencies can be expected, which means issuers of CMBS bonds need to dedicate more resources and expertise to climate change and ESG considerations during both the loan origination and bond structuring and marketing processes.



Part III: The Role of Regulation

Lenders, landlord, tenants and investors are riding the ESG wave towards a greener commercial real estate finance market. They are all taking tangible steps forward to embrace the need for, and benefits from, sustainable business practices. But they alone cannot be responsible for reversing the effects of climate change, as they are for-profit actors in a capitalist system. As one commentator described this predicament: “Trying to force an industry that’s designed to pursue profit to become the climate-change sheriff sounds a bit like foxes guarding henhouses.” Although a bit cynical, this view is not far off.

The Group of Thirty’s Working Group on Climate Change approached this conundrum more diplomatically. In its October 2020 report entitled “Mainstreaming the Transition to a Net-Zero Economy,” the authors—more commonly known as “G30”—noted that financial institutions and public companies will not fully address the impact of their businesses on the climate unless public policy forces them to do so. Moreso, any actions taken voluntarily by the private sector risk being uncoordinated and non-comprehensive, and thus, ineffective in the fight against climate change. Therefore, to effectively transition the world to a net-zero economy, governments of all levels will need to provide the private sector with clear, consistent and credible guidance on transitioning to net zero. Before turning to a discussion of how governments in the U.S. are spearheading plans to transition U.S. real estate to net zero, it is worth noting that the steering committee for this G30 study was co-chaired by both Janet Yellen, former Federal Reserve Chair and current U.S. Treasury Secretary, and Mark Carney, former United Nations Special Envoy on Climate Action and Finance and currently Vice Chair and Head of Transition Investing for Brookfield Properties.

U.S. Federal Legislation

Up until the passage of the federal Inflation Reduction Act (“IRA”) on August 16, 2022, U.S. action on climate has been rather limited at the federal level. The Office of Management and Budget estimates that by 2030, the IRA will reduce carbon emissions by as much as 40 percent below 2005 levels. The OMB also

estimates that, by reducing the severity or prevalence of harms such as property damage due to natural disasters, reducing costs related to rising temperatures and avoiding negative health impacts (including premature death), the IRA could avoid anywhere from US\$700 billion to US\$1.9 trillion in climate-related social costs. The IRA’s headline climate provisions include tax credits for clean energy production, incentives to manufacture clean energy products in the U.S., and tax deductions for energy efficiency improvements to multifamily and other commercial buildings. Real estate owners will be looking to banks and other lenders to finance these green projects so that the federal tax credits and tax deductions can be realized. An added benefit for owners is that the tax savings they can enjoy from the IRA can help offset and defray the costs of compliance, including fines and penalties, that may be incurred as a result of state and local laws, where energy efficiency and greenhouse gas emissions laws are more prevalent.

New York City’s Climate Mobilization Act

While the IRA does not include any carbon or greenhouse gas restrictions, state and local governments are passing these types of laws with increased regularity. Perhaps most famously, New York City passed the Climate Mobilization Act in 2019, which included a law now commonly known as Local Law 97. Local Law 97 is a law focused directly at reducing the emissions from commercial buildings. Applicable to all buildings in the City of New York larger than 25,000 square feet (with certain exceptions), it requires building owners to cap carbon emissions at specified thresholds starting in 2024, with steep penalties for failure to comply with the limits or failure to report building emissions. The purpose of Local Law 97 is to cut New York City’s carbon emissions by 40% by 2030 and by 80% by 2050 below 2005 levels. Proposed regulations concerning the implementation of the law were announced in October 2022, and a public hearing is scheduled for mid-November 2022.

Other Local Regulations

Like New York, the cities of Boston, Seattle and Washington D.C., and the State of Maryland also have implemented, or are in the process of implementing, standards for either new or existing commercial and multifamily buildings to be carbon neutral in the coming years. Boston, for example, will require existing commercial and multifamily buildings to meet certain carbon emissions reduction targets, based on the size and use of the building, starting in 2025. Failure to comply could result in fines ranging from US\$300 to US\$1,000 per day of noncompliance. In September 2022, Boston also opted into a state-level pilot program that will ban the use of fossil fuels in most new construction, except labs and hospitals. In Seattle, the law currently requires owners of non-residential and commercial buildings over 20,000 square feet to report energy performance annually. A new law known as the updated Seattle Climate Action Plan will soon require commercial buildings over 50,000 square feet to reduce their greenhouse gas emissions by the lesser of 20% or the percentage needed for the building to meet the greenhouse gas target set out by the city of Seattle or Washington State.

Smaller cities are participating in this fight against climate change too with similar laws. The city of Ithaca, New York—most famous for being home to Cornell University—has adopted perhaps the most ambitious goal of all, requiring the entire city to be carbon neutral by 2030. Ithaca has partnered with Cornell’s Circular Construction Lab to develop a “digital twin” of the city so that it can accurately map the energy usage of its some 8,000 buildings, which range from “cutting-edge university research facilities to blocks of drafty old Greek Revival homes,” according to a Bloomberg article on the subject. Ithaca hopes to be a model for other cities’ decarbonization goals.

Governments must play a role in creating a standard set of rules and common benchmarks for the transition to net zero. Once those rules are set, and the benchmarks identified, the private sector can step in and do what it does best: find the most effective and efficient way to accomplish those goals. These new climate regulations will initially feel like an onslaught of acronyms, red tape and burdensome reporting requirements—the learning curve is steep, and there are certain to be pain points along the way. However, these regulations are here to

stay, and we can expect that many more cities and states will follow suit.

Commercial property owners and commercial mortgage lenders who move early can take advantage of the market disruption caused by climate regulations while also helping to transition our cities to net zero. The cost of compliance with new emissions limitations—particularly for existing buildings—will be high, and lenders in particular have an opportunity to finance the renovations and retrofits that will be required to avoid hefty fines in these jurisdictions. Building owners who learn to work with new technology to monitor their emissions and navigate new regulations will have a leg up on other investors looking to enter these markets. Both lenders and property owners will need to familiarize themselves with the multitude of financing sources available to building owners to make the required energy efficiency or clean energy improvements—many of which are highly specialized, but offer building owners uniquely advantageous terms such as providing 100% of the upfront financing costs for these improvements. As mentioned above, C-PACE financing is one such source. C-PACE has proven to be an essential public policy tool to scale up investment in energy efficiency, clean energy, and resilience upgrades to commercial buildings. As more cities and states across the country adopt codes and standards that heavily incentivize or mandate building upgrades, the C-PACE marketplace and the green transition of commercial real estate will continue to accelerate.



Conclusion

As it is for the overall global economy, the transition to net zero for commercial real estate will be challenging. It will require cooperation among stakeholders in the government and the private sector. To be successful, government must provide a clear mandate that can withstand the political winds of change, and in response, everyone will need to share in the cost of meeting these mandates. It is a cost worth paying. If we fail to pay these costs today, we will pay a greater price in the form of lower economic output and a lower quality of living as a society, due to the increasing damage to our planet caused by the effect of climate change.

Easter Island, whose inhabitants were forced to abandon their homes after they completely deforested their land, provides a cautionary tale of what happens to civilizations that do not take appropriate steps to protect the natural environment. And while the entire world may not be forced to return to the stone age, extreme weather and climate events are already forcing people from their homes en masse. The United Nations Refugee Agency estimates that on average 20 million people each year are forced to leave their homes due to weather- and climate-related disasters such as abnormally heavy rainfall, droughts, desertification and sea-level rise. And this number is only expected to increase.

From a purely business perspective, we face disruptions on a scale never seen in our lifetimes. According to the International Renewable Energy Agency, the real estate sector will be one of the hardest hit industries in the climate transition, with as much as US\$7.5 trillion of global real estate assets becoming “stranded” due to such buildings’ inability to adapt to either the changing climate or the changing regulatory landscape that seeks to address climate change. This “brown discount” will inevitably lead to major write-downs and losses for both real estate investors and commercial real estate lenders. Beyond the real estate sector, another US\$4.3 trillion assets are at risk of being stranded. However, if real estate investors, property owners, tenants and lenders take action now to transition their capital to net-zero investments, not only may they avoid such devastating losses, they stand to make outsized profits compared to market participants who ignore the warning signs. This will also allow market participants to meet their corporate ESG goals and avoid some regulatory scrutiny. However, we cannot ignore the fact that the market is made of individual actors, and taking action on climate change may allow these individuals to feel good—even hopeful—at the end of each day knowing that they are having a positive impact on the planet and are helping their neighbors, near and far, adapt to a changing world.



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