



REAL ESTATE

Laying the Foundation:

Carbon Neutrality in Real Estate Investment

June 15, 2021

An array of municipalities, organizations, corporations, investors and individuals are pledging to go carbon neutral. The increased acceptance of this concept as a goal from both public and private institutions indicates increasing commitment to adapt to climate change. But what does it mean for real estate investment? And, why is it important? In this paper, we will examine the varied commitments the real estate investment industry has made to determine if our industry is contributing to the goal of carbon neutrality in a meaningful and more importantly, measurable, way.

Given the depth of the topic of carbon neutrality and its impact on real estate investment, we intend to cover the issue as a series of four papers, with this being the first. The intention is to utilize each paper as an opportunity to cover sub-topics within carbon neutrality including an (1) introduction to climate neutrality, (2) tools and programs to achieve climate neutrality while establishing authentic pledges, (3) current and future legislation, and (4) a response to the upcoming UN Summit Conference to be held in Glasgow in 2021.

Global Drivers of the Movement

The Paris Agreement, as the first legally binding international treaty on climate change, has been a global driver of climate action since its adoption at Conference of the Parties (COP) 21 in Paris on December 12, 2015. The Paris Agreement provides a framework for climate action through focusing on finance, technology, and capacity-building. One of the most significant goals that emerged from the agreement is to limit global warming to well below an increase of 2, preferably to 1.5 degrees, Celsius as compared to pre-industrial levels. For perspective, global temperatures have risen by more than 1° Celsius degree (2° Fahrenheit), since the industrial revolution through 2021. Two-thirds of the warming has occurred since 1975, at a rate of roughly 0.15-0.20°C per decade.¹ Therefore, the goal was established in efforts to significantly reduce the risks and impacts of climate change. Multiple forms of knowledge, including scientific evidence, narrative scenarios, and prospective pathways informed the selection of the 1.5°C goal.²

As outlined in the agreement, to achieve this long-term goal, countries should aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a carbon neutral world by mid-century.

As outlined in the agreement, to achieve this long-term goal, countries should aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a carbon neutral world by mid-century. To achieve the ambitious targets set forth in the Paris Agreement, a reduction of emissions will be required while removing existing carbon from the atmosphere. This includes changing traditional methods of business operations by switching to renewable energy sources while committing to preservation of forests, oceans, soil, and other natural environments that absorb large amounts of carbon. Therefore, calls for pledges to move towards carbon neutrality are increasing as more stakeholders commit to the accord's goals of lowering greenhouse gas emissions.

What is Carbon Neutrality?

At its fundamental level, a commitment to carbon neutrality is a commitment to achieving net-zero carbon dioxide emissions. The Intergovernmental Panel on Climate Change (IPCC) defines net zero as being achieved when CO₂ emissions due to human activity are balanced globally by CO₂ removals via human intervention over a specified period.³ However, this definition leaves much room for interpretation as it applies to various industries. As for the real estate industry, one must fully consider the impacts the industry inflicts upon the environment before understanding what it means to achieve carbon neutrality. Carbon emitted from the real estate industry can be thought of as either **operational or embodied**. Operational emissions are attributed to the sources

and processes required to operate the structure on a daily basis. Building operations consists of the activities necessary to operate, maintain, and manage buildings. This includes maintaining the HVAC systems, plumbing, electrical, and building system configuration. Rather, embodied carbon emissions consist of all the emissions associated with building construction, including those that arise from extracting, transporting, manufacturing, and installing building materials on site, as well as the operational and end-of-life emissions associated with the materials. Additional details on embodied vs operational carbon emissions and their subsequent environmental impacts are discussed later in this paper.

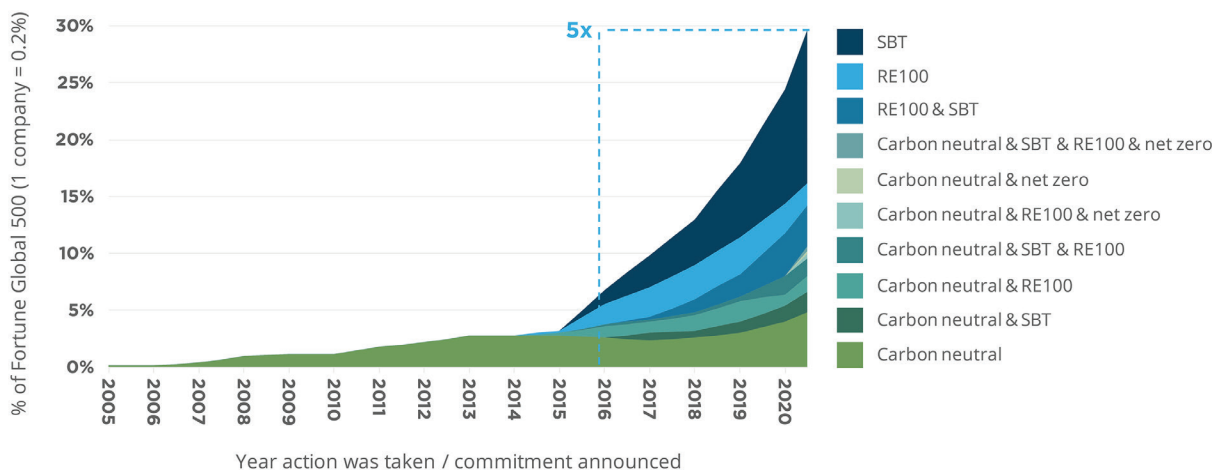
As commitments to climate action and carbon reduction sharply increase from various sectors, there have been a barrage of terms that have surfaced in the mainstream and a wide variety of definitions. In an effort to standardize and customize sector-specific definitions of carbon neutrality, a number of voluntary reporting frameworks and standards have been developed to help in creating clear sector-specific definitions and allowing investor claims to be compared to one another. A comparison table with comprehensive definitions for each framework is provided below in the **Appendix**.

The Role of the Private Sector

Although the Paris Accord's intent is to provide a climate action framework for countries, the private sector's role is emerging as a critical component in the success of reaching establishing goals, resulting in a sharp increase of awareness and commitments of carbon neutrality pledges across all sectors.

As **Figure 1** illustrates, within the past few years an unprecedented wave of carbon neutrality pledges have emerged.

Figure 1 | Percentage of Fortune 500 Companies with Carbon Reduction Commitments



Source: Natural Capital Partners <https://www.naturalcapitalpartners.com/news-resources/response-required>⁴

Many real estate investment managers have pledged their commitment to becoming carbon neutral and sharing their responsibility in tackling climate action. These commitments help not only in the pursuit of carbon neutrality, but also in other industry reporting frameworks such as GRESB (formerly Global Real Estate Sustainability Benchmark)⁵ and Task Force on Climate Related Disclosures (TCFD)⁶. As the carbon neutrality movement evolves, so have certain frameworks developed to provide guidance for the stakeholders pledging carbon reduction commitments.

The ULI Greenprint Center for Building Performance, a worldwide alliance of real estate owners and investors, has set a goal to reduce the operational carbon emissions of its members' collective buildings to net zero by the year 2050 and to cut 50% by 2030. Marta Schantz, Senior Vice President of ULI Greenprint, recognized the opportunity for real estate members to raise the bar with long-term net zero carbon goals, while continuing to show how these changes can continually add value to their properties: "Leaders throughout the real estate industry recognize the responsibility and opportunity to address their portfolios' impact on the environment. To spur further interest and action, ULI Greenprint launched a voluntary goal for real estate members to achieve net zero carbon operations by 2050, in line with the IPCC 1.5° scenario and the Paris Climate Accord."⁷ This new net zero carbon goal is designed to meaningfully reduce the built environment's impact on climate change beyond existing efforts.

"Leaders throughout the real estate industry recognize the responsibility and opportunity to address their portfolios' impact on the environment."

—**Marta Schantz**, Senior Vice President of ULI Greenprint

"We are excited about our continued partnership with MetLife Investment Management, as an early partner in the Better Buildings Low Carbon pilot..."

—**Maria T. Vargas**, Director of the DOE's Better Buildings Initiative

Understanding the urgency of the carbon emission reduction initiative, MetLife Investment Management's ("MIM") commitment to sustainability goals is reflected in its MetZero™ initiative. The MetZero program uses a Carbon Cascade™ approach focused on reducing emissions while adding on-site renewable energy and off-site green power procurement. MetLife has also pledged to reduce location-based greenhouse gas (GHG) emissions by 30 percent from 2019 levels, originate \$20 billion in new green investments, allocate \$5 million to develop products and partnerships that drive climate solutions and to power all MIM managed and controlled real estate investments with 100% renewable electricity by 2030, as outlined in MetLife's [2030 Environmental Goals](#).

MIM has also been working with the US Department of Energy to support their efforts in leading the industry towards climate action. "We are excited about our continued partnership with MetLife Investment Management," said Maria T. Vargas, Director of the DOE's Better Buildings Initiative. "As an early partner in the Better Buildings Low Carbon pilot, we appreciate the commitment and experience they bring to the table."

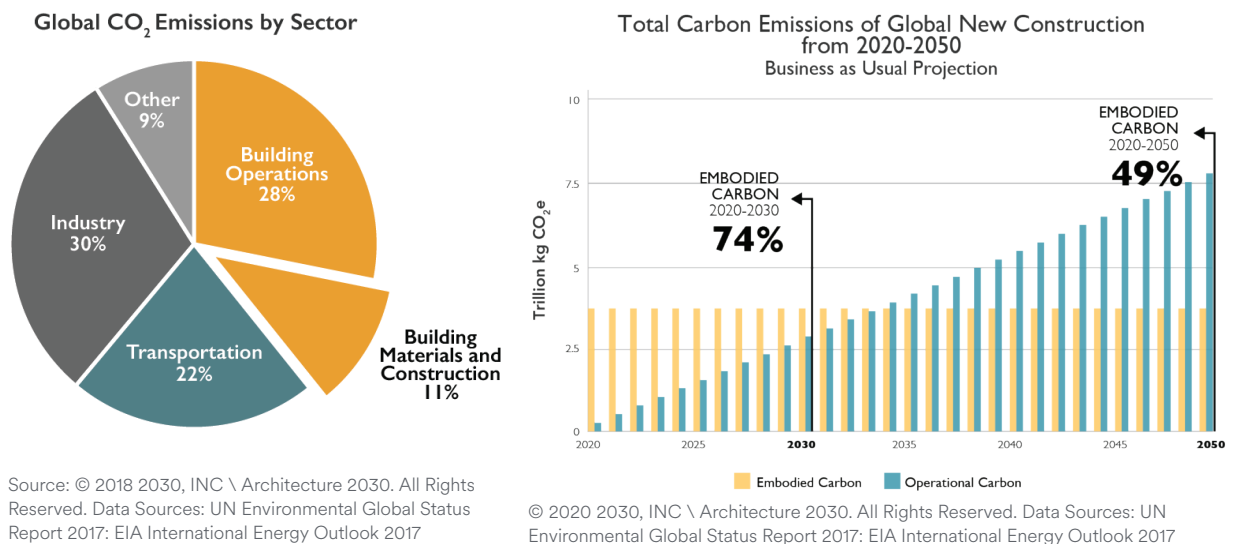
The Responsibility of Real Estate Investors

Buildings account for nearly 40% of the world's carbon emissions,⁸ meaning that as real estate investors, we have a crucial role in the global pathway to carbon neutrality. Landlords also have a unique opportunity to reduce overall building emissions through decisions on equipment upgrades, improving sustainable operations, and installing on-site renewables. The real estate industry plays a fundamental role in reducing global greenhouse gas emissions. Landlords must

take responsibility for not only the parts of a building they control, but for also helping tenants to reach carbon neutrality. Although obtaining tenant emissions data can be challenging, this information becomes critical as we work to offset current emissions and reduce future emissions. As the number of tenants with established sustainability initiatives and their own corporate carbon commitments continues to increase, landlords are positioned to leverage this joint momentum by identifying synergies that could lead to progressive sustainable improvements for the property. With the understanding that tenant engagement is crucial to carbon neutrality success, MIM has chosen to prioritize tenant engagement and align our ESG and carbon neutrality goals with our tenants in our efforts to achieve our goals and create value for all stakeholders. The scope of our MetZero initiative includes tenant GHG emissions, as we realize an effective carbon reduction program in commercial real estate must include all emissions for a property, not just those controlled by the landlord.

Currently, most of the real estate industry and the frameworks supporting it have focused on reducing emissions caused by operations of buildings. However, embodied carbon is a less obvious source of emissions that plays a significant role in ranking real estate as a high-impact sector. Increasingly embodied carbon emissions are becoming equal to operational emissions – and unlike operational, no form of efficiency can ameliorate embodied carbon. Once it arrives and is implemented on-site, it’s already in our atmosphere attributing to our warming planet. There are myriad challenges associated with embodied carbon emissions, they are much more ubiquitous and challenging to track, nonetheless important in achieving carbon neutrality goals. As Figure 2 indicates, embodied carbon already encompasses a significant percentage of global emissions at 11% and the figure is slated to increase between now and 2050. As MIM starts to understand and reduce our impact at the operational level, we also plan to develop a strategy to reduce our embodied carbon footprint.

Figure 2 | Embodied Carbon vs Operational Carbon



Source: Architecture 2030 Challenge *New Buildings: Embodied Carbon – Architecture 2030*

Carbon Neutrality and the Value Added

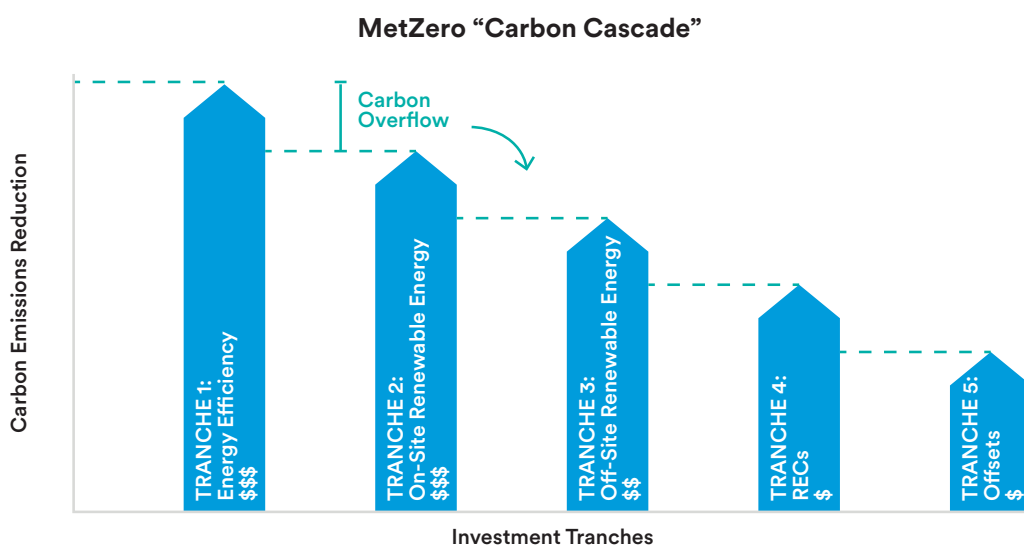
Embarking on a carbon neutrality journey not only provides significant opportunities for landlords looking to differentiate and to potentially gain competitive advantages, but it could also

significantly diminish exposure to risks. Portfolios that achieve carbon neutrality can potentially offer insulation in the form of resiliency and ability to adapt as the climate continues to change. Physical and transitional risks are becoming an unavoidable reality affecting every asset on the balance sheet. Although physical risks are becoming more ubiquitous and tangible in the form of damaging natural disasters, transitional risk also poses threats to landlords in the absence of mitigation and/or adaptation. Notable transitional risk facing landlords include technology disruptions, future policies and regulations, and changing consumer preferences and social norms. The shocks endured by each sector as the climate continues to change will fluctuate dependent upon the industry, and undoubtedly the real estate industry is slated to endure numerous changes that could radically change the structure of asset valuation. Tenant demands, carbon taxes, and leasable spaces, are just a few of the factors that will contribute to increasing volatility of the sector as climate continues to change. MIM has chosen to take climate action and work towards achieving carbon neutrality in efforts to not only mitigate risks but to illustrate structural resilience as fundamental shifts begin within the real estate industry. Due to the complexity of transitional and physical risks, they will be discussed in greater detail in the subsequent papers in this series.

As referenced in MIM’s recent white paper, [“Investors Expect and Demand Meaningful Environmental Goals and Progress”](#), for real estate investors, the pathway to carbon neutrality can be outlined by the “Carbon Cascade” approach. The process starts by reducing energy demand and then moves to the use of renewable energy, and finally to the use of RECs and carbon offsets to reach carbon neutrality. MIM sees this approach as an effective way to take climate action, achieve carbon neutrality goals while strategically establishing structural resilience to the portfolio in as a form of added value and insulation to potential climate risks.

MIM has not yet publicly committed to any carbon neutrality frameworks to date, yet as **Figure 3** illustrates, the MetZero approach is illustrative to MIM’s commitment to carbon neutrality and our beginning of our carbon neutrality journey via the Carbon Cascade approach of focusing on operational emission reduction.

Figure 3 | MetZero – And the Value Added⁹



Source: RE Tech Advisors

This chart is intended to help illustrate certain investment concepts/processes and is not intended to represent actual past, or expected future, performance of any security, investment product or investment strategy.

With all investors having a unique portfolio, there is no one size fits all approach or strategy for reaching carbon neutrality for real estate investment. This has perpetuated the wide variety of approaches and commitments from real estate investment managers, which can make it difficult for investors to compare the actions of one fund to another. While each commitment is unique, they all move the real estate investment industry forward towards answering the call of the Paris Agreement. But are we as an industry doing enough, fast enough, to achieve carbon neutrality by 2050?

Moving to a Post-Carbon Society

Despite the uptick in carbon neutrality pledges, the IPCC 1.5 degrees report released in 2018 indicates we are far from meeting established goals of the Paris Agreement. Climate science has made it clear that a deep transformation is needed to achieve the climate goals, and that such transformation must start early and result in deep emission reductions even before 2030. The transformation to a post-carbon society will require a multi-faceted approach focusing on utilizing emerging technologies, renewable energies, and diverting financing away from carbon concentrated activities. Other climate adaptation initiatives will be needed to form a resilient society able to adapt to climate changes that are already being experienced.

Inevitably, the path to decarbonization will pose more challenges to high impact industries than others. However, as research from the United Nations illustrates,¹⁰ the transformation is necessary to avoid catastrophic impacts and it has been proven feasible with technology, finance, and capacity-building.

What Comes Next?

We believe the time to act is now. The Paris Agreement and its established targets were set over five years ago. As mentioned previously, nearly 40% of carbon emissions come from the built environment and they have been rising at 1% per year since 2010, indicating the real estate industry has a crucial role to play in decarbonizing the global economy.¹¹ The devastating impacts of climate change are being felt from around the world by increasingly intense wildfires, hurricanes, flooding, and sea level rise. The industry needs to be awakened to its profound impacts on the environment and the urgency of declaring authentic carbon neutrality now. MIM has recognized and is taking responsibility of the impacts the real estate industry has upon the environment. Our carbon neutrality journey has just begun and involves improving the efficiency of our operations, engaging with tenants and other stakeholders, and leveraging the potential climate action has to add value to our portfolio through resiliency and adaptation.

In the next paper in this series, we'll cover tools and programs for achieving carbon neutrality while investigating factors that are slowing progress, including the scopes, boundaries, and timelines of carbon neutrality commitments. We will take a deep dive into the authenticity of the various carbon neutrality pledge commitments within the real estate industry today and what that means for our warming planet.



Appendix

Guidance, Voluntary Reporting, and Carbon Commitment Frameworks

In response to the rapid increase in carbon neutrality pledges, there have been numerous frameworks that have been developed to aid stakeholders in their journey towards carbon neutrality. The following section details various carbon commitment frameworks that provide guidance when pledging carbon neutrality. A snapshot of the frameworks is provided in **Figure 4**.

Figure 4 | Summary of Industry Frameworks

Framework	Type	Commitment	Alignment with Paris Agreement?	Targeted Participant	Number of Participants	Corporate/ Investor Alliance?
CarbonNeutral	Reduction Commitment Framework	Carbon neutrality in reporting year	Yes	Private sector	300+	No
CDP	Voluntary Reporting Framework	Move towards a sustainable economy with emphasis on carbon reduction through environmental data disclosure	N/A	Public and private sector	9,600+	No
RE100	Reduction Commitment Framework	Achieve 100% renewable energy by 2050 in phases: 60% by 2030 and 90% by 2040	Yes	All sectors	284	Yes
SBTis	Reduction Commitment Framework	Carbon Reduction for 1.5° & 2° scenarios	Yes	Private sector	1, 128	No
ULI Greenprint	Reduction Commitment Framework	50% by 2030;	Yes	ULI Greenprint real estate members	17	Yes
UN Net Zero Asset Owners Alliance	Reduction Commitment Framework	NetZero by 2050 under 1.5° scenario	Yes	All sectors	37	Yes
TCFD	Guidance Framework	Improved climate-related financial reporting	N/A	All sectors	1,000+	No
SASB	Guidance Framework	Industry-specific, sustainability-related financial reporting	N/A	Private sector (standards for 11 sectors)	500+	No
Net Zero Asset Managers Initiative	Reduction Commitment Framework	NetZero by 2050 under 1.5° scenario	Yes	Asset Managers	72 signatories	Yes
Carbon Risk Real Estate Monitor (CRREM)	Reduction Commitment Framework	Carbon Reduction for 1.5° & 2° scenarios	Yes	European Real Estate Industry	N/A	No
Institutional Investors Group on Climate Change (IIGCC) Net Zero Investment Framework	Reduction Commitment Framework	NetZero by 2050 under 1.5° scenario	Yes	All sectors	22	Yes
One Carbon World	Reduction Commitment Framework	NetZero by 2050 under 1.5° scenario	Yes	All sectors	N/A	No

Source: RE Tech Advisors

CarbonNeutral

CarbonNeutral, a Natural Capital Partners company, is a certification that recognizes neutrality achievements through operational improvements, RECs, and offsets providing a clear set of guidelines for businesses to achieve carbon neutrality for their scope 1 and scope 2 carbon emissions¹².

Formerly Carbon Disclosure Project (CDP)

CDP is a non-profit global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. Considered the gold standard of environmental reporting, the annual survey places a heavy emphasis on disclosing environmental data. The CDP has three surveys focused on climate change, forests, and water security.

RE100

RE100 is a partnership with the Climate Group (an international non-profit) and CDP, with a mission to accelerate change towards zero carbon grids at scale. RE100 is a global initiative bringing together the world's most influential businesses driving the transition to 100% renewable electricity. RE100 has a set of specific requirements to join including 100% by 2050, with interim steps of at least 60% by 2030 and 90% by 2040

SBTi

The Science Based Targets initiative (SBTi) is a partnership between Carbon Disclosure Project (CDP), the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). The SBTi drives ambitious climate action in the private sector by enabling companies to set science-based emissions reduction targets. Science-based targets provide a clearly-defined pathway for companies to reduce greenhouse gas (GHG) emissions, helping prevent the worst impacts of climate change and future-proof business growth. Targets are considered 'science-based' if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C.

ULI Greenprint

The ULI Greenprint Center for Building Performance includes a worldwide alliance of leading real estate owners, investors, and strategic partners committed to improving the environmental performance of the global real estate industry. Through measurement, benchmarking, knowledge sharing, and implementation of best practices, Greenprint and its members strive to reduce greenhouse gas emissions by 50 percent by 2030 and to achieve net zero carbon operations by 2050.

UN Net Zero Asset Owners Alliance

Established by the UN, the Net Zero Asset Owners Alliance is an international group of 37 institutional investors that have made a commitment to transition their investment portfolios to net-zero GHG emissions by 2050. The intent of the alliance is to illustrate united action in achieving emission reduction goals set forth in the Paris Agreement.

Task Force on Climate Related Financial Disclosure (TCFD)

TCFD is a voluntary reporting framework that seeks to effectively communicate climate-related risks, opportunities, and targets through disclosure of the entity's existing reporting (such as annual sustainability report or financial reporting). As TCFD gains in popularity, many existing reporting frameworks such as GRESB and SASB are incorporating elements of TCFD into their content.

These reporting frameworks are becoming essential for companies especially areas such as the European Union (EU) where the sustainable finance disclosure regulation (SFDR) has recently become mandatory.

Sustainability Accounting Standards Board (SASB)

SASB is industry-specific standards to guide the disclosure of financially material sustainability information per company. SASB has an annual reporting process that enables organizations to effectively communicate sustainability data efficiently and effectively.

Net Zero Asset Managers Initiative

Launched in December 2020, the Net Zero Asset Managers initiative is a group of international asset managers committed to supporting the goal of net zero greenhouse gas emissions by 2050 or sooner, in line with global efforts to limit warming to 1.5 degrees Celsius. The initiative seeks to mobilize action and gain support for investment that aligns with net zero emissions by 2050 or sooner. It also provides a forum to share best practices and overcome barriers to aligning investments to a net zero goal.

The Carbon Risk Real Estate Monitor (CRREM)

CRREM focuses on carbon risk assessments for the European real estate industry. CRREM as a tool seeks to estimate risk and uncertainty associated with real estate decarbonization, building a methodological body and empirically quantify the different scenarios and their impact on the investor portfolios.

Institutional Investors Group on Climate Change (IIGCC) Net Zero Investment Framework

The IIGCC launched the Net Zero Investment Framework in 2021 to enable investors to maximize the contribution they make to decarbonization of the global economy and tackling climate change. This is achieved by ensuring investment portfolios are aligned with net zero emissions and investors are working in a comprehensive manner to help deliver on the goal of the Paris Agreement to keep global warming below 1.5°C.

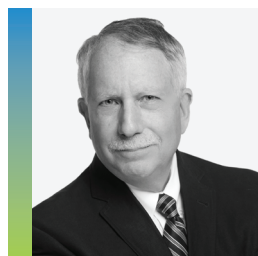
One Carbon World

One Carbon World is a carbon neutral organization and a global resource partner of the Climate Neutral Now Initiative which was launched by the United Nations Climate Change. The mission of the organization is to offer advice and support on measuring and reducing greenhouse gas emissions of organizations around the world.

Endnotes

- ¹ Source: NASA's Earth Observatory: World of Change: Global Temperatures (nasa.gov)
- ² Source: The IPCC's special report Global Warming of 1.5 °C
- ³ <https://www.ipcc.ch/sr15/chapter/glossary/>
- ⁴ Data Appendix for the Referenced Chart: [Natural+Capital+Partners+++2020+++Response+Required+++Data+appendix.pdf](#)
- ⁵ GRESB is a mission driven and investor led organization providing standardized and validated Environmental, Social and Governance (ESG) data to the capital markets in the form of a peer-ranked & scored annual survey.
- ⁶ As a voluntary framework, TCFD alignment requires participants to disclose their climate risk including both physical and transitional, as well as reporting Scope 1 & 2 emissions. The intent of the framework is to identify concentrations of carbon-related assets to facilitate understanding of the financial system's exposures to climate-related risks.
- ⁷ Source: See <https://uli.org/netzerogoal>
- ⁸ Source: UN Environmental Programme 2020 Global Status Report for Buildings and Construction
- ⁹ Chart Source: MIM, RE Tech Advisors
- ¹⁰ UN Environmental Programme 2019 Emissions Gap Report
- ¹¹ ULI Report Decarbonizing the Built Environment
- ¹² Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.

Author



JIM LANDAU, LEED AP

Head of Environmental, Social & Governance, Real Estate and Agricultural Finance | MetLife Investment Management

Jim Landau, LEED AP, is the Head of Environmental, Social & Governance for MetLife Investment Management's (MIM) Real Estate Equity, Debt and Agricultural Finance Groups. Jim chairs MIM's ESG Advisory Committee and is responsible for programs such as MetZero, achieving carbon neutrality in several investment funds. He oversees initiatives including on-site renewable installations, energy and water efficiency in existing buildings and new developments and assessing the impact of climate change and resiliency for new equity and debt investments. Responsibilities include reporting to investors and partners as well as EPA, DOE and GRESB.

About MetLife Investment Management | Real Estate

MetLife Investment Management's¹ Real Estate Group, with \$106.5 billion² in commercial real estate debt and equity assets under management, brings 145 years of experience across market cycles to deliver a collaborative, client-focused approach to your specific debt and equity portfolio needs. With 80+ senior professionals with an average of 24 years experience, along with over 200 locally based real estate professionals in 11 regional offices around the world, we assess real estate debt and equity solutions by geography, property type and risk tolerances. Our seasoned professionals start by listening to your portfolio needs and work with you leveraging our powerful regional presence and longstanding industry relationships to seek attractive, long-term investment opportunities. We are institutional, but far from typical.

For more information, visit: investments.metlife.com/real-estate

¹ MetLife Investment Management ("MIM") is MetLife, Inc.'s institutional management business and the marketing name for subsidiaries of MetLife that provide investment management services to MetLife's general account, separate accounts and/or unaffiliated/third party investors, including: Metropolitan Life Insurance Company, MetLife Investment Management, LLC, MetLife Investment Management Limited, MetLife Investments Limited, MetLife Investments Asia Limited, MetLife Latin America Asesorias e Inversiones Limitada, MetLife Asset Management Corp. (Japan), and MIM I LLC.

² At estimated fair value. Includes MetLife general account and separate account assets and unaffiliated/third party assets.

Disclosures

This material is intended solely for Institutional Investors, Qualified Investors and Professional Investors. This analysis is not intended for distribution with Retail Investors.

This document has been prepared by MetLife Investment Management (“MIM”)¹ solely for informational purposes and does not constitute a recommendation regarding any investments or the provision of any investment advice, or constitute or form part of any advertisement of, offer for sale or subscription of, solicitation or invitation of any offer or recommendation to purchase or subscribe for any securities or investment advisory services. The views expressed herein are solely those of MIM and do not necessarily reflect, nor are they necessarily consistent with, the views held by, or the forecasts utilized by, the entities within the MetLife enterprise that provide insurance products, annuities and employee benefit programs. The information and opinions presented or contained in this document are provided as the date it was written. It should be understood that subsequent developments may materially affect the information contained in this document, which none of MIM, its affiliates, advisors or representatives are under an obligation to update, revise or affirm. It is not MIM’s intention to provide, and you may not rely on this document as providing, a recommendation with respect to any particular investment strategy or investment. Affiliates of MIM may perform services for, solicit business from, hold long or short positions in, or otherwise be interested in the investments (including derivatives) of any company mentioned herein. This document may contain forward-looking statements, as well as predictions, projections and forecasts of the economy or economic trends of the markets, which are not necessarily indicative of the future. Any or all forward-looking statements, as well as those included in any other material discussed at the presentation, may turn out to be wrong.

All investments involve risks including the potential for loss of principle and past performance does not guarantee similar future results. Property is a specialist sector that may be less liquid and produce more volatile performance than an investment in other investment sectors. The value of capital and income will fluctuate as property values and rental income rise and fall. The valuation of property is generally a matter of the valuers’ opinion rather than fact. The amount raised when a property is sold may be less than the valuation. Furthermore, certain investments in mortgages, real estate or non-publicly traded securities and private debt instruments have a limited number of potential purchasers and sellers. This factor may have the effect of limiting the availability of these investments for purchase and may also limit the ability to sell such investments at their fair market value in response to changes in the economy or the financial markets

In the **U.S.** this document is communicated by MetLife Investment Management, LLC (MIM, LLC), a U.S. Securities Exchange Commission registered investment adviser. MIM, LLC is a subsidiary of MetLife, Inc. and part of MetLife Investment Management. Registration with the SEC does not imply a certain level of skill or that the SEC has endorsed the investment advisor.

This document is being distributed by MetLife Investment Management Limited (“MIML”), authorised and regulated by the UK Financial Conduct Authority (FCA reference number 623761), registered address Level 34 One Canada Square London E14 5AA United Kingdom. This document is only intended for, and may only be distributed to, investors in the EEA who qualify as a Professional Client as defined under the EEA’s Markets in Financial Instruments Directive, as implemented in the relevant EEA jurisdiction. The investment strategy described herein is intended to be structured as an investment management agreement between MIML (or its affiliates, as the case may be) and a client, although alternative structures more suitable for a particular client can be discussed.

For investors in the Middle East: This document is directed at and intended for institutional investors (as such term is defined in the various jurisdictions) only. The recipient of this document acknowledges that (1) no regulator or governmental authority in the Gulf Cooperation Council (“GCC”) or the Middle East has reviewed or approved this document or the substance contained within it, (2) this document is not for general circulation in the GCC or the Middle East and is provided on a confidential basis to the addressee only, (3) MetLife Investment Management is not licensed or regulated by any regulatory or governmental authority in the Middle East or the GCC, and (4) this document does not constitute or form part of any investment advice or solicitation of investment products in the GCC or Middle East or in any jurisdiction in which the provision of investment advice or any solicitation would be unlawful under the securities laws of such jurisdiction (and this document is therefore not construed as such).

For investors in Japan: This document is being distributed by MetLife Asset Management Corp. (Japan) (“MAM”), 1-3 Kioicho, Chiyoda-ku, Tokyo 102-0094, Tokyo Garden Terrace KioiCho Kioi Tower 25F, a registered Financial Instruments Business Operator (“FIBO”) under the registration entry Director General of the Kanto Local Finance Bureau (FIBO) No. 2414.

For Investors in Hong Kong: This document is being issued by MetLife Investments Asia Limited (“MIAL”), a part of MIM, and it has not been reviewed by the Securities and Futures Commission of Hong Kong (“SFC”).

For investors in Australia: This information is distributed by MIM LLC and is intended for “wholesale clients” as defined in section 761G of the Corporations Act 2001 (Cth) (the Act). MIM LLC exempt from the requirement to hold an Australian financial services license under the Act in respect of the financial services it provides to Australian clients. MIM LLC is regulated by the SEC under US law, which is different from Australian law.

¹ MetLife Investment Management (“MIM”) is MetLife, Inc.’s institutional management business and the marketing name for subsidiaries of MetLife that provide investment management services to MetLife’s general account, separate accounts and/or unaffiliated/third party investors, including: Metropolitan Life Insurance Company, MetLife Investment Management, LLC, MetLife Investment Management Limited, MetLife Investments Limited, MetLife Investments Asia Limited, MetLife Latin America Asesorias e Inversiones Limitada, MetLife Asset Management Corp. (Japan), and MIM I LLC.

L0621014427[exp0623][All States] L0621014400[exp0623][All States] L0621014285[exp0623][All States] L0621014279[exp0623][All States]

Appendix

This appendix contains details for the preceding charts and provides additional information for greater accessibility.

Percentage of Fortune 500 Companies with Carbon Reduction Commitments

Note:

- All values are approximate
- Y axis Label: % of Fortune Global 500 (1 company = 0.2%)
- From 2005 to 2013, all values except “Carbon Neutral” are marked n/a because the curves do not appear yet.
- From 2014 to 2019, some values are marked n/a because the curves do not appear yet.
- From 2014 to 2020, the following curves rise from sharply to moderately in the following order:
 - SBT
 - RE100
 - RE100 & SBT
 - Carbon neutral & SBT & RE100 & net zero (2019 to 2020 only)
 - Carbon neutral & net zero (2019 to 2020 only)
 - Carbon neutral & RE100 & net zero (2019 to 2020 only)
 - Carbon neutral & SBT & RE100
- From 2014 to 2020, the following curves rise from moderately to gradually in the following order:
 - Carbon neutral & RE100
 - Carbon neutral & SBT
 - Carbon neutral
- Source: Natural Capital Partners <https://www.naturalcapitalpartners.com/news-resources/response-required>

Year Action Was Taken / Commitment Announced	SBT	RE100	RE100 & SBT	Carbon neutral & SBT & RE100 & net zero	Carbon neutral & net zero	Carbon neutral & RE100 & net zero	Carbon neutral & SBT & RE100	Carbon neutral & RE100	Carbon neutral & SBT	Carbon neutral
2005	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.0%
2006	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.2%
2007	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.3%
2008	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.0%
2009	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.2%
2010	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.2%
2011	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.7%
2012	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.2%
2013	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.7%
2014	n/a	0.0%	n/a	n/a	n/a	n/a	n/a	0.0%	n/a	2.7%
2015	0.0%	0.2%	n/a	n/a	n/a	n/a	0.0%	0.3%	n/a	2.7%
2016	1.2%	1.9%	0.0%	n/a	n/a	n/a	0.2%	1.0%	0.0%	2.5%
2017	2.9%	2.5%	0.2%	n/a	n/a	n/a	0.2%	1.0%	0.7%	2.4%
2018	3.9%	3.1%	1.2%	n/a	n/a	n/a	0.3%	1.4%	0.5%	2.5%
2019	6.4%	3.2%	1.9%	n/a	n/a	n/a	0.3%	1.9%	1.0%	2.9%
2020	10.0%	2.5%	3.7%	0.0%	0.0%	0.0%	1.5%	1.0%	1.4%	3.9%
Mid 2020	13.4%	2.0%	3.6%	0.3%	0.2%	0.3%	1.5%	1.4%	1.7%	4.7%

Embodied Carbon vs Operational Carbon

Total carbon Emissions of Global New Construction from 2020-2050

Note:

- All values are approximate
- Note at year 2030: “Embodied Carbon 2020-2030 74%
- Note at year 2050: “Embodied Carbon 2020-2050 49%
- Source: Architecture 2030 Challenge New Buildings: Embodied Carbon – Architecture 2030
 - Data Sources: UN Environmental Global Status Report 2017: EIA International Energy Outlook 2017

Year	Embodied Carbon (Trillion kg CO ₂)	Operational Carbon (Trillion kg CO ₂)
2020	3.25	0.30
2021	3.25	0.55
2022	3.25	0.75
2023	3.25	1.10
2024	3.25	1.40
2025	3.25	1.65
2026	3.25	1.85
2027	3.25	2.15
2028	3.25	2.35
2029	3.25	2.65
2030	3.25	2.80
2031	3.25	3.10
2032	3.25	3.45
2033	3.25	3.65
2034	3.25	3.90
2035	3.25	4.25
2036	3.25	4.50
2037	3.25	4.75
2038	3.25	5.00
2039	3.25	5.30
2040	3.25	5.60
2041	3.25	5.85
2042	3.25	6.15
2043	3.25	6.45
2044	3.25	6.70
2045	3.25	6.90
2046	3.25	7.20
2047	3.25	7.30
2048	3.25	7.50
2049	3.25	7.50
2050	3.25	7.75

MetZero – And the Value Added

Note:

- All values are approximate
- Source: RE Tech Advisors

Tranche	Relative Size of Bar for Carbon Emissions Reduction
TRANCHE 1: Energy Efficiency \$\$\$	100%
TRANCHE 2: On-Site Renewable Energy \$\$\$	85%
TRANCHE 3: Off-Site Renewable Energy \$\$	70%
TRANCHE 4: RECs \$	53%
TRANCHE 5: Offsets \$	37%