EPRA
EUROPEAN PUBLIC
REAL ESTATE ASSOCIATION

The carbon transition playbook

Key global initiatives mapping and best practice from the listed real estate sector

September 2024

www.epra.com

Contents

1.0 Introduction

The pressing need to combat climate change has elevated decarbonisation to a top priority on the global agenda. Reaching net zero carbon emissions is now a critical objective for many sectors with real estate playing a pivotal role in this effort. As the complexity and variety of carbon initiatives continues to expand globally, this report provides essential market context, highlighting the growing emphasis on carbon reduction and the intricate landscape of carbon-related initiatives that are emerging.

EPRA (The European Public Real Estate Association) has teamed up with JLL to create this report to examine the wide range of Global and European carbon initiatives **currently being implemented.** We have also included a section focusing on country-level initiatives based on suggestions from EPRA members, particularly listed real estate (LRE) companies from the current EPRA Sustainability Committee. By providing a detailed comparative overview, EPRA offers its members much-needed clarity and insights on the current state of play. This report is intended to help EPRA members gain a better understanding of the carbon initiatives relevant to the industry, enabling them to make well-informed decisions about the approaches that best align with their unique objectives.

This report features a series of case studies contributed by corporate members, specifically those who are part of the EPRA Sustainability Committee. Each case study offers insights into the challenges and benefits experienced in implementing these carbon initiatives. This provides organisations with practical examples and lessons learned from their peers. Through this detailed analysis, EPRA seeks to support LRE companies to navigate the complexities of carbon initiatives, thereby advancing their progress towards achieving net zero carbon emissions.

2.0 Forewords

EPRA Foreword

As we confront the challenges of our fight against climate change, the EPRA Sustainability Team remains committed to leading the LRE sector towards a sustainable and decarbonised future. Reducing carbon emissions is a mandate driven not only by regulations and investor expectations, but also by moral responsibility to future generations. This report reflects our dedication to providing our members with knowledge and useful tools to make informed decisions in this complex and rapidly evolving landscape.

The real estate sector, a major contributor to global greenhouse gas (GHG) emissions, carries a unique responsibility and potential for impactful change. By adopting effective, standardised, and comparable carbon initiatives, our industry can lead by example, setting a benchmark for other sectors to follow. With this report we want to picture, explain and simplify the various carbon-related commitments, standards, regulations, and labels among others, providing LRE companies a clear and extensive guide to successfully navigate their sustainability journeys.

We believe in sharing best practices and real-world examples from our members to foster a collaborative environment where knowledge and innovation thrive. With this report we hope to inspire and drive collective progress towards our common goal of net-zero carbon emissions.

We extend our gratitude to JLL for their expertise and collaboration in developing this report and to our members who have contributed their insights and experiences. Together, we can pave the way for a more sustainable and resilient future.

EPRA Sustainability Team

Hassan Sabir, Finance & ESG Director
Lourdes Calderón Ruiz, ESG Manager

JLL Foreword

This is a crucial decade for decarbonising real estate. It is no longer just about setting targets – it is now about implementing clear action plans that will make a tangible difference in reducing carbon emissions year after year. Our industry can make this a reality. We have the tools, the technology, and the expertise to decarbonise buildings at scale – but we need to work together and pick up the pace.

Commissioned by EPRA, we are pleased to present this collaborative report, marking a significant milestone in our shared commitment to driving sustainability within the real estate industry. This report serves as a valuable tool, equipping EPRA members with the knowledge and insights required to navigate the complexities of sustainability. Drawing upon our collective expertise, we provide a guide to carbon initiatives, encompassing commitments, frameworks, guidelines, labels, regulations, and standards with the goal of empowering LRE to confidently embark on their sustainability journeys, regardless of their prior engagement level.

We extend our sincerest gratitude to the EPRA Sustainability Team for their invaluable expertise and collaboration in the development of this report. We would also like to express our appreciation to EPRA's members, whose insights and experiences have enriched its contents. It is through these partnerships that we can pave the way for a more sustainable and resilient future.

We invite real estate firms to read this report and leverage the insights and recommendations it offers. By embracing sustainable practices and taking decisive action, we can catalyse positive change, ensure long-term resilience, and contribute to a more sustainable world for generations to come.

Matt Wilkinson, Climate Services Lead at JLL

Disclaimer

This document is provided for informational purposes only and does not substitute professional advice or any form of assessment or endorsement. The information contained is based on a review of publicly available information and resources believed to be reliable and accurate at the time of the publication. Therefore, readers are advised to independently verify and cross-reference the information presented herein before making any decisions or taking any actions based upon it. EPRA disclaims any liability or responsibility for any direct, indirect, or consequential losses or damages caused by the use of, reference to, or reliance on the information contained in this document.

3.0 Market Context

The number of carbon-related initiatives in the real estate sector continues to increase due to several interconnected factors. These initiatives are driven by global concerns regarding climate change, growing regulations, investor demand for sustainable investments, and tenant expectations for environmentally friendly buildings.

1 Climate Change Awareness

The recognition of the urgent need to address climate change has led governments, organisations, and society to prioritise sustainability efforts, with a pressing global deadline to cut emissions by 43% by 2030 in alignment with the Paris Climate Agreement.[1] The real estate sector, being a significant contributor to greenhouse gas (GHG) emissions, is under increasing scrutiny to reduce its carbon footprint.

2 Growing Regulations

Governments and regulatory bodies are implementing or proposing mandatory Environmental, Social, and Governance (ESG) disclosure rules to foster greater transparency and accountability among companies, while facilitating the transition towards a net zero economy. Real estate companies are increasingly legally obligated to comply with these requirements, failing which they may be subject to penalties, fines, and potential legal action.

3 Investor Demand

Investors are increasingly considering sustainability factors when making investment decisions and recognise the potential risks associated with carbon-intensive assets and the value of long-term resilience.

4 Tentant Expectations

Tenants are actively seeking low-carbon spaces that align with their own sustainability goals. JLL research, "The green tipping point", shows that although there is already some shift in corporate lease demand due to ESG requirements, significant and widespread changes are expected in the next 12 to 24 months, requiring an increased level of retrofitting to keep pace with demand.[2]

In response to this market context, industry bodies, non-profit organisations and, in certain cases, independent organisations have come together to develop best practice, stipulate requirements and make commitments in the form of initiatives to drive action towards tackling the climate crisis. Although greater clarity around the built environment and carbon performance is emerging, a detailed analysis and understanding of carbon-related initiatives and their implication is key to avoid non-compliance and stay competitive.

[1]https://unfccc.int/process-and-meetings/the-paris-agreement
[2]https://www.us.jll.com/en/trends-and-insights/research/the-green-tipping-point

4.0 Initiative selection methodology

This section outlines the structured approach used to identify and evaluate carbon-related initiatives relevant to the real estate sector. The aim is to present EPRA members with a clear and comprehensive overview of current initiatives, ensuring relevance and applicability. Understanding the methodology is crucial for interpreting the findings and recommendations presented in the report. By detailing our selection criteria and processes, we ensure the transparency and credibility of this report, thereby helping EPRA members make informed decisions aligned with their sustainability goals.

We reviewed a wide range of global and regional initiatives and focus in on those that:

- **Are already in place** to ensure the reliability and applicability of the findings, excluding initiatives that are currently under development; for example, the United Kingdom (UK) Net Zero Carbon Buildings Standard (NZCBS) is expected to be published in 2024 and is therefore out of the scope of this report
- **Are relevant** to the real estate industry
- **Have an emphasis on carbon** over other environmental factors

We define an initiative as an action led approach to achieve a required objective.

The methodology employed follows a systematic four-step approach to generate a focused list of initiatives for our analysis.

Step 1: Creation of a long list of initiatives

The initial long list of initiatives was derived from comprehensive desk-based research combined with expert reviews by EPRA and JLL. The following research criteria were adopted:

- **Geographical scope:** global and European initiatives published by international organisations or those that have a global reach/pursue global objectives, as well as country-specific initiatives of the top six EPRA member jurisdictions by full market capitalisation at the time of the research (June 2024), namely France, Germany, Sweden, Switzerland, and the UK
- **Industry scope:** cross-industry or real estate specific initiatives
- **Content scope:** ESG initiatives covering wider sustainability topics that are not limited to carbon-focused measures
- **Source scope:** publicly accessible sources, including initiatives' websites and publicly available reports

The long list of initiatives is available in **Appendix 1 – Long list of initiatives**. This list of initiatives was first classified into six distinct categories, outlined in **Figure 1**. This process involved refining and expanding upon existing ESG initiative mapping reports, such as the ULI report "Mapping ESG - A landscape review of certifications, reporting frameworks and practices", to establish categories that were suitably distinct based on the market initiatives identified.[3] Furthermore, the Investment Property Forum (IPF) report "Pathways to Net Zero Carbon Emissions in International Real Estate Investment" played a role in shaping the thinking and conclusions to show how these initiatives have continued to evolve over time. It is important to note that the classification used in this document is unique to EPRA and serves to effectively structure the content.

[3]https://knowledge.uli.org/-/media/files/research-reports/2023/uli_esg_mapping-report_final---may-2023.pdf?

Figure 1 - Defined categories for initiatives

Commitment

A formal promise or pledge made by an organisation, government, or individual. It signifies dedication to specific actions or goals.

Framework

A flexible structure or guidance system that sets out principles, best practices, and approaches to help achieve specific goals. It provides direction without imposing rigid requirements.

Guideline

Recommendations, advice, or suggested practices that inform decision-making. Unlike frameworks and standards, guidelines do not enforce strict rules, allowing for flexibility in implementation.

Label

A certification that signifies that a building meets certain predefined criteria.

Regulation

A legally binding rule or requirement imposed by authorities (e.g., government agencies). Compliance is mandatory, and penalties may apply for non-compliance.

Standard

A well-defined set of rules, specifications, or criteria derived from frameworks. It translates the guidance provided by frameworks into actionable requirements, establishing a baseline for performance, quality, or compliance.

Then, the long list of initiatives was classified using the criteria below:

Geographical scope:

- **Global:** initiatives with global reach or pursuing of global objectives, considering their extensive relevance across Europe
- **European:** initiatives with European reach or pursuing European objectives
- **Country-specific:** country-specific initiatives of the top six EPRA member jurisdictions by full market capitalisation (cf. above)

Real estate specific:

- **Yes:** initiatives specifically created for the real estate industry
- **Partially:** cross-industry initiatives offering real estate-specific guidance or recommendations
- **No:** cross-industry initiatives without real estate-specific guidance or recommendations

Carbon focus:

- **Primary carbon focus:** initiatives that consist only of directly carbon-related components or that have directly carbon-related components among other broader ESG topics
- **Secondary carbon focus:** initiatives that have implicit carbon components in one of two categories:
  - Carbon emission generating activities (e.g., electricity and heat consumed on-site, construction materials or commuting)
  - Management activities that result in reduced carbon emissions (e.g., implementing transitionary climate risk adaptation measures or ensuring responsible construction material procurement)
- **No focus:** initiatives that have ESG components that have no primary or secondary carbon focus

Step 2: Creation of a medium list of initiatives

Subsequently, the long list of initiatives was filtered as per the below, resulting in the medium list:

- Geographical scope: global or European initiatives to consider only initiatives with a broad reach
- Real estate specific: initiatives specifically designed for the real estate industry (Yes) or providing real estate-specific guidance or recommendations to provide relevant insights to EPRA members (Partially)
- Carbon focus: initiatives with a primary or secondary carbon focus to comply with the report's objectives

Only initiatives that met all the criteria were included in the medium list.

Step 3: Carbon focus breakdown

Once we obtained the medium list, the initiatives in this medium list were subjected to further evaluation to determine their percentage of carbon focus. This calculation considered the proportion of carbon components (metrics, themes, goals, targets, indicators) within each initiative in relation to the overall number of components, utilising publicly available information.

Step 4 – Creation of a short list of initiatives

The final short list of initiatives, which forms the basis for the comparative analysis in this report, included only those that meet or exceed a carbon threshold of 35%. This means that over one-third of each initiative was focused on carbon, providing an extensive and relevant analysis coverage. Details of the initiatives that were excluded from the short list can be found in **Appendix 1 – Long list of initiatives**.

This initiatives selection methodology is synthetised in Figure 2.

It is important for EPRA members to consider the methodology applied in this report when interpreting its findings. This structured approach provides a clear understanding of the landscape of carbon initiatives, aiding informed decision-making.

As mentioned earlier, while the primary focus of this report centres around global and European initiatives, it also includes a selection of country-level initiatives suggested by EPRA members from the top six EPRA member jurisdictions by full market capitalisation. Only those initiatives that met the real estate and carbon focus criteria were included in this group. Therefore, the full list of initiatives serves as an illustration and should not be regarded as exhaustive. In addition, it is important to note that regional and city level legislation is outside of the scope of this report.

Figure 2 - Initiatives selection methodology

5.0 Global and European carbon initiatives glossary

This section examines initiatives within each of the defined categories, providing an in-depth analysis of both general and core attributes for each initiative, accompanied by practical insights and a comparative analysis, to provide a profound understanding of each initiative. Case studies on the initiatives marked with an ⊕ will be included in Section 7 of this report.

5.1 COMMITMENTS

This section explores the seven global commitments aligned with the goals set forth by the Paris Agreement, that met the shortlisting requirements of the methodology outlined above. These commitments are listed in Figure 3.

Figure 3 – Short list of Commitments

2016 — CLIMATE GROUP EP100: EP100 aims to commit members to improving their energy efficiency.

2018 — Net Zero Carbon Buildings (NZCB) Commitment recognises and promotes advanced climate leadership action in decarbonising the built environment. (WORLD GREEN BUILDING COUNCIL)

2019 — UN environment programme: The UN-convened Net Zero Asset Owner Alliance (NZAOA) aims to support the asset management industry in committing to a goal of net zero emissions to mitigate financial risk and maximise the long-term value of assets.

2020 — The Net Zero Asset Managers (NZAM) Commitment aims to accelerate the transition to a low-carbon economy by transitioning member's investment portfolios to net zero. (NET ZERO ASSET MANAGERS INITIATIVE)

ULI Greenprint Net Zero (NZ) by 2050 Goal aims to meaningfully reduce the built environments' impact on climate change beyond existing efforts, in line with the Paris Agreement.

2021 — PARIS ALIGNED ASSET OWNERS: Paris Aligned Asset Owner (PAAO) Commitment aims to support investors in aligning their portfolios and activities with the goals of the Paris Agreement.

2022 — ConcreteZero aims to bring together organisations to create a global market for net zero concrete. (CLIMATE GROUP CONCRETE ZERO)

5.1.1 EP100

EP100 is a global corporate energy efficiency initiative launched by the Climate Group aimed at increasing energy productivity and enhancing energy efficiency through the adoption of advanced technologies and practices to address the challenge of wasteful energy consumption and its detrimental environmental effects.[4]

	Initiative name	EP100
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2016
Core attributes	Origin	The Climate Group
	Goals	**Commit organisations to one of the following:** • Doubling energy productivity within 25 years • Implementing an energy management system within 10 years • Owning, occupying, and developing buildings that operate at net zero carbon emissions by 2030
	Actionable steps	**To meet the commitment, organisations must:** • **Double energy productivity:** choose a relevant energy productivity metric, implement measures to double energy productivity globally within 25 years or less, relative to a baseline year, and report on progress annually[5] • **Implement an Energy Management System (EnMS):** implement an energy management system in each of its facilities within 10 years or less, set an energy productivity target to be achieved within 25 years or less, relative to a baseline year, choose a relevant energy productivity metric, and report on progress of the EnMS implementation and target annually[6] • **Align to the Net Zero Carbon Buildings (NZCB) Commitment:** align with the full set of requirements of the WorldGBC NZCB Commitment relating to both operational and embodied carbon across owned, occupied, and development assets to operate at net zero carbon emissions by 2030
	Emissions scope	Scope 1 and 2
	Latest update	No updates since inception
	No. of companies engaged	125 businesses Across 157 markets
Insights	Common challenges	• Overcoming the challenge of inconsistent energy efficiency standards globally and difficulty of standardising practices across geographies[7] • Overcoming financial barriers of high initial cost to transform existing buildings to be highly efficient
	Common opportunities & benefits	• Improve bottom line and enhanced competitiveness thanks to long-term energy savings • Contribute to climate change mitigation by reducing operational carbon • Use EP100 as a tool to take steps toward achieving science-based targets • Access a global community of peers through webinars and events for sharing best practice, learning from others' experience, and fostering collaboration

[4]https://www.theclimategroup.org/about-ep100
[5]https://www.theclimategroup.org/sites/default/files/2022-07/Double%20Energy%20Productivity%20-%20Detailed%20commitment%20criteria%20%28Mar-22%29.pdf
[6]https://www.theclimategroup.org/sites/default/files/2022-07/Implement%20an%20EnMS%20-%20Detailed%20commitment%20criteria%20%28Mar-22%29.pdf
[7]https://www.theclimategroup.org/our-work/news/challenges-ep100-members-are-facing-and-our-work-tackle-them

5.1.2 Net Zero Carbon Buildings (NZCB) Commitment

The NZCB Commitment was established by the World Green Building Council (WorldGBC) to address the building and construction sector's contribution to carbon emissions by challenging businesses, organisations, cities, and regional authorities to achieve net zero operational emissions in their building portfolios by 2030 and advocating for a fully decarbonised built environment by 2050.

	Initiative name	NZCB Commitment
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2018
Core attributes	Origin	WorldGBC
	Goals	**Commit organisations to achieving the following by 2030:**[8] • Reducing (and compensating where necessary) all operational carbon emissions for existing buildings • Reducing and compensating (for residual emissions) embodied carbon emissions (at least 40%) for new developments and major renovations under direct control
	Actionable steps	**To meet the commitment organisations must:** • Commit to both the operational and embodied carbon goals and disclose within two years of signing • Annually assess and disclose asset and portfolio operational energy demand and carbon emissions and disclose whole life carbon emissions according to EN 15978 (or other accepted standards) • Act to achieve maximum emission reductions with key actions and milestones towards energy efficiency, renewable energy, upfront in-use, and end-of-life embodied carbon • Verify energy performance and prevention strategies, whole life cycle assessment (WLCA) calculations, offsets, and progress toward net zero via an independent third-party • Advocate and act as a catalyst for wider emissions reduction through core organisational activities
	Emissions scope	Scope 1, 2 and 3 Operational carbon and embodied carbon only
	Latest update	2021
	No. of companies engaged	141 businesses, 29 cities, 6 regions ~20k assets, ~$400 billion annual turnover
Insights	Common challenges	• Overcoming financial barriers to transform existing buildings to be highly efficient and use renewable energy systems on-site • Addressing availability challenges of low-carbon materials and technologies • Ensuring accurate, reliable data on energy consumption and emissions
	Common opportunities & benefits	• Align with the objectives of the Paris Agreement • Enhance building performance by implementing energy-efficient measures, sustainable design practices, and renewable energy solutions • Enhance brand reputation by showcasing commitment to sustainability, attracting environmentally friendly clients, tenants, and investors • Demonstrate climate leadership and dedication in addressing climate challenges and driving positive change • Become a member of EP100 as the NZCB Commitment is a recognised path delivered by WorldGBC

[8]https://worldgbc.org/thecommitment/

5.1.3 Net-Zero Asset Owner Alliance (NZAOA)

The NZAOA convened by the United Nations (UN) is a member-led initiative uniting some of the world's largest institutional investors under a bold ambition to transition their investment portfolios to net zero emissions by 2050, addressing the challenge of decarbonisation by leveraging the financial resources of its members.

	Initiative name	NZAOA
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2019
Core attributes	Origin	Allianz, CDC, CDPQ, Folksam Group, PensionDanmark, and SwissRe. Since then, Alecta, AMF, Nordea Life and Pension, Storebrand, and Zurich have joined as founding members[9]
	Goal	Commit institutional investors to transitioning their investment portfolio to net zero by 2050
	Actionable steps	**To meet the commitment, members must:** • Set intermediate individual targets (for 2025, 2030, 2040) within 12 months of joining, publish these targets, and disclose annual progress publicly. This includes reporting on investment portfolios' emissions profile and emissions reduction • Play an active role by participating in the interactions of the Alliance and designate one member of staff to serve as the focal point for formal communications with the Alliance • Observe and respect the established and agreed-upon governance arrangements as well as the Alliance's established and agreed-upon standard operating procedures • Make an annual monetary contribution to the Alliance's budget and support the Alliance's endeavours by assuming promotional roles, hosting meetings, and potentially designating additional staff members with technical expertise • Collaborate with investor peers, UNEP FI, PRI, and leading scientific, methodological, and data-related organisations as appropriate and permissible under the law
	Emissions scope	Scope 1, 2 and 3
	Latest update	No updates since inception
	No. of companies engaged	89 asset owners $9.5 trillion AUM[10]
Insights	Common challenges	• Balancing short-term investment returns with long-term climate goals can be difficult as investors face pressure to deliver competitive returns • Achieving alignment of investment strategies with net zero goals • Ensuring accurate, reliable data on energy consumption and emissions
	Common opportunities & benefits	• As the Principles for Responsible Investment's (PRI) report Fiduciary Duty in the 21st Century has demonstrated that ESG issues are financially material for investors, those aligning to the NZAOA commitment can expect access to a wider investor pool[11] • Mitigate the risk of stranded assets • Enable collaborative action on climate change • Align with the objectives of the Paris Agreement • Provide competitive advantage by distinguishing investors as leaders in sustainable investment practices

[9]https://www.allianz.co.uk/content/dam/onemarketing/azuk/allianzcouk/about-us/docs/pdfs/social-responsibility/net-zero-asset-owner-alliance-brochure.PDF
[10]https://www.unepfi.org/net-zero-alliance/alliance-members/
[11]https://www.unepfi.org/net-zero-alliance/about/frequently-asked-questions-net-zero-asset-owner-alliance/

5.1.4 The Net Zero Asset Managers (NZAM)

The NZAM Commitment is a collaborative effort initiated by a group of network partners aimed at accelerating the transition to a net zero economy by aligning investment portfolios to the net zero emissions by 2050 goal. NZAM seeks to align asset managers in efforts to address the urgent challenge of climate change through the mobilisation of significant financial resources.

	Initiative name	NZAM
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2020
Core attributes	Origin	Asian Investor Group on Climate Change (AIGCC), CDP, Ceres, Investor Group on Climate Change (IGCC), Institutional Investors Group on Climate Change (IIGCC), PRI
	Goals	**Commit asset managers to:** • Partnering with asset owner clients to achieve decarbonisation goals, aiming for net zero emissions by 2050 or earlier for all AUM • Within a year of making the commitment, setting interim targets (for 2030) for managing a proportion of assets in alignment with the goal of achieving net zero emissions by 2050 or earlier • Reviewing interim targets at least every five years, with the intention of increasing the proportion of AUM covered until 100% of assets are included
	Actionable steps	**To meet the commitment, asset managers must:**[12 13] • Report progress made against all elements of the 10-point commitment: 1. Set interim targets for 2030 2. Take account of portfolio scope 1 and 2 emissions, and to the extent possible, material portfolio scope 3 emissions 3. Prioritise the achievement of real economy emissions reductions 4. If using offsets, invest in long-term carbon removal where there are no technologically and/or financially viable alternatives to eliminate emissions 5. As required, create investment products aligned with net zero emissions by 2050 and facilitate increased investment in climate solutions 6. Provide asset owner clients with information on net zero investing and climate risk and opportunity 7. Implement a stewardship and engagement strategy 8. Engage with actors key to the investment system to ensure that products and services available to investors are consistent with the aim of achieving the global net zero goal 9. Ensure any relevant direct and indirect policy advocacy we undertake is supportive of achieving the global net zero goal 10. Publish Task Force on Climate-Related Financial Disclosures (TCFD) disclosures, including a climate action plan, annually, and submit them to the Investor Agenda • Select one of the three recognised approaches to set targets between the Paris Aligned Investment Initiative's Net Zero Investment Framework (NZIF), Science Based Targets initiative (SBTi) for Financial Institutions or Net-Zero Asset Owner Alliance (NZAOA) Target Setting Protocol (TSP) • Disclose key information within a year of signing, including the initial percentage of the portfolio transitioning to net zero management, interim targets outlining the proportion of AUM on track for net zero by a specific date, and the methodology used to establish these targets
	Emissions scope	Scope 1, 2 and 3
	Latest update	No updates since inception
	No. of companies engaged	>315 signatories USD 57 trillion in AUM[14]

[12]https://www.netzeroassetmanagers.org/commitment/
[13]https://www.netzeroassetmanagers.org/media/2021/12/NZAM-Commitment.pdf
[14]https://www.netzeroassetmanagers.org/signatories

5.1.4 The Net Zero Asset Managers (NZAM) continued

	Initiative name	NZAM
Insights	Common challenges	• Reducing emissions from buildings not under a company's direct control • Encouraging companies to invest in sustainable practices • Balancing short-term investment returns with long-term climate goals can be difficult as investors face pressure to deliver competitive returns • Ensuring accurate, reliable data on energy consumption and emissions from various assets
	Common opportunities & benefits	• Align with the objectives of the Paris Agreement • Improve risk management by addressing climate-related risks and ensuring long-term resilience • Collaborate on climate change with investors via joint initiatives including the Investor Agenda, SBTi and NZAOA, among others • Develop long-term relationships with asset owner clients

5.1.5 ULI Greenprint Net Zero (NZ) by 2050 Goal

ULI Greenprint NZ by 2050 Goal was launched by Urban Land Institute (ULI) to drive the real estate sector toward net zero by 2050. The recent expansion of this goal builds upon ULI Greenprint's initial objective of reducing collective carbon emissions by 50% from 2009 to 2030 and its original Net Zero by 2050 Goal, reflecting its primary focus on driving the real estate industry towards a net zero future.[15]

	Initiative name	ULI Greenprint NZ by 2050 Goal
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2020
Core attributes	Origin	ULI
	Goals	**Commit organisations to one of the following:** • **Track 1:** net zero operational carbon by 2050 in spaces under landlord operational control • **Track 2:** net zero operational carbon by 2050 at the whole-building level, in both landlord and tenant spaces • **Track 3:** net zero operational carbon and embodied carbon at the whole-building level, in both landlord- and tenant-controlled spaces
	Actionable steps	**To meet the commitment, organisations must**[16] [17] • Become a ULI Greenprint member to be eligible • Align entire portfolio to the selected goal (but may align different funds to different tracks) • Report asset-level building performance annually
	Emissions scope	Scope 1, 2 and 3
	Latest update	2020
	No. of companies engaged	17 ULI Greenprint member companies[18] $570 billion in assets under management > 65 million m^2 > 3,300 properties across 20 countries
Insights	Common challenges	• Reducing emissions from buildings not under a company's direct control • Ensuring accurate, reliable data on energy consumption and emissions
	Common opportunities & benefits	• Demonstrate climate leadership • Enhance building performance by implementing energy-efficient measures, sustainable design practices, and renewable energy solutions • Enhance brand reputation by demonstrating commitment to sustainability, attracting environmentally conscious clients, tenants, and investors • Align with the objectives of the Paris Agreement

[15]https://americas.uli.org/research/centers-initiatives/uli-randall-lewis-center-for-sustainability-in-real-estate/uligreenprint/membership/uli-greenprint-goals
[16]https://annualreport2021.uli.org/story/uli-greenprint-sets-net-zero-carbon-operations-by-2050-goal/
[17]https://americas.uli.org/research/centers-initiatives/uli-randall-lewis-center-for-sustainability-in-real-estate/uligreenprint/membership/uli-greenprint-goals/
[18]https://annualreport2021.uli.org/story/uli-greenprint-sets-net-zero-carbon-operations-by-2050-goal/#

5.1.6 Paris Aligned Asset Owners (PAAO)

The PAAO Commitment is not a formal alliance, but a voluntary industry statement offered by the Paris Aligned Investment Initiative (PAII). It unites institutional investors with a shared objective of transitioning their investment portfolios to achieve net zero GHG emissions by 2050 or sooner, addressing the critical challenge of aligning the financial sector with the Paris Agreement's climate goals and accelerating the global shift to a low-carbon economy.

	Initiative name	PAAO
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2021
Core attributes	Origin	AIGCC, Ceres, IIGCC, and IGCC
	Goal	Commit institutional investors to transitioning investment portfolios towards achieving net zero GHG emissions by 2050 or sooner.
	Actionable steps	**To meet the commitment, signatories must:**[19] • Be a member of at least one of the investor networks (AIGCC, Ceres, IIGCC, IGCC) in order to receive individual support • Report their individual progress towards the initiative's 10-point commitment: 1. Transition investment portfolios to net zero by 2050 2. Implement the PAII's NZIF for real economy emissions reductions 3. Set objectives and targets, including an interim target for 2030, to reduce scope 1, 2 and 3 emissions associated with portfolios and increase investment in climate solutions 4. Use offsets as a last resort and invest in long-term carbon removals where necessary 5. Advocate for policies and regulations that support global net zero emissions by 2050 or sooner 6. Implement a stewardship and engagement strategy to achieve net zero emissions for all portfolio assets by 2050 or sooner 7. Engage with various stakeholders to ensure investor funds, products, and services align with the net zero objective 8. Set a target to reduce operational (scope 1 and 2) emissions in line with global net zero emissions by 2050 or sooner 9. Disclose objectives, targets, and Investor Climate Action Plan within one year of making this commitment, with regular updates every five years or sooner 10. Report annually on strategy, actions, and progress towards objectives and targets, following TCFD recommendations
	Emissions scope	Scope 1, 2 and 3
	Latest update	No updates since inception
	No. of companies engaged	57 asset owners £3.3 trillion in assets[20]
Insights	Common challenges	• Balancing short-term investment returns with long-term climate goals can be difficult as investors face pressure to deliver competitive returns • Achieving alignment of investment strategies with net zero goals • Ensuring accurate, reliable data on energy consumption and emissions
	Common opportunities & benefits	• Mitigate the risk of stranded assets • Enable collaborative action on climate change by engaging with asset managers • Align with the objectives of the Paris Agreement • Provide competitive advantage by distinguishing investors as leaders in sustainable investment practices

[19]https://www.parisalignedassetowners.org/media/2021/03/PAII-Net-Zero-Asset-Owner-Commitment-Statement.pdf
[20]https://www.parisalignedassetowners.org/

5.1.7 ConcreteZero

ConreteZero is a global initiative led by the Climate Group in partnership with WorldGBC aiming to foster a global market for net zero concrete by shifting the industry towards the sustainable production and sourcing of concrete, thereby addressing the challenge of reducing carbon emissions from the concrete industry with targets for 2025, 2030 and 2050.

	Initiative name	ConcreteZero
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2022
Core attributes	Origin	The Climate Group in partnership with the WorldGBC
	Goals	**Commit organisations to:**[21] • Using 30% low emission concrete by 2025 • Using 50% low emission concrete by 2030 • Using 100% net zero concrete by 2050
	Actionable steps	**To meet the commitment organisations must:**[22] • Baseline commitment: report the volume and carbon intensity of concrete consumption • 2025 interim commitment: specify and procure 30% of their total concrete consumption (by volume) with a carbon intensity no greater than the ConcreteZero low embodied carbon concrete threshold • 2030 interim commitment: specify and procure 50% of their total concrete consumption (by volume) with a carbon intensity no greater than the ConcreteZero low embodied carbon concrete threshold • 2050 long-term commitment: procure and specify 100% of their total concrete consumption (by volume) in line with the definition of net zero concrete
	Emissions scope	Scope 3
	Latest update	No updates since inception
	No. of companies engaged	38 businesses
Insights	Common challenges	• Defining "low-carbon concrete" consistently across the industry[23] • Overcoming financial barriers associated with low-carbon concrete higher production costs compared to traditional concrete and associated potential loss of competitiveness[24]
	Common opportunities & benefits	• Demonstrate climate leadership by sending a strong demand signal to shift global markets, investment and policies towards the sustainable production and sourcing of concrete • Gain a competitive advantage as an early adopter by future-proofing projects against evolving sustainability regulations and market demands • Enhance brand reputation by showcasing commitment to sustainability, attracting ESG focused clients, tenants, and investors

[21]https://www.theclimategroup.org/join-concretezero
[22]https://www.theclimategroup.org/join-concretezero
[23]https://lc3.ch/2023/04/12/the-confused-world-of-low-carbon-concrete/
[24]https://www.business.hsbc.com/en-gb/insights/sustainability/why-embodied-carbon-is-rising-up-the-real-estate-agenda

5.1.8 Commitments conclusion

Having identified the key elements within each of the commitments, we'll now summarise and synthesise the key findings across areas such as reporting, timelines scope, carbon offsets and identify challenges.

A consistent theme across all the commitments is the requirement for annual progress reporting and disclosure, reinforcing transparency and accountability in carbon reduction efforts. This uniform approach to transparency ensures that each entity remains accountable to stakeholders and adheres to their net zero trajectories.

In addition, various commitments and pathways intersect. This includes the EP100 pathway, carried out in partnership with the WorldGBC, which requires companies aspiring to fulfil it to meet the requirements of the WorldGBC NZCB Commitment, encompassing reductions in both operational and embodied carbon, highlighting the comprehensive approach to carbon reduction within buildings.

The three net zero asset commitments (NZAM, NZAOA, PAAO) all aim for net zero GHG emissions in investment portfolios by 2050. While NZAOA and PAAO primarily focus on institutional investors who directly own assets, NZAM targets asset managers who oversee investments on behalf of owners. These initiatives have the potential to complement and strengthen each other, as NZAOA/PAAO members can select NZAM signatories to manage their assets, creating synergies that amplify efforts to drive faster and broader change towards achieving a net zero economy.

Furthermore, both PAAO and NZAM exhibit a strategic overlap where signatories of PAAO are expected to employ the NZIF for target setting, a methodology also endorsed by NZAM Network Partners. This shared approach ensures that strategies are both scientifically grounded and aligned with broader climate goals. All three initiatives acknowledge the importance of addressing emissions across the investment chain, considering scopes 1, 2 and 3, although NZAM and PAAO place a stronger emphasis on real economy reductions (scopes 1 and 2).

The commitments share a common stance on offsets, viewing them as a last resort when no viable solutions are available. When offsets are used, there is an emphasis on high-quality long-term carbon removal projects. These must be certified by a third-party to ensure their credibility and effectiveness. This approach underscores the importance of reduction strategies and aligns with the broader objective of achieving genuine, sustainable decarbonisation, rather than relying heavily on compensatory measures.

These commitments, though voluntary, can face the challenge of achieving widespread participation. The voluntary nature requires ongoing advocacy and support mechanisms to encourage broader organisational commitment. Persistent efforts, policy backing, and possible incentives will be important in fostering wider engagement.

Another hurdle is overcoming the financial barriers associated with high initial costs to improve existing buildings' efficiency. Retrofitting buildings to meet sustainability standards can require significant investment, which may delay or deter companies from taking action. Thus, encouraging companies to invest in sustainable practices also poses challenges. Many investors and organisations face pressures to deliver competitive financial results, which can result in the prioritisation of short-term returns over long-term climate goals. Aligning sustainable practices with financial goals and ensuring that the investments have a positive impact on the environment can be a delicate balance.

However, the PRI and UNEP FI report on 21st century fiduciary duty shows growing evidence that incorporating ESG issues is a source of investment value, while neglecting them may lead to mispricing of risk and poor asset allocation decisions and therefore is a failure. Consequently, those who align with the commitment to sustainable practices may anticipate lower capital constraints and access to a broader pool of investors who prioritise ESG factors in their investment decisions. This offers an opportunity for companies to attract capital from investors who are specifically interested in supporting sustainability initiatives such as those committed to the net zero asset commitments.[25]

[25]https://www.unepfi.org/wordpress/wp-content/uploads/2019/10/Fiduciary-duty-21st-century-final-report.pdf

		EP100	Net Zero Carbon Buildings (NZCB) Commitment	Net Zero Asset Owner Alliance (NZAOA)	Net Zero Asset Managers Initiative (NZAM)	Urban Land Institute (ULI) Greenprint Net Zero (NZ) by 2050 Goal	Paris Aligned Asset Owners (PAAO)	Concrete Zero
KEY SIMILARITIES & DIFFERENCES AMONG COMMITMENTS	Timeline	2030	2030, net zero by 2050	2025, 2030, 2040 intermediate targets, net zero by 2050	Net zero by 2050	Net zero by 2050	2030 interim target, net zero by 2050	2025, 2030 interim targets with net zero by 2050
	Scope	1, 2	1, 2 and 3	1, 2 and 3	1, 2 and 3	1, 2 and 3	1, 2 and 3	3
	Carbon Offsets	Aligned with WorldGBC NZCB Commitment.		Members should not use carbon removals for their own sub-portfolio or sector target achievement. They should not use carbon removals exceeding emission levels indicated by accepted sector pathways aligned with 1.5°C. They should only incorporate carbon removal certificates with long-lived storage. Offsets must be independently verified.	As a last resort invest in long-term carbon removal where there are no viable alternatives to eliminate emissions.	Should not be used to achieve emission reduction targets or deployed as a long-term strategy unless no viable alternatives exist.	As a last resort invest in long-term carbon removal where there are no viable alternatives to eliminate emissions.	As a last resort remaining emissions to be removed using high-quality and recognised offsetting framework.
	Coverage	All assets under direct control.	All assets under direct control.	The commitment covers all (proprietary) portfolios of the asset owner.	Proportion of AUM until 100% coverage is reached.	Entire portfolio aligned to the goal (but may align different funds to different tracks).	Proportion of AUM until 100% coverage is reached.	
	Reporting	Report annually on their progress towards achieving their EP100 target. Companies who signed up to the NZCB commitment are required to adhere to WorldGBC's.	Report verified progress towards decarbonisation goals annually.	Implement regular reporting of intermediate individual targets and track progress using the internal Alliance reporting tool. Publish updates in the annual Alliance progress report.	Report annually in line with TCFD recommendations, including information on their climate action plan, and progress towards targets.	Report asset-level building performance annually.	strategy and actions implemented and progress towards achieving objectives and targets, and in line with TCFD recommendations.	Report data bi-annually, during the specified reporting periods.
INTERDEPENDENCIES AMONG COMMITMENTS		Joint commitment with WorldGBC.		Supports NZAM commitment.	Supports NZAOA.	Track 3 whole building life cycle carbon aligns with WorldGBC NZCB Commitment.	Supports NZAM initiative.	
SYNERGIES WITH OTHER INITIATIVES		Must ensure EnMS (Energy Management System) is certified to a global standard (ISO 50001 or similar) or compliant with basic principles of global standard.	WorldGBC views the commitment and SBTi as complementary climate initiatives. The commitment's 2030 targets align with and contributes towards SBTi's call to halve emissions by 2030.	Agnostic stance on target setting methodology, will consider SBT FI (Science Based Targets for Financial Institutions) and InvECAT (Investor Energy-Climate Action Toolkit).	Consistent with a fair share of the 50% global reduction in CO_2 as a requirement in the IPCC Special report. The Network Partners recognise and endorse three target setting approaches: PAII NZIF, SBTi, NZAOA TSP	Track 3 aligns with the UK Better Buildings Partnership's Climate Commitment (minus the Commitment's inclusion of climate resilience).[26]	Consistent with a fair share of the 50% global reduction in CO_2 as a requirement in the IPCC Special report. Signatories expected to utilise NZIF.	ConcreteZero low embodied carbon concrete threshold must have GHG emissions intensity of less than or equal to the Low Carbon Concrete Group[2] (LCCG) benchmark rating A.

[26]https://americas.uli.org/research/centers-initiatives/uli-randall-lewis-center-for-sustainability-in-real-estate/uligreenprint/membership/uli-greenprint-goals/

5.2 FRAMEWORKS

The following section evaluates three individual real estate frameworks which are listed in Figure 4.

Figure 4 – short list of Frameworks

2000

CDP

The CDP aims to focus on investors, companies, cities, and governments and work towards a sustainable economy by measuring environmental impact, reducing GHG emissions, safeguarding water resources and protecting forests by taking action. It is focused on investors, companies, cities and governments.

2003

EQUATOR PRINCIPLES

The Equator Principles aim to establish a baseline and framework for financial institutions to management environmental and social risks in project financing.

2020

IIGCC

NZIF aims to support and guide investors to formulate their own net zero strategies, targets, and transition/ climate action plans.

Note

Despite CDP being a voluntary disclosure scheme, it has been captured as a framework as it aligns to the definitions outlined in the methodology and used as the categorisation for this report.

5.2.1 Carbon Disclosure Project (CDP)

CDP was initiated by the namesake global non-profit organisation to enhance environmental transparency and accountability by driving disclosures of environmental impacts from investors, companies, cities, states, and regions. By doing so, it encourages the implementation of climate action and the enhancement of environmental performance while supporting investor decision-making and ensuring compliance with regulatory standards.

	Initiative name	CDP
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Framework
	Effective date	2000
Core attributes	Origin	CDP
	Goal	Enhance the environmental performance and drive transparency by assessing risks and opportunities of climate change, water security, and deforestation.[27]
	Actionable steps	**When disclosing to CDP, organisations should:** • Register with CDP climate change programme • Collect, analyse, and calculate data on performance targets and their progress, GHG emissions, water usage, deforestation impacts, and other relevant environmental metrics. It is recommended that specific protocols are used to calculate and report GHG emissions, for example, the GHG Protocol • Disclose climate-related risks and opportunities in line with TCFD • Consider scenario analysis, for example, 2°C or 1.5°C global temperature increases, and evaluate how these scenarios could affect operations and strategies • Complete the questionnaire covering climate change and sector specific questions • Consider carrying out independent third-party verification of data to promote reliability and data accuracy, in particular verification of GHG emissions[28] • Submit the completed disclosure to CDP
	Emissions scope	Scope 1, 2 and 3
	Latest update	CDP updates its questionnaire and methodologies annually to reflect the latest developments in scientific research, policy, and feedback from stakeholders.
	No. of companies engaged	Over 23,000 companies worldwide disclosed environmental performance data through CDP in 2023.[29]
Insights	Common challenges	• Addressing data availability and quality to attain an accurate and comprehensive dataset • Integration of environmental metrics into business strategy • Responding to evolving regulatory requirements
	Common opportunities & benefits	• Enhance brand reputation by showcasing commitment to sustainability, increasing investor and client confidence • Improve climate-related risk management and decision-making • Benchmark performance against industry peers through CDP's scoring system • Demonstrate climate leadership and dedication in addressing climate challenges and driving positive change

[27]https://www.cdp.net/en/info/about-us/what-we-do
[28]https://www.cdp.net/en/guidance/verification
[29]hhttps://www.cdp.net/en/companies/cdp-2023-disclosure-data-factsheet

5.2.2 Equator Principles

The Equator Principles, developed by the Equator Principles Association, provide organisations with a risk management framework applicable to large-scale real estate projects. They promote responsible development by emphasising the incorporation of sustainability factors into project financing and integrating ongoing monitoring of environmental and social risk standards to mitigate impacts.

	Initiative name	Equator Principles
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Framework
	Effective date	2003
Core attributes	Origin	The Equator Principles Association
	Goal	Minimise the negative impacts of projects by identifying, assessing, and addressing potential and actual adverse environmental and social risks identified during the project development life cycle.
	Actionable steps	**Companies utilising the framework should:**[30] **Principle 1: Review and Categorisation** • Complete an initial review, which involves the categorisation of the project in relation to potential environmental and social risks and impacts (category A, B or C), with category A representing the most significant potential risks and impacts, while C denotes lower or negligible risks and impacts **Principle 2: Environmental and Social Assessment** • Carry out an assessment of the environmental and social risks, incorporating the scale of the impact of the project proposed • For category A, and where appropriate, category B projects, undertake an Environmental and Social Impact Assessment (ESIA) • For category C, and other category B projects, undertake a limited environmental or social assessment, considering risks identified when categorised • Carry out a Climate Change Risk Assessment for the following: - Category A, and where appropriate, category B projects, ensuring physical risks outlined by TCFD are considered - For all projects where the total scope 1 and 2 emissions are expected to be greater than 100,000 tonnes CO_2e annually, ensuring transitions risks outlined by TCFD are considered **Principle 3: Applicable Environmental and Social Standards** • The assessment should address the host country's applicable compliance, including regulations, laws and permits regarding environmental and social factors **Principle 4: Environmental and Social Management System (ESMS)** • Develop an ESMS to manage environmental and social risks outlined in the assessment process for all category A and B projects • Develop Environmental and Social Management Plans (ESMPs), outlining actions to address environmental and social risks outlined in the assessment process and integrate suitable actions to comply with standards • Establish an Equator Principle Action Plan (EPAP) in cases where standards are not met to identify gaps and commitments to meet the EPFI requirements **Principle 5: Stakeholder Engagement** • Highlight engagement with stakeholders when considering project risks and concerns to ensure feedback is incorporated into the development phase of category A and B projects **Principle 6: Grievance Mechanism** • Establish a grievance mechanism for category A and B projects to allow affected stakeholders to address environmental and social performance concerns over the duration of the project

[30]https://equator-principles.com/app/uploads/The-Equator-Principles_EP4_July2020.pdf

5.2.2 **Equator Principles** continued

	Initiative name	Equator Principles
Core attributes	Actionable steps	**Principle 7: Independent Review** • When considering project finance and project-related corporate loans, an independent review of the assessment process must be carried out for category A and B projects, which includes a review of the ESMP's, ESMS and stakeholder engagement documentation to evaluate compliance with the Equator Principles **Principle 8: Covenants** • Integrate covenants into the assessment process to ensure compliance • Carry out monitoring and reporting periodically to ensure ongoing compliance with the principles **Principle 9: Independent Monitoring and Reporting** • For all category A, and where appropriate, category B projects, ensure independent monitoring and reporting to evaluate compliance with the Equator Principles after financial close and over the lifetime of the loan **Principle 10: Reporting and Transparency** • For all category A and, as appropriate, category B projects ensure ESIA summary is made available online, including a summary of the climate change and human rights risks and impacts
	Emissions scope	Scope 1 and 2 Focused on project-related emissions
	Latest update	July 2020 – most recent version, Equator Principles 4 (EP4)
	No. of companies engaged	130 financial institutions are signatories of the Equator Principles globally.[31]
Insights	Common challenges	• Implementing consistent environmental and social risk management practices • Addressing stakeholder concerns • Ensuring compliance across diverse regulatory requirements
	Common opportunities & benefits	• Enhance brand reputation by showcasing commitment to sustainability, increasing investor confidence • Improve stakeholder relationships • Improve climate-related risk management and decision-making

[31]https://equator-principles.com/signatories-epfis-reporting/

5.2.3 Net Zero Investment Framework (NZIF)

The NZIF was created by the Institutional Investors Group on Climate Change (IIGCC) to guide investors to achieve carbon neutrality by developing and implementing their own targets, net zero strategies and transition plans.[32] The framework aims to transition investment portfolios in alignment with the Paris Agreement goals, by providing a comprehensive guide, outlining the key elements of a net zero strategy and transition plan that investors can consider. The NZIF supports the transition to a low-carbon economy to mitigate the systematic financial risk of climate change.

	Initiative name	NZIF
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Framework
	Effective date	2020
Core attributes	Origin	Collaboration of 110 members of the IIGCC
	Goal	Align investment portfolio and activities with the goals of the Paris Agreement by supporting target setting, the development of net zero strategies, and transition plans.
	Actionable steps	**Companies should:**[33 34] • Use the framework to identify core action points across the following categories: *Governance and Strategy, Objectives, Strategic Asset Allocation, Asset Level Assessment and Targets, Policy Advocacy, Stakeholder and Market Engagement* • Use Objectives along with Governance and Strategy and Strategic Asset Allocation, to set internal direction and portfolio structure for alignment • To establish their net zero Objectives, investors should: - Disclose and monitor baseline portfolio scope 1 and 2 financed emissions, and disclose scope 3 and sovereign assets separately - Set medium-term portfolio objectives based on scope 1 and 2 emissions to inform asset allocation and monitor progress - Disclose portfolio objective calculation methodology - Identify elements of portfolio-level objectives linked to decision-making (communicate to investment managers) - Implement a scope 1 and 2 target to reduce operational emissions in line with a global net zero pathway - Disclose AUM committed (aiming for 100%) - Disclose how targets represent GHG emission reduction initiatives • Use Policy Advocacy and Stakeholder and Market Engagement to identify the means through which to achieve the set objectives
	Emissions scope	Scope 1 and 2 financed emissions Disclose scope 3 separately
	Latest update	June 2024
	No. of companies engaged	93 investors have reached out to 107 target companies to communicate expectations for developing a net zero transition plan.[35]

[32]https://www.iigcc.org/hubfs/NZIF%202.0%20Report%20PDF.pdf
[33]https://www.iigcc.org/resources/updated-net-zero-investment-framework-nzif-2.0
[34]https://www.parisalignedassetowners.org/media/2024/06/PAII_NZIF-2.0_240624_Final.pdf
[35]https://www.iigcc.org/net-zero-engagement-initiative

5.2.3 Net Zero Investment Framework (NZIF) continued

	Initiative name	NZIF
Insights	Common challenges	• Lacking standardisation of objectives and targets set due to the framework being a guide and not a protocol • Setting ambitious and realistic net zero targets within a shorter time frame (<10 years) can be challenging, and investors may be disinclined to adopt the framework due to not being able to show progress towards achieving their net zero targets within this time frame • Balancing short-term financial performance with long-term climate goals • Navigating regulatory and policy uncertainties
	Common opportunities & benefits	• Provide a clear systematic approach, guiding investors on how to align their investment strategies to achieve net zero emissions • Evaluate the climate-related financial risks by considering the carbon footprint of portfolios • Capture new investment opportunities in green technologies • Enhance reputation and meeting stakeholder expectations • Contribute to global efforts to limit global warming and ensure a sustainable future

5.2.4 Frameworks conclusion

Having identified the key elements within each of the frameworks, we'll now summarise and synthesise the key findings across areas such as reporting, timeline and challenges.

Whilst the NZIF, CDP, and Equator Principles frameworks have distinct roles in managing climate risks and promoting sustainability, they operate synergistically, reinforcing each other's efforts and creating a cohesive ecosystem. The NZIF's adherence to science-based targets and TCFD guidelines is complemented by the CDP's provision of standardised questionnaires aligned with TCFD guidelines for data collection. Uniquely, CDP's methodology is fully aligned with the TCFD and International Financial Reporting Standards (IFRS) S2 Climate-Related Disclosures, and therefore provides a comparable dataset across the market.[36] Meanwhile, the Equator Principles rely on investor frameworks like the NZIF to align project financing with broader sustainability goals and utilise CDP data for informed risk assessments. This collaborative approach lightens the reporting burden on organisations looking to align with these frameworks.

However, each framework serves a different purpose tailored to their specific audiences, which demand their own methodologies for integrating sustainability into business and investment practices. The NZIF sets specific targets and guides investors to tailor investment portfolios to deliver comprehensive emissions reductions, while CDP emphasises tracking and transparency of emissions data without setting specific long-term goals. The Equator Principles framework, on the other hand, focuses on ongoing compliance throughout the life cycle of projects, from financing to operations, including the continuous monitoring and assessment of projects.

Despite their differences, those looking to implement these frameworks are likely to face similar prominent challenges in the form of data availability and quality, necessitating investments in robust data collection systems. Integrating environmental metrics into business strategies can also be complex, as it involves aligning sustainability goals with overall business objectives and identifying relevant KPIs.

Responding to evolving regulatory requirements can be resource intensive, demanding continuous monitoring and adaptation, while ensuring compliance across diverse regulatory requirements can be challenging due to varying standards and reporting obligations across regions. Leveraging technology solutions for data management and analysis, collaborating with industry peers to develop standardised metrics, and engaging with regulatory bodies to stay updated on evolving requirements can enable businesses to mitigate these challenges.

		Carbon disclosure project (CDP)	Equator principles	Net Zero Investment Framework (NZIF)
KEY SIMILARITIES & DIFFERENCES AMONG FRAMEWORKS	Timeline	Annual reporting including tracking progress over time.	Implementation varies by project life cycle.	Net Zero by 2050 Interim goals 2025 and 2030.
	Scope	Scope 1, 2 and 3	Scope 1 and 2	Scope 1, 2 and 3
	Carbon Offsets	Reports on companies' use of carbon offsets, however, does not specify their use.	Carbon offsets are not specifically addressed in the framework.	Encourages reducing emissions directly within investment portfolios before considering carbon offsets.
	Coverage	New constructions, major renovations, directly and indirectly managed assets	Project financing involving real estate development.	Real estate investments.
	Reporting	Annual reporting, including public disclosure of environmental data.	Financial institutions disclose their adoption of the principles and report on the performance and implementation of projects.	Investors required to report on progress and alignment with net zero targets.
INTERDEPENDENCIES AMONG FRAMEWORKS		Provides climate data that underpins the NZIF and Equator Principles. CDP informs compliance monitoring and risk assessments for the Equator Principles.	Uses data from CDP to inform assessments.	Data is often sourced from CDP disclosures to track portfolio emissions.
SYNERGIES WITH OTHER INITIATIVES		Integrates a standardised questionnaire to acquire climate-impact data, risks and opportunities. Aligned with TCFD recommendations.	Uses TCFD physical and transition definitions when undertaking risk assessments. Adopts IFC performance standards and World Bank guidelines to manage and assess environmental and social risks.	Uses science-based targets and frameworks like TCFD to guide investment decision towards net zero.

[36]https://www.cdp.net/en/scores/cdp-scores-explained

5.3 GUIDELINES

This section assesses the three guidelines outlined in Figure 5.

Figure 5 – Short list of Guidelines

2016

Global Alliance for Buildings and Construction (ABC) aims to provide common language and vision for the complete decarbonisation of buildings across their life cycle.

2022

EU Policy Whole Life Carbon Roadmap for Buildings by WorldGBC aims to outline key policy interventions, regulatory measures and tools needed to achieve a decarbonised, circular, resilient, and well-designed built environment by 2050.

2023

ULI Transition Risk Assessment (TRA) Guidelines aim to provide a standardised approach to assessing and disclosing climate transition risks as part of property valuations and accelerate the transition to a low-carbon built environment.

5.3.1 Global Alliance for Buildings and Construction (GlobalABC) Roadmap for Buildings and Construction

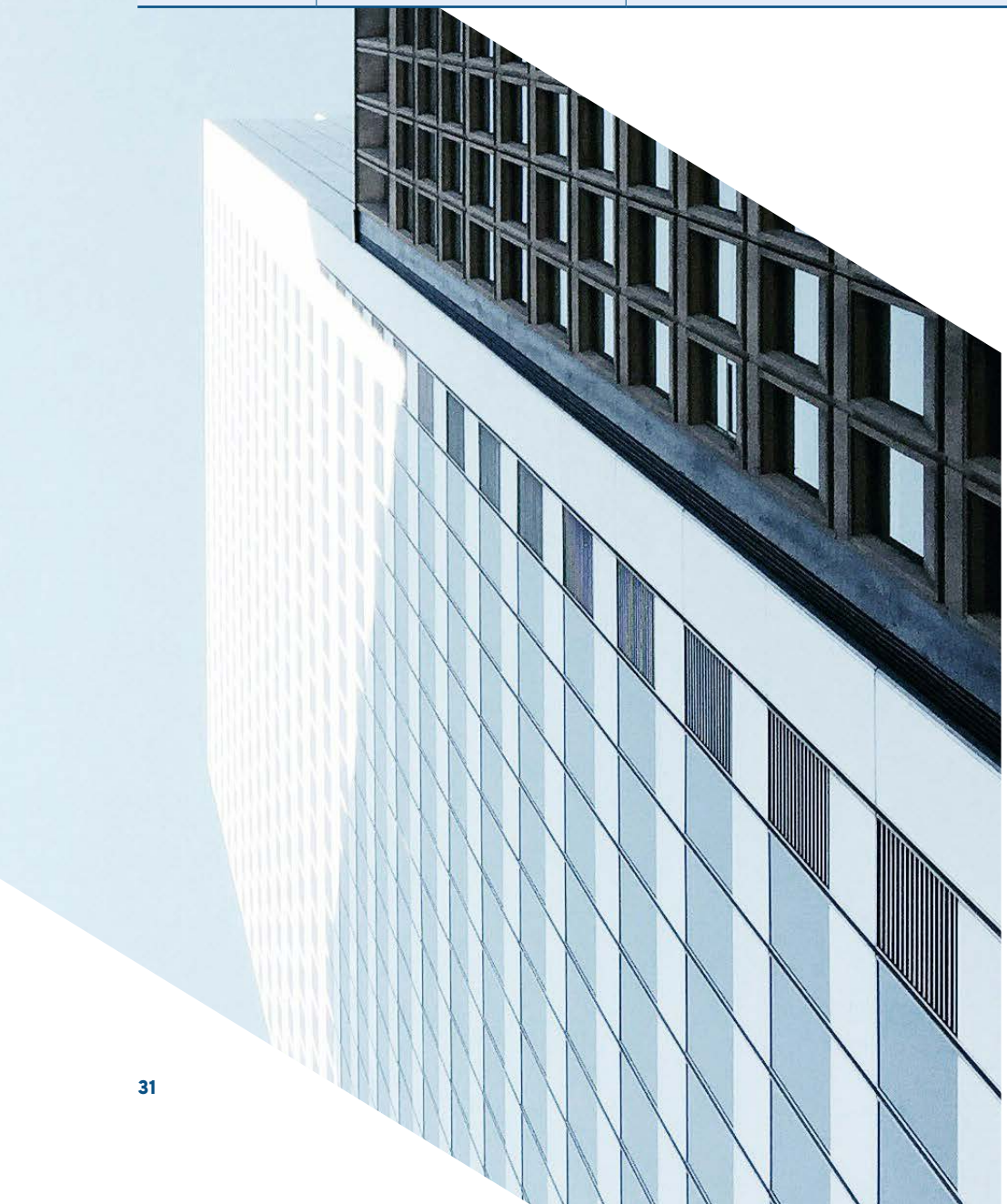
The GlobalABC roadmap, developed through extensive consultation with over 700 experts and stakeholders, outlines key actions, targets, and enabling measures across eight building and construction activities.[37] By providing a framework for short-, medium-, and long-term efforts towards net zero carbon emission buildings by 2050, the roadmap aims to reduce the environmental impact of the building and construction industry and enhance efforts towards achieving climate goals.

	Initiative name	GlobalABC Roadmap for Buildings and Construction
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Guideline
	Effective date	Launched in 2016
Core attributes	Origin	UN Environment Programme
	Goal	Guide the building and construction industry towards achieving net zero emissions, efficient and resilient buildings, and construction by 2050.
	Actionable steps	**Organisations should identify relevant recommendations for key actions, stakeholders, policy and technology timelines, financial tools, and capacity-building activities across eight different activities:**[38] • **Activity 1 Urban planning:** covers land use, zoning and other planning associated with how buildings, transport and energy systems interact • **Activity 2 New buildings:** covers all aspects of new buildings, including design process, design strategies, codes and labels • **Activity 3 Existing buildings:** covers all aspects of performance improvements of existing buildings • **Activity 4 Building operations:** covers all aspects of the operations and management of buildings • **Activity 5 Appliances and systems:** covers lighting, appliance and equipment systems that are used in both new and existing buildings • **Activity 6 Materials:** covers envelope, structural and product materials used in buildings • **Activity 7 Resilience:** covers all aspects of building resilience that enable increased capacity to adapt to and mitigate the effects of changing climates and other natural disasters • **Activity 8 Clean energy:** covers the transition to clean energy by moving away from carbon-intensive fuels and shifting towards renewable energy resources
	Emissions scope	Primarily scope 1 and 2 but considers scope 3 embodied carbon
	Latest update	2019
	No. of companies engaged	290 members, including 42 countries[39]

[37]https://globalabc.org/sites/default/files/inline-files/GlobalABC_Roadmap_for_Buildings_and_Construction_2020-2050_3.pdf
[38]https://globalabc.org/sites/default/files/inline-files/GlobalABC_Roadmap_for_Buildings_and_Construction_2020-2050_3.pdf
[39]globalabc.org/about/mission-and-vision

5.3.1 Global Alliance for Buildings and Construction (GlobalABC) Roadmap for Buildings and Construction continued

	Initiative name	GlobalABC Roadmap for Buildings and Construction
Insights	Common challenges	• Overcoming financial barriers to invest in new technologies, building retrofits and upgrades • Keeping up to date with policy changes related to building standards and regulations • Ensuring accurate, reliable data on the energy performance of buildings • Defining embodied carbon target strategies that rely on comprehensive data collection efforts and developments or adaptation of standardised tools, EPDs and benchmarks that assess embodied carbon
	Common opportunities & benefits	• Align with the objectives of the Paris Agreement • Enhance building performance by implementing energy-efficient measures, sustainable design practices, and renewable energy solutions • Reduce embodied carbon through materials measures (Activity 6 Materials) and reduce operational carbon through better operation and maintenance (Activity 4 Operations) and the provision of clean energy (Activity 8 Clean Energy) • Implement short to long-term strategies using actionable steps provided • Gain a competitive advantage by leveraging insights on policy recommendations to proactively adapt business operations and stay ahead of regulatory changes • Enhance brand reputation by showcasing commitment to sustainability



5.3.2 European Union (EU) Policy Whole Life Carbon (WLC) Roadmap for Buildings

The EU Policy WLC Roadmap for buildings, launched by WorldGBC as part of the #BuildingLife project, is an initiative aimed at achieving a decarbonised, circular, resilient, and well-designed built environment in the EU by 2050. The roadmap outlines key policy interventions, regulatory measures, and tools necessary to address WLC at the building-level. By providing a common position for organisations within the sector, the roadmap aims to generate greater policy ambition and drive momentum for change.[40]

	Initiative name	EU Policy WLC Roadmap for Buildings
General	Geographic scope	European
	Compliance type	Voluntary
	EPRA category	Guideline
	Effective date	2022
Core attributes	Origin	WorldGBC
	Goal	Accelerate the decarbonisation of the buildings and construction sector in the EU by 2050.
	Actionable steps	**Organisations should identify key policy recommendations across four key areas:**[41] • **Building regulation:** focusing on WLC, minimum energy performance standards, and Fit for 55 • **Waste and circularit:** focusing on the Energy Performance of Buildings Directive (EPBD), Construction Products Regulation (CPR) and Waste Framework Directive (WFD) • **Sustainable procurement:** focusing on EU procurement directive and tender criteria • **Sustainable finance:** focusing on EU Taxonomy and renovation finance
	Emissions scope	Scope 1, 2 and 3 WLC
	Latest update	2022
	No. of companies engaged	Not publicly available
Insights	Common challenges	• Keeping up to date with policy changes related to building standards and regulations • Policy incoherence due to inconsistent or weak policies at national or regional-level can slow progress • Lacking available data to identify limit values for WLC targets for buildings • Lacking alignment in certifications and embodied carbon means that emerging benchmarks are quite variable, making it difficult to share and adopt best practices[42]
	Common opportunities & benefits	• Align with the objectives of the Paris Agreement and EU Green Deal • Gain a competitive advantage by leveraging insights on policy recommendations to proactively adapt business operations and stay ahead of the regulatory changes • Enable harmonisation across EU states • Enhance brand reputation by showcasing commitment to sustainability, transparency, and accountability

[40]globalabc.org/resources/publications/eu-policy-whole-life-carbon-roadmap-buildings
[41]https://globalabc.org/resources/publications/eu-policy-whole-life-carbon-roadmap-buildings
[42]gworldgbc.org/article/eu-policy-whole-life-carbon-roadmap-for-buildings/

5.3.3 ULI Transition Risk Assessment (TRA) Guidelines

ULI launched TRA Guidelines to support the decarbonisation of the European built environment. TRA Guidelines provide a standardised methodology to assess and disclose 12 material transition risks as part of property valuation, fostering sustainability in the real estate sector.

	Initiative name	ULI TRA Guidelines
General	Geographic scope	Europe
	Compliance type	Voluntary
	EPRA category	Guideline
	Effective date	2023
Core attributes	Origin	ULI
	Goal	Standardise the assessment and disclosure of transition risks within the real estate industry.
	Actionable steps	**To action the guidelines:**[43] • Select assets for assessment of transition risks, with asset-by-asset assessments recommended along with aggregated results disclosed at portfolio-level • Prepare and utilise specific transition risk assessment data points recommended by the ULI • Calculate an industry-standard discounted cash flow (DCF) and include transition risk-adjusted data points in a separate transition risk adjusted assessment • Add shadow bottom lines in DCFs to show potential impact of transition risks that do not affect actual free cash flows • Identify and prioritise the three most material transition risks that have the greatest impact on the assessed value for detailed assessment • Implement a nominal discount rate and consider a blended inflation rate to account for top material risks • Having conducted an assessment on each transition risk individually, consider where cost or income opportunities may impact other areas of the cash flow • To avoid double counting, each transition risk should be assessed individually, then cross-referenced against key risk areas Transition risks are classified as: 1. **Quantifiable into discounted cash flow:** including cost of decarbonisation, energy costs, embodied carbon, obsolescence and depreciation, minimum energy efficiency standards (MEPS), carbon price, tenant voids, and exit yield 2. **Not quantifiable into discounted cash flow:** including reputational risk, access to insurance, access to debt capital, and internal resourcing *Risks not quantifiable into discounted cash flow are not recommended to be included in the risk assessment at this stage.*
	Emissions scope	The guidelines may indirectly consider scopes 1, 2 and 3 by evaluating how carbon pricing, regulatory changes, and market shifts related to emissions could impact asset values and operational costs.
	Latest update	No updates since inception date
	No. of companies engaged	Not available

[43]https://europe.uli.org/wp-content/uploads/2023/07/Transition-RIsk-Guidelines-2023-Final.pdf

5.3.3 ULI Transition Risk Assessment (TRA) Guidelines ⊕ continued

	Initiative name	ULI TRA Guidelines ⊕
Insights	Common challenges	• Ensuring accurate, reliable data points and overcoming barriers of data sharing • Overcoming the inability to quantify some transition risks and integrate them into real estate valuations or cash flow models • Lack of industry-mediated, standardised, and disclosed carbon price stalls the effective price negotiations of true asset value[44]
	Common opportunities & benefits	• Align with CRREM 1.5°C pathways • Reduce risk of stranded assets as early identification of transition risks allows businesses to take proactive measures • Enhance resilience as businesses that understand potential risks are better equipped to manage them • Strengthen investor confidence from demonstrating commitment to future-proofing a business

[44]europe.uli.org/wp-content/uploads/2023/06/Transition-RIsk-Guidelines-2023.pdf

5.3.4 Guidelines conclusion

Having identified the key elements within each of the guidelines, we'll now summarise and synthesise the key findings across areas such as reporting, coverage, synergies with other initiatives and outline the common challenges.

Collectively these guidelines provide a flexible approach for stakeholders to make informed decisions, navigate regulatory complexities, reducing regulatory and non-regulatory risks, while working towards a more sustainable and resilient future in the buildings and construction sector.

Despite having different purposes, the guidelines share similarities. Specifically, both the GlobalABC Roadmap and the EU Policy Roadmap recognise the need to address all stages of a building's life cycle, which includes not only operational emissions but also embodied emissions. The GlobalABC Roadmap takes a broader perspective by aiming to influence governments globally to adopt stricter regulations for sustainable buildings while the EU roadmap provides more specific actions tailored to the European context. Through its international platform and advocacy efforts, GlobalABC can provide robust support for the EU's roadmap by showcasing successful sustainable building practices from various parts of the world to inform the development of the EU's policies and contribute to their effectiveness. Similarly, the EU's roadmap can serve as a concrete example for other regions. Despite their contextual differences, both roadmaps share a common vision and recognise the importance of a comprehensive approach and policy support to achieve their goals.

Conversely, the ULI TRA Guidelines serve as a tool for undertaking risk assessments aimed at real estate investors and developers. While this guideline does not directly correlate to roadmaps, it correlates to other initiatives such as the European Investors in Non-Listed Real Estate Vehicles (INREV), TCFD and CRREM. This is because each transition risk highlighted in the guideline has a suggested practice, which aligns with comparable industry guidelines such as the alignment of the baseline decarbonisation pathway with CRREM 1.5°C pathways. Furthermore, according to ULI, the process described in these guidelines can support a quality response in relation to transition risk reporting within the TCFD.

One challenge that organisations may face when using roadmaps for guidance is the lack of policy coherence stemming from inconsistent or weaker national and regional policies, along with the time-consuming task of keeping up to date with relevant policy changes. However, this could serve as motivation for organisations to actively engage with policymakers and industry associations to address these challenges and shape the development of policies. This proactive approach not only benefits individual organisations but also enhances the overall effectiveness and impact of the roadmaps in achieving their goals.

		GlobalABC Roadmap for Buildings and Construction	EU Policy Whole Life Carbon (WLC) Roadmap for Buildings	Urban Land Institute (ULI) Transition Risk Assessment (TRA) Guidelines
KEY SIMILARITIES & DIFFERENCES AMONG GUIDELINES	Timeline	Aspires for net zero carbon emission buildings by 2050.	Aspires for decarbonisation of built environment by 2050.	Not directly applicable (Risk Assessment Tool).
	Scope	Primarily scope 1 and 2 but considers scope 3 embodied carbon.	Whole life cycle emissions - scopes 1, 2 and 3.	Not directly applicable.
	Carbon Offsets	Encourages reduction strategies before offsets, but does not rule them out entirely.	Considered a last resort to offset any remaining carbon emissions.[45]	Carbon price: Carbon offsets are not recommended unless tackling residual emissions as detailed in the SBTi Net Zero Standards revision of 2016, and, as such, are not included in the assessment.[46]
	Coverage	Global in scope, applicable to various stakeholders and building types.	Primary focus on buildings within the EU.	Asset and portfolio-level assessments.
	Reporting	Promotes disclosure of energy performance, operational, and embodied carbon.	Promotes WLC reporting.	Recommends preparing: • The transition risk assessment: owner or manager disclosure sheet • The transition risk assessment: valuation service provider disclosure sheet • The transition risk assessment: investor reporting sheet
INTERDE-PENDENCIES AMONG GUIDELINES		None	None	None
SYNERGIES WITH OTHER INITIATIVES		Designed to achieve the outcomes of the UN SDGs.	Recommendations focused on EU Levels(s) and EPBD.	Recommends aligning baseline decarbonisation pathways with CRREM 1.5°C pathways, where possible. Can support transition risk reporting only within the TCFD requirements.

[45]worldgbc.org/article/eu-policy-whole-life-carbon-roadmap-for-buildings/
[46]europe.uli.org/wp-content/uploads/2023/06/Transition-RIsk-Guidelines-2023.pdf

5.4 LABELS

This section reviews the five labels outlined in Figure 6.

Figure 6 – Short list of Labels

1990

BREEAM®

Building Research Establishment Environmental Assessment Method (BREEAM) aims to promote and improve sustainability in buildings and the built environment by recognising and rewarding companies with genuine sustainable credentials.

1994

The aim of Leadership in Energy and Environmental Design (LEED) certification is to promote and recognise sustainable building practices that contribute to energy efficiency, environmental conservation, and healthy indoor environments.

2014

Edge

Excellence in Design for Greater Efficiencies (EDGE) aims to make it easier to design and certify resource efficient and zero carbon buildings of every type, everywhere.

2018

Zero Carbon Certification aims to evaluate, reduce, and offset both operational and embodied carbon impacts of buildings to fully decarbonise built environment.

2022

LCB INITIATIVE

Low Carbon Building Initiative (LCBI) aims to provide a methodology to enable measurement of carbon footprints based on life-cycle analysis in efforts reduce the CO_2 emissions of the European real estate sector.

5.4.1 Building Research Establishment Environmental Assessment Method (BREEAM)

BREEAM, developed by the Building Research Establishment (BRE), is a globally recognised programme designed for assessing the sustainability and environmental performance of buildings and infrastructure projects, holding the longest-established and most widely used method for environmental assessment in construction. Through its comprehensive approach, BREEAM supports solutions that aim to reduce carbon emissions, enhance whole-life performance, manage health and social impacts, promote circularity and resilience, and preserve biodiversity.

	Initiative name	BREEAM
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	1990
Core attributes	Origin	BRE
	Goal	Certify buildings that excel in environmental performance, occupant health, and overall sustainability according to BREEAM assessment criteria and verification procedures, corresponding to a level of BREEAM certification: Pass (<30%), Good (>45%), Very Good (>55%), Excellent (>70%), and Outstanding (85%).

	Actionable steps	**To achieve a BREEAM certification, organisations must:**[47][48]
		• Select the right standard for the project, from BREEAM New Construction (NC), Refurbishment and Fit-Out (RFO) or In-Use (BIU)
		• Appoint a licensed BRREAM assessor or BREEAM In-Use Auditor
		• Assemble the project team and appoint external consultants including MEP, architect, acousticians, etc.
		• Carry out a pre-assessment with the assessor to predict the likely score:
		  • Achieve minimum standards and additions for specific credits across the criteria encompassing energy, land use and ecology, water, health and well-being, pollution, transport (for all BREEAM assessments), materials, waste, management, innovation (NC and RFO) and resilience and resources (BIU only) (note that each category is assigned a different weighting)
		  • To address carbon-related activities, consider targeting the following credits:
		  - **Energy:** Ene 01 Reduction of energy and carbon emissions and Ene 04 Low-carbon design (NC and RFO) encourage design measures that reduce building energy demand and associated carbon emissions, specifically Ene 01 to Ene 09 and Ene 19 to Ene 21 (BIU only) minimise operational energy consumption and recognise this reduction of carbon emissions through Ene 24 (BIU only), and Ene 03 and Ene 05 to Ene 10 (NC and up to Ene 09 in RFO) encourage energy-efficient systems to minimise operational energy consumption and GHG emissions resulting from the system
		  - **Pollution:** Pol 04, 05 and 08 (BIU only) encourage the use of refrigerants with low global warming potential and reduce the level of GHG emissions arising from leakage of refrigerants (Pol 01 for NC and RFO)
		  - **Transport:** Tra 03 (NC only) and Tra 01 (BIU only) promote the use of low-carbon and alternative modes of transport to minimise individual journeys, specifically, and Tra 01 (NC only) and Tra 02 (BIU only) require proximity to public transport to reduce transport-related pollution
		  - **Materials:** Mat 01 encourages the use of construction materials with a low environmental impact over the full life cycle (NC and RFO only), Mat 03 (NC and RFO) encourages specification of responsibly sourced construction products, and Mat 05 and Mat 06 (NC and RFO) recognises the importance of designing for durability, resilience, and material efficiency to minimise the material use
		  - **Management:** Man 03 (NC and RFO) promotes responsible construction practices and aftercare requiring monitoring and reporting of total CO_2 emissions from construction processes, while Man 05 (NC and Refurb) requires information on the predicted and actual CO_2 emissions
		  - **Resilience (BIU Only):** Rsl 07 encourages investigation of the asset's exposure to climate-related transition risks and opportunities
		  - **Resources (BIU Only):** Rsc 06 encourages the reduction in resource consumption and facilitates the reuse, repurposing, and recycling of waste resource from the asset
		• Submit evidence for credits you aim to achieve to BRE for certification review

[47]https://www.designingbuildings.co.uk/wiki/An_introduction_to_BREEAM
[48]https://breeam.com/standards

5.4.1 Building Research Establishment Environmental Assessment Method (BREEAM) continued

	Initiative name	BREEAM
Core attributes	Emissions scope	Scope 1, 2 and potential to include 3 (embodied carbon)
	Latest update	The latest update of BREEAM UK New Construction Version 6.1 (UK NC V6. 1) released in 2023 incorporates changes to the building regulations for energy performance in Scotland, Wales, and Northern Ireland[49] Designed to credit Biodiversity Net Gain (BNG), BREEAM V7, due to launch later in 2024, will assist projects in meeting the new BNG legislation[50]
	No. of companies engaged	600,000+ certificates issued in more than 89 countries[51]
Insights	Common challenges	• Justifying higher project costs from additional design measures and external appointments (e.g., BREEAM consultant, contractors, MEP, architect, enhanced commissioning scope, additional consultant reports) • Justifying team resourcing required for the time-consuming and extensive QA process • Justifying additional costs that come with registration fees, submission of documents, third-party inspection fees, and certification fees[52] • Overcoming performance gaps where the predicted performance differs from the actual performance due to certifications such as BREEAM NC and RFO only measuring buildings greenness at the time of construction, without consideration for the on-going operations of a building to see how it performs once its occupied as only BIU assesses the building once its occupied, but it does not deduct points for poor performance • Comparing BREEAM certified projects due to varying selection of optional credits, making it difficult to distinguish projects that prioritised easier to achieve credits rather than the most significant environmental benefits
	Common opportunities & benefits	• Build trust through internationally recognised third-party certification • Deliver better performing assets by improving energy and water efficiency and pass on cost savings to potential tenants • Increase asset value and mitigate asset and reputational risk • Support planning applications in the UK and comply with regulatory requirements • Support the disclosures, reporting and alignment with international commitments and regulations such as EU and UK Taxonomy and UN Sustainable Development Goals (UN SDGs) • Become more sustainable backed by data and credible science • Recertify projects to assure the performance of the certified building (BIU only)

[49]https://kb.breeam.com/knowledgebase/summary-of-changes-breeam-uk-nc-v6-1
[50]https://bregroup.com/insights/breeam-version-7-set-to-embrace-new-biodiversity-net-gain-legislation
[51]https://bregroup.com/bre-announces-release-of-global-2024-breeam-in-use-gresb-mapping-resource
[52]https://stonemarkcm.com/blog/pros-and-cons-of-green-building-certification/

5.4.2 Leadership in Energy and Environmental Design (LEED)

LEED, developed by the US Green Building Council (USGBC), is recognised as one of the most widely used green building certification systems worldwide, allowing all types of buildings and projects across the globe to leverage its standardised framework. The framework promotes the adoption of sustainable practices and facilitates the recognition of outstanding performance in the field of environmental design and construction.

	Initiative name	LEED
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	1994
Core attributes	Origin	USGBC
	Goal	Certify high-performing assets that minimise environmental impact and enhance occupant well-being according to LEED assessment criteria and verification procedures, corresponding to a level of LEED certification: Certified (40-49 points), Silver (50-59 points), Gold (60-79 points), and Platinum (80+ points).[53]

	Actionable steps	**To achieve LEED certification, the organisations must:**[54]
		• Select the appropriate rating system from LEED for Building Design and Construction (BD+C), Interior Design and Construction (ID+C), Residential Design and Construction, and Building Operations and Maintenance (O+M), and register the project
		• Assemble a project team and appoint external consultants including MEP, architect, acousticians, etc.
		• Carry out a pre-assessment with the assessor to predict the likely score:
		  • Earn points by adhering to prerequisites and target additional credits across the following categories: location and transportation, sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation, and regional priority
		  • To reduce carbon, consider the following credits:
		  - **Location and Transportation:** credits such as electric vehicles, access to quality transport, and bicycle facilities reduce the use of and reliance on fossil fuel vehicles (ID+C and BD+C)
		  - **Energy and Atmosphere:** minimum and optimised energy performance and refrigerant management minimise energy consumption and contributions to climate change (ID+C and BD+C)
		  - **Materials and Resources:** interior (ID+C only) or building life-cycle impact reduction (BD+C) promote the reuse and reduce material use, environmental product declarations, sourcing of raw materials and material ingredients (ID+C and BD+C) encourage the use of products and materials with available and preferable life cycle impacts, and construction and demolition waste management (ID+C and BD+C) minimises waste
		• Gather evidence of implementing LEED identified measures from external consultants
		• Submit evidence for credits you aim to achieve to the Green Business Certification Inc. (GBCI) for certification review[55]
		
		**While the mentioned credits may not apply to all LEED ratings systems, they apply to the majority*

	Emissions scope	Scope 1, 2 and 3 (embodied carbon from optional credits)
	Latest update	LEED V4.1 is the latest update with LEED V5 set to launch in early 2025
	No. of companies engaged	197,000 LEED projects in 186 countries and territories[56]

[53]https://www.usgbc.org/leed
[54]https://www.usgbc.org/leed
[55]https://www.rts.com/resources/guides/what-is-leed-certification/
[56]https://www.usgbc.org/leed

5.4.2 Leadership in Energy and Environmental Design (LEED) ⊕ continued

	Initiative name	LEED ⊕
Insights	Common challenges	• Justifying higher project costs from additional design measures and external appointments (e.g., LEED consultant, MEP, architect, contractor, enhanced commissioning scope, additional consultant reports) • Justifying additional costs that come with registration fees, submission of documents, third-party inspection fees, and certification fees[57] • Focusing on more impactful environmental performance improvements as LEED is indiscriminate in its weighting of credit points, which gives the same importance to all credits without consideration for impact, cost, difficulty, or importance of implementation, meaning projects can pursue easier credits to secure a rating • Selecting optional credits can make it challenging to distinguish projects that prioritised easier to achieve credits rather than those with the most significant environmental benefits • Including six regional priority credits in the LEED assessment criteria, which do not apply to non-US projects[58] • Lacking a recertification requirement means that while credits continue to provide benefit through operation, the building may not be operated as initially intended • Awarding points for having documentation such as life cycle assessments (LCA), while no points are deducted if the project appears to use materials with more detrimental effects on the environment[59]
	Common opportunities & benefits	• Build trust through internationally recognised certification • Deliver better performing assets by improving energy and water efficiency • Attract tenants as cost savings from efficiency measures can be passed on to them • Reduce embodied carbon through low-carbon materials and design for disassembly • Increase asset value and mitigate asset and reputational risk • Support the disclosure and reporting on international commitments and regulations • Become more sustainable backed by data and credible science

[57] https://stonemarkcm.com/blog/pros-and-cons-of-green-building-certification/
[58] https://www.bsria.com/uk/news/article/breeam-or-leed-strengths-and-weaknesses-of-the-two-main-environmental-assessment-methods/
[59] https://leanurbanism.org/wp-content/uploads/2014/06/Orr-LEED.pdf

5.4.3 Excellence in Design for Greater Efficiencies (EDGE)

EDGE, launched by the International Finance Corporation (IFC), is an internationally recognised green building certification system, awarded to buildings that achieve at least a 20% reduction in energy and water usage, as well as a reduction in embodied energy from construction materials when compared to conventional building practices.[60] The certification is administered by Green Business Certification Inc (GBCI) in most countries around the world.

	Initiative name	EDGE
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	2014
Core attributes	Origin	IFC
	Goals	**Certify resource efficient buildings that achieve at least 20% savings in water and materials and one of the following energy reduction goals, corresponding to a level of certification:**[61][62] • **LEVEL 1 - EDGE Certified:** Achieve 20% or more savings in energy, water, and embodied carbon of materials • **LEVEL 2 - EDGE Advanced:** Achieve 40% or more savings in on-site energy • **LEVEL 3 - Zero Carbon:** Achieve 100% renewable on-site or off-site generation or purchased carbon offsets to top up to 100%, and to qualify for level 3, the building must have already achieved level 2 and have an occupancy of 75% for at least one year
	Actionable steps	**To certify a building, organisations must:**[63] • Create a project on the bespoke EDGE software and select an EDGE auditor • Perform a self-assessment in EDGE software • Choose the aspired level of certification from LEVEL 1 EDGE certified, LEVEL 2 EDGE Advanced, LEVEL 3 Zero Carbon according to the targeted energy savings • Register for certification with GBCI • Prepare and submit supporting documentation • Arrange for EDGE auditor to perform site visits to get certified
	Emissions scope	Scope 1, 2 and 3 (embodied carbon)
	Latest update	EDGE V3.0 is the latest and default version as of October 2021 with an updated baseline that reflects more current standard practices for buildings[64]
	No. of companies engaged	Over 5,000 developers around the world are using EDGE to certify their housing developments[65]
Insights	Common challenges	• Justifying higher project costs from energy efficiency and other measures • Justifying additional costs that come with registration fees, submission of documents, third-party inspection fees, and certification fees[66] • Accurately gathering and monitoring the required consumption data • Potentially oversimplifying sustainability issues
	Common opportunities & benefits	• Project and report your savings using EDGE • Lower your utility bills and attract new tenants • Improve investment planning using EDGE software to calculate return on investment for your building strategies[67] • Demonstrate environmental responsibility and commitment to sustainability through a performance-based certification

[60]https://lawlersustainability.com/services/edge-assessment
[61]https://edgebuildings.com/certify/certification/
[62]https://edgebuildings.com/wp-content/uploads/2022/05/200316-How-to-Apply-for-EDGE-Zero-Carbon-Certification.pdf
[63]https://usgbc.org/scorm/introduction-edge
[64]https://us10.campaign-archive.com/?u=3aab79e0093b30121513cec0c&id=974076ae44
[65]https://edgebuildings.com/edge-excellence-in-design-for-greater-efficiencies/
[66]https://stonemarkcm.com/blog/pros-and-cons-of-green-building-certification/
[67]https://support.usgbc.org/hc/en-us/articles/4522583244435-EDGE-basics

5.4.4 Zero Carbon Certification

The Zero Carbon Certification, developed by the International Living Future Institute (ILFI), is an industry-recognised standard that verifies a building's complete neutralisation of both operational and embodied carbon emissions.[68] By addressing both operational and embodied carbon emissions, Zero Carbon aims to neutralise the total carbon footprint of buildings and infrastructure projects.

	Initiative name	Zero Carbon Certification
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	2018
Core attributes	Origin	ILFI
	Goals	**Certify buildings that achieve net zero carbon emissions through the neutralisation of both operational and embodied carbon, in line with the following:**[69] **Embodied carbon** • **New building and building renovation:** achieve 20% reduction in the embodied carbon emissions of primary materials and exterior materials compared to a baseline comparable building • **All projects with interior materials in scope:** prioritise low-carbon interior products for which embodied carbon data is readily available • Achieve an upfront embodied carbon goal below the ILFI-approved threshold of 350 $kgCO_2e/m^2$ for the project • Disclose and offset 100% of embodied carbon emissions **Operational carbon** Achieve energy efficiency targets within 12 months, based on comparable buildings, and the required combustion limits: • **New build:** achieve 20% improvement beyond the energy consumption levels required by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)Standard 90.1-2019 or later (combustion not allowed) • **Renovation and interior:** meet the energy consumption levels required by ASHRAE Standard 90.1-2019 or another relevant standard, or achieve a 50% reduction of energy use intensity (EUI) from a typical comparable building (Combustion allowed for HVAC systems out of project scope) • Source 100% of the operational energy use associated with the project by new on- or off-site renewable energy • Track energy usage and manage refrigerant emissions

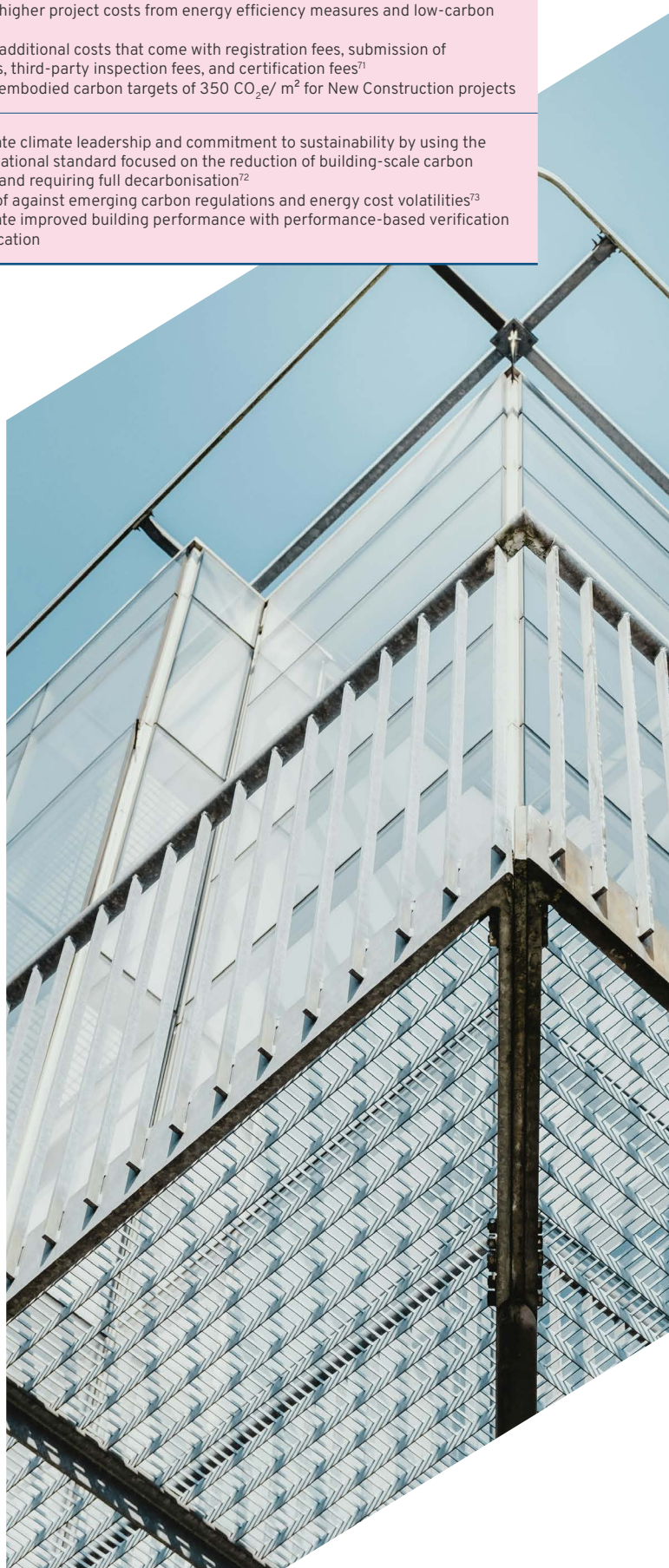
	Actionable steps	**To achieve Net Carbon Certification, organisations must:**
		• Register the project to get an assigned ILFI project coach
		• Meet the embodied and operational carbon goals
		• Complete two audits to achieve certification:
		  • **The Ready Audit:** upon completion of construction and after submission of all required documentation
		  • **The Final Audit:** after completion of 12-month performance period with continuous occupancy and submission of all required documentation, including performance data

	Emissions scope	Scope 1, 2 and 3
	Latest update	ILFI launched ZC 1.1 in April 2024
	No. of companies engaged	11 Certified Zero Carbon buildings[70]

[68] https://living-future.org/zero-carbon/zero-carbon-certification/
[69] https://living-future.org/zero-carbon/zero-carbon-certification/
[70] https://living-future.org/our-living-future-map/

5.4.4 **Zero Carbon Certification** continued

	Initiative name	Zero Carbon Certification
Insights	Common challenges	• Justifying higher project costs from energy efficiency measures and low-carbon materials • Justifying additional costs that come with registration fees, submission of documents, third-party inspection fees, and certification fees[71] • Achieving embodied carbon targets of 350 CO_2e/ m^2 for New Construction projects
	Common opportunities & benefits	• Demonstrate climate leadership and commitment to sustainability by using the only international standard focused on the reduction of building-scale carbon emissions and requiring full decarbonisation[72] • Futureproof against emerging carbon regulations and energy cost volatilities[73] • Demonstrate improved building performance with performance-based verification and certification



[71]https://stonemarkcm.com/blog/pros-and-cons-of-green-building-certification/
[72]https://living-future.org/zero-carbon/zero-carbon-certification/
[73]https://living-future.org/zero-carbon/zero-carbon-certification/

5.4.5 Low Carbon Building initiative (LCBI)

LCBI, launched by major players in the European real estate sector alongside the Association Bâtiment Bas Carbone (BBCA), is the first pan-European low carbon label with a unique methodology that allows for the comprehensive measurement of carbon footprints across the entire life cycle of a building.[74] While the initial scope is on new build offices, residential properties, and hotels, the initiative aims to broaden its objective and encompass all categories of real estate with the aim of decarbonising the entire real estate sector in Europe.

	Initiative name	LCBI
General	Geographic scope	European
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	2022
Core attributes	Origin	Founding members include AXA IM Alts, BNP Paribas Real Estate, Bouygues Immobilier, BPI Real Estate, Covivio, GENERALI Real Estate, ICAMAP, Ivanhoé Cambridge, NSI, and WO2 in collaboration with the Association Bâtiment Bas Carbone (BBCA2).[75]
	Goals	**Certify buildings that demonstrate significant reductions in carbon emissions through life cycle analysis according to assessment criteria and verification procedures, corresponding to a level of LCBI WLC rating:**[76] • **Standard:** satisfactory assessment completeness on components and energy indicators (at least 4★), with a minimum performance (T1) on embodied and operational carbon • **Performance:** market best practice in terms of assessment completeness (at least 5★) and at least one exemplary performance result (T2) • **Excellent:** complete scope of assessment (at least 6★) and two exemplary performance results (T2) for the three carbon indicators to align with the best practices of low-carbon buildings
	Actionable steps	**To certify, organisations must:**[77] • Register the project with LCBI Scheme • Undertake a detailed carbon footprint assessment using two inputs: The scope of the assessment: • **Embodied carbon:** select scope of LCA completeness: ★☆☆☆ frame and shell ★★☆☆ site and external ★★★★ partitions and finishes ★★★★ technical and services • **Operational carbon:** select the calculation methodology: ★☆☆ National Calculation Methodologies (NCM) ★★☆ Dynamic Energy Simulations (DES) ★★★ Monitored Consumption (MC) **Note: not applicable to biogenic carbon* • Meet the following carbon performance thresholds: • **Embodied carbon** - T1: minimum requirement of a 1,000 kg CO_2e/m^2 for a full-scope LCA (★★★★) - T2: 700 kg CO_2e/m^2 for a full-scope LCA (★★★★) • **Operational carbon:** meet the T1 and T2 thresholds for your relevant country • **Biogenic carbon:** - T1 is 5 kgCO_2e/m^2 of Biogenic Carbon - T2 is 70 kgCO_2e/m^2 of Biogenic Carbon • Submit documentation for independent verification against three criteria of the LCBI methodology and prove compliance to different Targets (1 or 2), to achieve the LCBI WLC rating

[74]https://www.realestate.bnpparibas.com/low-carbon-building-initiative-lcbi-has-launched-first-pan-european-methodology-whole-life-cycle
[75]https://www.lowcarbonbuilding.com/about/
[76]https://www.lowcarbonbuilding.com/wp-content/uploads/2024/03/2024-01-25-lcbi-certification-scheme-new-construction-v10-a.pdf
[77]https://www.lowcarbonbuilding.com/wp-content/uploads/2024/03/2024-01-25-lcbi-certification-scheme-new-construction-v10-a.pdf

5.4.5 Low Carbon Building initiative (LCBI) ⊕ continued

	Initiative name	LCBI ⊕
Core attributes	Emissions scope	Scope 1, 2 and 3 (embodied carbon)
	Latest update	January 2024
	No. of companies engaged	Not publicly available
Insights	Common challenges	• Addressing complexities of data gathering as life cycle assessments require EPDs which may not be available for all products[78] • Justifying higher project costs from energy efficiency and other measures • Justifying additional costs that come with registration fees, submission of documents, third-party inspection fees, and certification fees[79] • Limiting in scope due to applicability to three asset types across eight European countries
	Common opportunities & benefits	• Become more sustainable backed by credit data • Support the disclosures, reporting and alignment with international commitments and regulations such as EU Taxonomy, CRREM, SBTi, and RE2020

[78] https://lowcarbonbuilding.com/faq/
[79] https://stonemarkcm.com/blog/pros-and-cons-of-green-building-certification/

5.4.6 Labels conclusion

Having identified the key elements within each of the labels, we will now summarise and synthesise the key findings across areas such as scoring, reporting, synergies with other initiatives and challenges.

BREEAM, LEED, Zero Carbon Certification, EDGE, and LCBI are all prominent sustainability certification systems in the built environment. While they share the common goal of promoting sustainable practices, there are significant differences in their scopes, geographical coverage, methodologies and scoring systems, assessment processes, and the level of rigor they impose.

BREEAM and LEED are two of the most prominent green building certification schemes. For LEED, the US remains the world's largest market, while BREEAM has an 80% market share across Europe for sustainable building certifications. Both certifications employ a points-based system.[80]

BREEAM uses a weighted scoring system that evaluates buildings across different categories to arrive at an overall rating from Pass to Outstanding, providing a comprehensive evaluation through rigorous documentation reviews and mandatory on-site visits by licenced BREEAM assessors.

LEED is simpler and more flexible in its approach as it allocates points across multiple categories, with the total points determining the certification level from Certified to Platinum. The certification process is less rigorous, requiring documentation reviews with optional on-site verification. Unlike BREEAM, LEED does not require an assessor to collect evidence but rather requires the building design team to collect and submit this evidence, thus contributing to its widespread adoption globally. While LEED is a globally applicable framework, it also includes six regional priority credits solely applicable to US-based projects.[81]

While these certification schemes have gained substantial traction in the industry, others are still in their early stages of development and have not yet been widely adopted. For instance, the LCBI and Zero Carbon Certification were established relatively recently, in 2022 and 2018 respectively.

The Zero Carbon Certification, introduced by the ILFI, is currently only being embraced by a limited number of companies, with Prologis, a member of the US EPRA, as an example, having successfully obtained Zero Carbon Certification for one of its logistics warehouses in 2023. Despite being a relatively new scheme, Zero Carbon Certification stands out due to its singular focus on carbon and challenging requirements. The certification employs a performance-based approach, requiring buildings to achieve operational and embodied carbon targets and mandating an independent verification of a 12-month performance period with continuous occupancy to gain a certification.

Along with the EDGE Zero Carbon certification, they are the only two labels validating claims using actual performance data. Notably, the embodied carbon threshold of 350 $kgCO_2e/m^2$ for upfront embodied carbon of the Zero Carbon Certification is the most ambitious target, derived from averages between the Low Energy Transformation Initiative's (LETI) 2030 WLC and Embodied Carbon reduction targets and SBTi's 1.5°C Pathway for the Global Buildings Sector's Embodied Emissions.[82]

EDGE prioritises energy, water, and materials efficiency, offering a simpler, performance-based approach. Its reliance on self-assessment and existing documentation makes it more accessible but less stringent. However, EDGE Zero Carbon requires prior EDGE Advanced certification and building occupancy, indicating a stepwise approach to carbon reduction.[83] Notably, EDGE is included as a qualifying certification system for improved scoring for the GRESB Real Estate Assessment and the GRESB Developer Assessment (GRESB Real Estate Assessment provides a guide to measuring ESG performance, both on an individual asset and portfolio-level).[84] Due to EDGE's assessment of energy, water and materials, the certification scheme can be used to address several GRESB credits.[85] The Climate Bonds Initiative also includes EDGE as a qualifying certification system to achieve the Climate Bonds Standard and Certification Scheme.[86]

[80]https://sustainabilitymag.com/sustainability/usgbc-china-leeds-global-charge-with-sustainable-buildings
[81]https://prologis.com/what-we-do/resources/difference-breeam-leed
[82]https://living-future.org/zero-carbon/zero-carbon-certification/
[83]https://edgebuildings.com/wp-content/uploads/2022/05/200316-How-to-Apply-for-EDGE-Zero-Carbon-Certification.pdf
[84]https://edgebuildings.com/about/ifc-green-buildings/
[85]https://edge.gbci.org/system/files/resources/2022-09-20-EDGE-GRESB_FINAL.pdf
[86]https://edgebuildings.com/about/ifc-green-buildings/

The LCBI distinguishes itself from other green building certifications through its unique method of measuring carbon footprints of buildings across their entire life cycle, with limit values.[87] This comprehensive approach sets it apart from the other labels, which while considering carbon emissions, prioritise a wider range of environmental impacts.[88] The scheme includes two embodied targets, with a minimum requirement set to 1,000 kg CO_2e/m^2 (T1) for a full-scope LCA to achieve certification and 700 kg CO_2e/m^2 for a full-scope LCA (T2) for projects showcasing exemplary performance, the latter of which is in line with the RIBA 2030 Build Target.[89] This method also aligns with major European standards such as the EU Taxonomy, Level(s), CRREM, and RICS.[90] While the European methodology simplifies the quantification and comparison of building carbon footprints, it also narrows down the applicability of the scheme to the EU.

While there are no interdependencies between the schemes, they are relevant or aligned with other recognised initiatives. Notably, all BREEAM related activities are aligned to ISO 9001 and the suite of schemes (New Construction, In-Use, Communities and Refurbishment and Fit-Out) can help meet the EU Taxonomy screening criteria.[91] Additionally this can positively impact GRESB ratings.[92] In total, building certifications make up 11% of the GRESB Real Estate Assessment score.[93] An evaluation of the 2024 BREEAM standards revealed that 33 GRESB indicators are addressed by BREEAM In-Use.[94] The Mapping Resource is updated annually in conjunction with GRESB's yearly reference guide. Companies can leverage the data collected through the schemes to accurately assess their buildings' environmental performance, identify improvement areas, and track progress over time, ultimately driving continuous performance optimisation.[95]

It is worth noting that in the UK, the BREEAM criteria is designed to complement existing legislation and regulation. For example, BREEAM aligned its criteria with net zero carbon standards, reflecting the UK Government's commitment to carbon neutrality by 2050.[96] Moreover, in response to the BNG legislation, BREEAM will soon release version 7 of the standard, providing guidance on how to improve BNG and ensure compliance with the legislation.[97] This close alignment with legal requirements has led to BREEAM commonly being cited as a necessary planning requirement by local authorities throughout the UK, including all of London.[98]

A common challenge of LEED and BREEAM are the costs associated with them, which encompass project costs from additional design measures that may be required to satisfy credits, as well as the overall registration fees of the schemes. Furthermore, it is important to note that although a higher rating may suggest a better environmental performance, the absence of performance verification during occupancy and the requirement to recertify, leaves uncertainty as to whether the building is being operated as originally intended. This means that although these certifications do include credits for energy efficiency and carbon reduction, they do not guarantee that an asset is low or net zero carbon.

Another challenge to consider across most labels is the availability of data, including EPD's, which provide information on the environmental impact of building materials and products used in construction. EPD availability for various building materials and components can be limited and can vary due to regional disparities and in terms of methodologies, scope, and data quality. The lack of comprehensive and standardised data can hinder the accuracy of life cycle assessments, which are crucial for evaluating a building's overall environmental performance.

[87] https://LCBI New construction scheme v 1.0 – Jan. 2024
[88] https://realestate.bnpparibas.com/low-carbon-building-initiative-lcbi-has-launched-first-pan-european-methodology-whole-life-cycle
[89] https://www.leti.uk/_files/ugd/252d09_25fc266f7fe44a24b55cce95a92a3878.pdf
[90] https://lowcarbonbuilding.com/methodology
[91] https://breeam.com/about/disclosures-and-reporting/eu-taxonomy
[92] https://gresb.com/nl-en/the-impact-of-green-building-certifications-on-gresb-ratings-for-in-use-buildings
[93] https://bregroup.com/documents/d/bre-group/breeam-in-use-gresb-2024-indicators-april-2024
[94] https://bregroup.com/bre-announces-release-of-global-2024-breeam-in-use-gresb-mapping-resource
[95] https://gresb.com/nl-en/the-impact-of-green-building-certifications-on-gresb-ratings-for-in-use-buildings
[96] https://breeamassessment.co.uk/breeam-policy-and-legislation-a-guide/
[97] https://bregroup.com/insights/breeam-version-7-set-to-embrace-new-biodiversity-net-gain-legislation
[98] https://bregroup.com/insights/breeam-version-7-set-to-embrace-new-biodiversity-net-gain-legislation

		Building Research Establishment Environmental Assessment Method (BREEAM)	Leadership in Energy and Environmental Design (LEED)	Excellence in Design for Greater Efficiencies (EDGE)	Zero Carbon Certification	Low Carbon Building Initiative (LCBI)
KEY SIMILARITIES & DIFFERENCES AMONG LABELS	Scope	Scope 1, 2 and potential to include 3 (embodied carbon).	Scope 1, 2 and potential to include 3 (embodied carbon).	Scope 1, 2 and 3 (embodied carbon).	Scope 1, 2 and 3 (embodied carbon in product and construction stage A1 -A5).	Scope 1, 2 and 3 (full life cycle carbon footprint).
	Carbon Offsets	Encourages carbon reduction but doesn't explicitly require offsets.	Carbon offsets may be used to mitigate scope 1 or 2 emissions on a metric ton of carbon dioxide–equivalent basis and must be Green-e Climate certified, or equivalent (LEED v4 Green power and carbon offsets).[99]	Projects must use 100% renewable energy or have purchased carbon offsets to reach 100%.[100]	Carbon offsetting does not reduce upfront carbon and is considered as a last resort, only after all other measures to avoid or reduce emissions have been exhausted.[101] Carbon offsets must be certified by Green-e Climate or an equivalent programme.	Not specified.
	Coverage	Applicable to new and existing buildings, interiors, homes, communities and can be used anywhere in the world. Predominant assessment method in Europe, with a market share of 80%.[102]	Applicable to new and existing buildings, interiors, homes, communities and can be used anywhere in the world. Most widely used worldwide, with largest market in the US and China.[103]	Applicable to homes, hotels, hospital, offices, and retails spaces in almost all countries (with few exceptions).[104]	Applicable to new and existing buildings, interiors and landscape and infrastructure projects.[105]	Applicable to new built offices, multi-family residential and hotels in eight European countries (Belgium, France, Germany, Italy, Luxembourg, Netherlands, Spain and the UK).
	Scoring	Weighted point-based system. Each category is assigned a weighting with Energy and Health and Well-being attributed the highest weighting. Weightings differ across certification systems.	Points based system.	Performance-based.	Performance-based.	Performance-based. For each indicator (Embodied/Operational/ Biogenic), LCBI provides two different targets (T1 and T2) adapted to various levels of completeness of the analysis.[106]
	Audit stages	Interim certificate: represents the performance of the building at the design stage of assessment, prior to site becoming operational.[107] Post construction, or 'as built' assessment/ Final certificate: reflects the assessed performance of the actual built asset ensuring BREEAM credits specified are implemented.[108]	Preliminary review: GBCI checks completeness and compliance with selected rating and attempted credits. Final Review: submissions of supplementary evidence requested by reviewer during preliminary review or application amends.	Preliminary Certification/ Design Audit: takes place after submission during the design stage. EDGE Certification/Site Audit: takes place after submission at the end of post- construction phase.[109] EDGE Zero Carbon certification only: takes place at least one year after final EDGE certification with 75% occupancy, with operational data to be submitted.	Ready Audit: takes place after submission and upon completion of project construction. Final Audit: takes place after submission and completion of 12 months continuous occupancy performance period.[110]	Interim LCBI certificate/First audit: by an independent body undertaken at end of technical design stage to assess final design before construction. Final LCBI certificate/ Final audit: delivered after practical completion.
	Recertification	BREEAM NC and RFO: certification is valid for life unless significant changes occur. BIU: Buildings must undergo reassessment every three years.	LEED New construction and commercial interiors: certification is permanent as long as no significant changes occur. Operations and Maintenance: building must be recertified every five years.	Registration does not expire, however, projects registered under EDGE Version 2 must achieve certification by December 2025.[111] The Preliminary Certificates expire 36 months after issuance or 12 months after a project is practically complete, whichever comes first.	No requirement to recertify.	Optional follow up certificate upgrade after five years available. Includes actual operational emissions in assessment.[112]
INTERDE-PENDENCIES AMONG		None	None	None	None	None
SYNERGIES WITH OTHER INITIATIVES		BREEAM schemes can contribute toward meeting UN SDGs.[113] BREEAM schemes align with the EU Taxonomy.[114] Recognised and accepted building certification by GRESB.[115]	LEED categories can contribute toward meeting UN SDGs.[116] Recognised and accepted building certification by GRESB.[117]	EDGE is a qualifying certification system for improved scoring for two of GRESB Assessments (Real Estate and Developer) and achieving the Climate Bonds Standard and Certification Scheme.[118]	The upfront embodied carbon threshold is based on the average of LETI's 2030 reduction targets and SBTi's 1.5°C Pathway for Global Buildings Sector's Embodied Emissions.[119]	LCBI is built upon compatibilities with Level(s) to define principles on embodied and biogenic carbon and for energy can be documented with energy simulations as per CRREM. LCBI limit values align with CRREM trajectories for operational carbon and SBTi upfront embodied carbon.[120]

[99]https://usgbc.org/credits/new-construction-schools-new-construction-retail-new-construction-data-centers-new-12
[100]https://edge.gbci.org/certification
[101]Zero Carbon Certification 1.1 Program Manual - July 2024
[102]https://cim.io/blog/the-breeam-rating-system-explained
[103]https://sustainabilitymag.com/sustainability/usgbc-china-leeds-global-charge-with-sustainable-buildings
[104]https://gbci.org/press-kit-edge
[105]Zero Carbon Certification 1.1 Program Manual - July 2024
[106]https://lowcarbonbuilding.com/faq/
[107]https://tools.breeam.com/extranet/assessment/help/Content/Assessment%20Stage.htm
[108]https://greenbooklive.com/search/scheme.jsp?id=241
[109]https://support.usgbc.org/hc/en-us/articles/4522583244435-EDGE-basics
[110]Zero Carbon Certification 1.1 Program Manual - July 2024
[111]https://support.usgbc.org/hc/en-us/articles/4522803015443-EDGE-certification-process
[112]https://lowcarbonbuilding.com/wp-content/uploads/2024/01/2024-01-25-lcbi-certification-scheme-new-construction-v10.pdf
[113]https://breeam.com/about/sustainable-development-goals
[114]https://www.bre.group/a-guide-to-the-eu-taxonomy-and-breeam/introducing-the-eu-taxonomy
[115]https://www.gresb.com/nl-en/the-impact-of-green-building-certifications-on-gresb-ratings-for-in-use-buildings/
[116]https://www.usgbc.org/resources/synergies-between-leed-and-sdgs
[117]https://www.gresb.com/nl-en/the-impact-of-green-building-certifications-on-gresb-ratings-for-in-use-buildings/
[118]https://edgebuildings.com/about/ifc-green-buildings/
[119]Zero Carbon Certification 1.1 Program Manual - July 2024
[120]https://www.lowcarbonbuilding.com/faq/

5.5 REGULATION

The following section evaluates one regulation, the Energy Performance Building Directive (EPBD), outlined in Figure 7.

Figure 7 - Short list of Regulations

The aim of the EPBD is to promote energy performance and the decarbonisation of buildings within the EU, taking into account outdoor climatic and local conditions, in addition to indoor climate and cost effectiveness.

2002

Note

It is important to note that regional and city level legislation is outside of the scope of this report.

5.5.1 EPBD

The EPBD, launched by the EU in 2002, aims to improve building energy efficiency.[121] The latest recast, effective from May 2024, requires all new buildings to be zero-emission by 2030 and existing buildings to undergo renovations for higher performance. It also includes provisions for digital tools, smart technologies, and renewable energy to help achieve the EU's 2050 carbon neutrality goal. Member states have until summer 2026 to incorporate these changes into national law, while the 2018 version remains in effect until then.

	Initiative name	EPBD
General	Geographic scope	Europe
	Compliance type	Mandatory
	EPRA category	Regulation
	Effective date	2002
Core attributes	Origin	EU
	Goals	Improve the energy efficiency and rate of renovation of buildings within the EU, by ensuring that member states address key topics related to the energy efficiency of buildings such as Energy Performance Certificates (EPCs), minimum energy performance requirements, regular inspections of heating and air conditioning systems, promotion of renewable energy sources, etc.[122] [123] It is important to note that the EPBD is subject to periodic updates and revisions, so the topics covered may evolve over time. The latest recast has been published in May 2024, with member states having until 2026 to transpose the directive into the national laws. As part of the broad changes introduced by the EPBD recast in 2024, it enhances the energy performance requirements for new buildings, with the introduction of Zero Emissions Building (ZEB) requirement that is going to supersede the Nearly Zero Energy Building (NZEB) specification. ZEB requires new residential and non-residential buildings owned by public bodies to be zero-emission buildings from 2028, and 2030 for all other new buildings.
	Actionable steps	**To support alignment, organisations should:** • **Assessments:** carry out assessments encompassing energy consumption, heating, cooling, ventilation, lighting, and hot water • **Standardised calculation methods:** utilise standardised methods to determine the energy performance of buildings including the consideration of thermal characteristics (insulation and glazing), heating and cooling systems, ventilation, and lighting • **Monitoring and verification:** ensure ongoing compliance with energy performance standards by integrating smart meters and building automation systems to monitor energy consumption in real-time and verifying the energy performance of buildings by regularly inspecting buildings and systems to identify improvement opportunities
Core attributes	Emissions scope	Scopes 1, 2 and 3 Direct and indirect GHG emissions associated with the operation of a building
	Latest update	May 2024
	No. of companies engaged	N/A

[121] https://www.iea.org/policies/868-energy-performance-of-buildings-directive-epbd-200291ec
[122] https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-and-zero-emission-buildings_en
[123] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401275&pk_keyword=Energy&pk_content=Directive

5.5.1 EPBD ⊕ continued

	Initiative name	EPBD ⊕
Insights	Common challenges	• Addressing high capital cost of energy efficient technologies • Complexity in retrofitting buildings to meet the required standard • Acquiring the required technical expertise and providing relevant training
	Common opportunities & benefits	• Reduce significant energy consumption and subsequent GHG emissions • Lower energy bills for building occupiers • Improve indoor comfort and health • Enhance building value and marketability

5.6 STANDARDS

The following section evaluates the six individual real estate standards listed in Figure 8.

Figure 8 – Short list of Standards

2001 – Greenhouse Gas (GHG) Protocol aims to develop international standards and tools for accounting and reporting GHG emissions to promote a low emission economy globally.

2009 – GRESB aims to provide actionable and transparent ESG data to financial markets.

2017 – Whole Life Carbon Assessment (WLCA) aims to measure WLC emissions, manage carbon budgets, and reduce life cycle emissions.

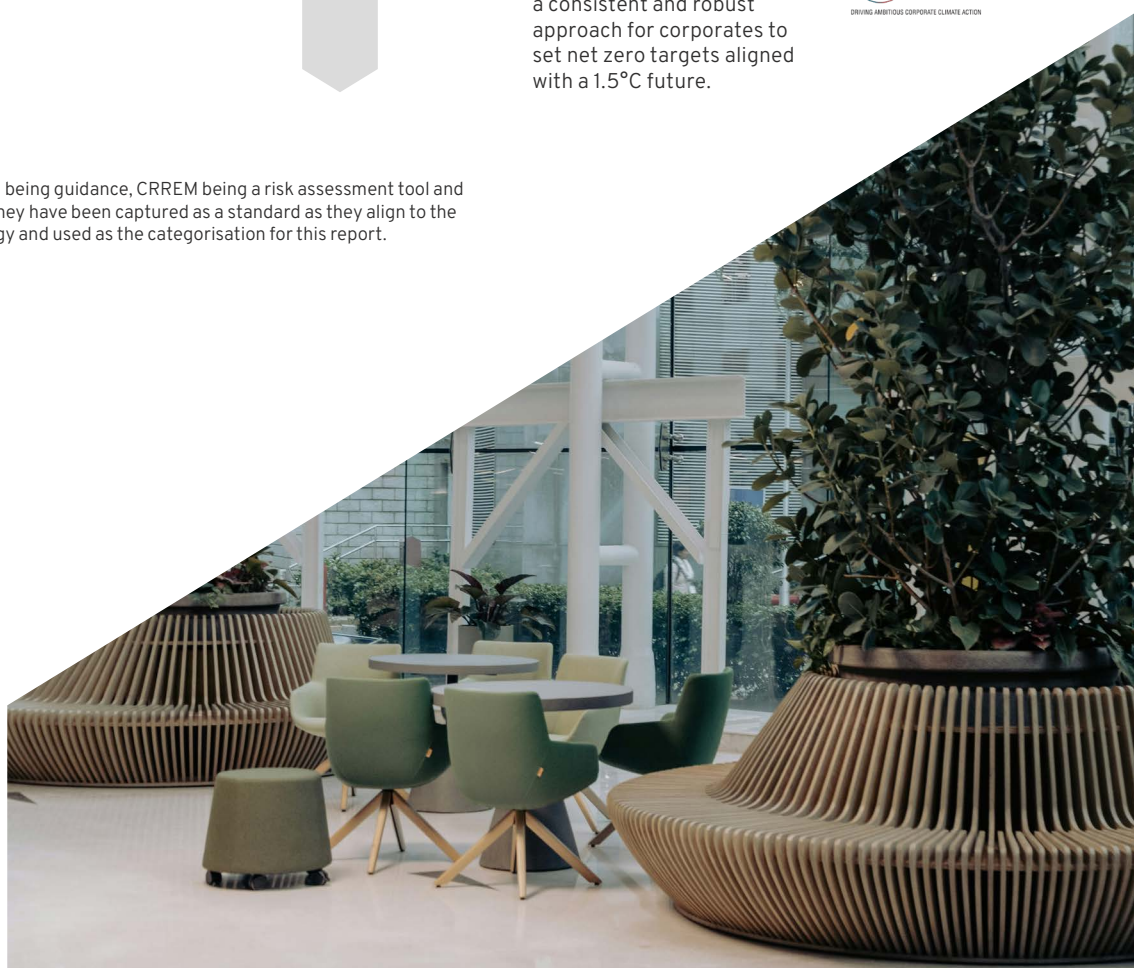
2018 – CRREM aims to optimise investments in energy-efficient retrofits of the commercial and residential real estate sector by clearly communicating the downside financial risks associated with poor energy and carbon performance and quantifying the financial implications of climate change on assets.

2019 – Partnership for Carbon Accounting Financials (PCAF) aims to enable financial institutions to measure and report in financed emissions.

2021 – SBTi's Corporate Net-Zero Standard aims to provide a consistent and robust approach for corporates to set net zero targets aligned with a 1.5°C future.

Note

Despite the Greenhouse Gas Protocol being guidance, CRREM being a risk assessment tool and GRESB being a benchmark scheme, they have been captured as a standard as they align to the definitions detailed in the methodology and used as the categorisation for this report.



5.6.1 Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard

The GHG Protocol jointly convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) provides an internationally accepted GHG reporting and accounting standard, enabling organisations to quantify and report their GHG emissions. This widely adopted standard enables organisations, governments, and other entities to quantity their progress towards achieving a lower carbon economy.

	Initiative name	GHG Protocol Corporate Accounting and Reporting Standard
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2001
Core attributes	Origin	WRI and the WBCSD
	Goal	Provide requirements and guidance for organisations preparing corporate-level GHG emissions inventory accounting for seven GHGs covered by the Kyoto Protocol.[124]
	Actionable steps	**Organisations utilising the protocol must:** • Base the GHG accounting and reporting on the principles of relevance, completeness, consistency, transparency, and accuracy • Set organisational boundaries: select one of the two approaches to consolidating corporate GHG emissions inventories - **The equity share approach:** accounts for GHG emissions arising from operations based on the share of equity in those operations - **The control approach:** GHG emissions are accounted for based on the operational or financial control the reporting company has for its operations - If the reporting company owns all its operations, its organisational boundary will be the same whichever approach is used however, for companies with joint operations, the organisational boundary and the resulting emissions may differ depending on the approach used, and where possible, it is recommended that the control approach is used • **Set operational boundaries:** based on the chosen consolidation approach, identify emissions the organisation is accountable for, distinguishing between direct (scope 1) and indirect emissions (scope 2 and 3) • **Tracking emissions over time:** choose a base year of reporting to set reduction targets and allow for 'like-for-like' comparison of emissions year on year • **Reporting GHG emissions:** publicly disclose a GHG report, utilising the best data available at the time of disclosure, be transparent about its limitations and communicate discrepancies identified in previous years, and include the total gross emissions for the chosen inventory boundary, separate from any GHG trades (e.g., offsetting) - Employ a dual-reporting approach for scope 2 emissions reporting, which involves reporting scope 2 emissions using the location-based approach at a minimum (using national average grid emissions factors) and, if applicable and desired, using the market-based approach (where supplier specific emissions factors are used, e.g., when company procures renewable energy)
	Emissions scope	Scope 1, 2 and 3
	Latest update	2004 – Corporate Accounting and Reporting Standard The GHGP is currently in the process of reviewing and updating all standards managed by the entity and anticipates releasing draft standards/guidance for public consultation in 2025 and publishing final standards/guidance in the latter half of 2026. Since the release of the protocol in 2004, guidance on Scope 2 has been released in 2015 and the GHGP are making ongoing efforts to refine and expand guidance related to Scope 3 emissions and sector-specific approaches.
	No. of companies engaged	N/A

[124] https://ghgprotocol.org/corporate-standard

5.6.1 Greenhouse Gas (GHG) Protocol Corporate Accounting and Reporting Standard continued

	Initiative name	GHG Protocol Corporate Accounting and Reporting Standard
Insights	Common challenges	• Defining operational boundaries is challenging, especially for organisations with complex organisational structures • Addressing data availability and quality to attain an accurate and comprehensive data set can be challenging and will require cooperation among stakeholders (especially on scope 3 data) • Lacking distinction within market-based reporting for scope 2 emissions as currently, the standard allows all renewable procurement methods to qualify as market-based, which does not differentiate between low-quality and high-quality renewable energy procurement, and can disincentivise companies from achieving real reductions in emissions e.g., through optimising the use of resources
	Common opportunities & benefits	• Deliver a globally accepted standard for measuring and reporting carbon emissions • Enable standardised language for reporting emissions to be adopted • Provide comprehensive emission coverage, enabling a holistic view on organisations' carbon footprint to be taken

5.6.2 GRESB Real Estate Assessment

GRESB, created by a group of pension funds, is an industry-driven organisation aiming to provide ESG data to financial markets.[125] The standard provides a guide to measuring ESG performance, both on an individual asset and portfolio-level. Addressing the challenge of limited comparable ESG data and information for investors to assess the sustainability performance of real estate investments, GRESB promotes transparency and informed decision-making, ultimately driving the industry towards greater sustainability.

	Initiative name	GRESB Real Estate Assessment
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2009
Core attributes	Origin	Collaboration between APG Asset Management, PGGM and USS
	Goal	Provide a consistent and standardised framework for measuring and comparing real estate ESG performance through two real estate benchmarks: **GRESB Real Estate Benchmark**, which considers management and performance factors, and **GRESB Development Benchmark**, which considers management and development factors.[126]
	Actionable steps	**To participate in GRESB, organisations must:**[127] • **Components:** decide on Components to report on from Performance and Development to determine the scope of assessment and subsequent data collection and reporting efforts, with the Management Component being mandatory for all • **Property ownership or operation:** define whether the company owns or operates one or more eligible real estate assets, which can include directly owned properties, joint ventures, funds, or portfolios • **Data coverage:** report on all underlying assets in the company or fund portfolio, regardless of the percentage of ownership, but excluding vacant land, cash, ground leases or other non-real estate assets owned by the entity including energy consumption • **Reporting period:** collect and report data for the selected reporting year and relevant previous year data consistently throughout the reporting period (calendar year or fiscal year) - **Management Component:** collect data related to leadership, policies, reporting, and stakeholder management - **Performance Component:** collect data related to risk, performance targets, key performance indicators including energy, water, GHG emissions and waste, building certifications, and stakeholder engagement (tenants and community) - **Development Component:** collect data related to ESG requirements during the design, construction, and site development, key performance indicators including materials, energy, water, and waste, building, and stakeholder engagement (contractors and community) • **Completeness of data:** submit complete data, meeting the minimum requirements defined for each indicator (missing data will reduce a participant's score and there are strict estimation threshold for performance data) • **Evidence provision:** where required provide evidence, such as policy documents or other public disclosures, to support the answers submitted Participants who complete all three components receive both GRESB Standing Investment and Development reports.
	Emissions scope	Scope 1 and 2 (minimum) Scope 3 emissions associated with tenant areas unless they are already reported as scope 1 or scope 2 emissions (if they cannot be disassociated from emissions from other areas), also excluding emissions generated through the entity's operations or by its employees, transmission losses or upstream supply chain emissions

[125]https://www.gresb.com/nl-en/about-us
[126]https://www.gresb.com/nl-en/real-estate-assessment/
[127]https://documents.gresb.com/generated_files/real_estate/2024/real_estate/reference_guide/complete.html

5.6.2 GRESB Real Estate Assessment continued

	Initiative name	GRESB Real Estate Assessment
Core attributes	Latest update	Annual GRESB Real Estate Standard and Reference Guide update.
	No. of companies engaged	In 2023:[128] +2,000 participants (property companies, REITs, funds, and developers) +170,000 assets 75 countries $7.2t GAV
Insights	Common challenges	• Acquiring evidence for submissions can be challenging, usually requiring multiple stakeholders and requests for a considerable amount of evidence to support answers given in submissions, with failure to provide acceptable evidence possibly resulting in a lower GRESB score • Collecting real performance data for all assets where the entity has partial ownership, with failure to provide any data, or inability to estimate data due to a strict data estimation threshold, possibly resulting in a lower GRESB score • Requiring project management to deliver multiple workstreams (including data assurance) to provide evidence and data to meet a strict deadline, with tasks needing to be complete before the submission and often are worked on simultaneously • Requiring dedicated expertise and knowledge of GRESB subject matter to complete submissions in accordance with GRESB guidance and ensure the maximum possible scores are achieved
	Common opportunities & benefits	• Demonstrate climate leadership and enhance brand reputation by publicly demonstrating an organisation's ESG performance to investors and stakeholders on a global and evidence-based platform with a global ESG performance benchmark • Provide investors with the information needed to make informed decisions based on ESG performance and create value for stakeholders • Compare ESG performance with peers including policy, reporting, and stakeholder engagement to identify areas for improvement • Improve risk management by providing valuable indicators and performance metrics that enable companies to identify and mitigate sustainability-related risks, enhance asset resilience, and safeguard long-term value • Provides a path to improvement in GRESB results, allowing companies to see the next step to score improvement and often an example of the evidence required

[128]https://www.gresb.com/nl-en/2023-real-estate-assessment-results/

5.6.3 Whole Life Carbon Assessment (WLCA) for the built environment

The WLCA developed by the Royal Institution of Chartered Surveyors (RICS) provides organisations with a methodology to measure and report the carbon emissions expected throughout all life cycle stages of an asset.[129] Thus, enabling organisations to take a holistic view on a project from a carbon perspective and aiding decision-making throughout the design, procurement, construction, refurbishment, and end-of-life phases to achieve a less carbon intensive impact over the life of an asset.

	Initiative name	WLCA for the built environment
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2017
Core attributes	Origin	RICS
	Goal	Measure and reduce the total carbon emissions associated with a building or infrastructure project throughout its entire life cycle.[130]
	Actionable steps	**WLCA's assessments are broken down into the following steps, which should be repeated during the project phases (cf. requirements):**[131] • **Define project boundaries and scope:** identify the scope of the assessment, including boundaries, system limits, and life cycle stages to be considered • **Collect project information:** gather relevant data from various sources such as drawings, specifications, models, EPDs, and other pertinent information needed for the assessment • **Define components inventory and energy sources:** list and quantify all construction elements and energy sources • **Assess emissions to project completion - Life cycle stage A (modules A0-5):** covering all carbon emissions and removals from any activities necessary to complete the construction of the asset • **Assess emissions post project completion over the Reference Study Period (RSP) - Life cycle stage B (modules B1–B8) and C (modules C1–C4):** covering all carbon emissions and removals that occur over the in-use stage of the asset (life cycle stage B) and all 'end-of-life' impacts (life cycle stage C) • **Assess potential benefits and loads beyond system boundary - Life cycle stage D (modules D1-2):** covering potential benefits and loads beyond the system boundary (carbon loads and benefits from reuse, recycling, energy recovery or landfilling of any material or carbon benefits from any utilities exported from the asset such as generated electricity or treated water) • **Compile report of steps 1–6:** prepare a comprehensive report that documents the WLCA methodology, data sources, results, and findings, and communicate the assessment outcomes to stakeholders, fostering transparency, informed decision-making, and continuous improvement • **Third-party verification:** undertake verification in line with relevant EU standards to enhance quality assurance and transparency
	Emissions scope	Scope 1, 2 and 3 (Operational and embodied carbon)
	Latest update	July 2024 WLCA for the built environment, 2nd edition
	No. of companies engaged	N/A

[129-131]https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf

5.6.3 Whole Life Carbon Assessment (WLCA) for the built environment continued

	Initiative name	WLCA for the built environment
Insights	Common challenges	• Collecting required data to perform the assessment such as product-level embodied carbon data and operational data • Assessing embodied carbon due to the absence of industry consensus on standardised accounting processes • Comparing emissions associated with existing building refurbishment and new development • Embedding WLCAs into design, construction, operation and end-of-life decision-making processes
	Common opportunities & benefits	• Aligned with the GHG Protocol for consistent reporting • Considers circular economy principles, promoting more efficient use of resources • Compare projects based on their embodied carbon • Describes a consistent process for conducting WLCAs, which provides a reliable and comparable assessment in terms of embodied carbon • Identifies energy efficiency opportunities

5.6.4 Carbon Risk Real Estate Monitor (CRREM) Decarbonisation Pathways

CRREM, developed by consortium members, provides the real estate sector with transparent, science-based decarbonisation pathways aligned with the Paris Agreement, supporting the industry to address premature obsolescence, potential depreciation, and financial viability risks due to changing market expectations and legal regulations by encouraging investments in energy efficiency.[132]

	Initiative name	CRREM Decarbonisation Pathways
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2019
Core attributes	Origin	Funded by the EU H2020 research and innovation programme and delivered by five well-known institutions including IIÖ Institute for Real Estate Economics (Austria, project coordinator), University of Alicante (Spain), Ulster University (Northern Ireland), GRESB (Headquartered in Netherlands), and TIAS Business School for Business and Society affiliated with Tilburg University in the Netherlands.[133]
	Goal	Progress operational decarbonisation efforts and climate resilience of the real estate industry by highlighting the financial impact of not complying with the 1.5°C global decarbonisation pathway.
	Actionable steps	**Organisations utilising CRREM should:** • Use the CRREM tool to analyse their real estate portfolio against the CRREM decarbonisation and energy intensity pathways • Collect and input asset-level building information into the CRREM tool: - General information, building characteristics, total energy procurement, refrigerant losses, renewable energy, and retrofit action (optional) • Undertake scenario analysis and modelling to run simulations of different decarbonisation strategies on emission reductions • Analyse the results of the CRREM tool to gain an understanding of the stranding risk of the portfolio - The results cover the evolution of stranding within the portfolio, stranding events, portfolio emissions vs 1.5°C and GHG emission scenarios, portfolio GHG intensity, and cost of excess emissions • Validate data quality and consistency • Conduct sensitivity analysis to assess the impact of different assumptions and parameters
	Emissions scope	Scope 1, 2 and 3 ('Whole Building Approach') CRREM only considers operational energy use. Embodied carbon of the existing building is not regarded; however, one retrofit can be modelled. The resulting embodied carbon emissions resulting from the trade-off between embodied carbon and potential operational savings for a retrofit can be considered.
	Latest update	January 2023
	No. of companies engaged	> 10,000 assets analysed > 100 million m^2 AUM > €1,000 billion AUM[134]

[132] https://www.crrem.eu/about-crrem/
[133] https://www.crrem.eu/crrem-consortium/
[134] https://www.crrem.eu/tool/

5.6.4 Carbon Risk Real Estate Monitor (CRREM) Decarbonisation Pathways continued

	Initiative name	WLCA for the built environment
Insights	Common challenges	• Addressing data availability and quality challenges when acquiring scope 3 tenant data and data related to refrigerant losses • Ensuring assumptions made regarding building data inputs (for example, building floor area) are accurate • Addressing limited scope as CRREM only considers operational energy consumption • Integrating assets located in countries not included in CRREM (despite global scope, not all countries are included) • Integrating niche asset types not explicitly included in CRREM (for example, schools and hospitals) • Limited functionality to handle retrofits as modelling multiple retrofits on one asset requires an involved approach
	Common opportunities & benefits	• Increase the potential investor pool for aligned assets as investors assess CRREM alignment at acquisition due diligence • Alignment with SBTi further cements CRREM pathways as the industry leading best practice for real estate operational energy and carbon intensity targets, providing greater transparency for country-level carbon emission pathways in terms of carbon emissions from national grids, facilitating the selection of on-site energy and technologies by prioritising investment in national grid regions with a high carbon intensity • Advance transition risk analysis, in particular identifying stranding risk of an asset, which will define areas of improvement and strategy options

5.6.5 Partnership for Carbon Accounting Financials (PCAF) Standard

PCAF is an industry-driven standard, created in 2015 by Dutch financial institutions, and scaled globally in 2019.[135] The PCAF standard provides a standardised approach to GHG accounting and allows financial institutions (FIs) to measure and disclose GHG emissions associated with their financial activities. This review focuses on how the PCAF standard applies to the real estate sector, through the review of the "Accounting and Reporting of GHG Emissions from Real Estate Operations".

	Initiative name	CRREM Decarbonisation Pathways
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2019 (global)
Core attributes	Origin	Dutch financial institutions.
	Goal	Provide financial institutions with a transparent, consistent, and harmonised standard for the accounting and reporting of GHG emissions associated with loans and investments in commercial real estate, known as financed emissions.[136]
	Actionable steps	**Organisations utilising PCAF must:**[137] [138] • **Account for all emissions related to the energy usage of buildings in their investment portfolio using the whole building approach:** as default, include all operational emissions from the entire building in GHG accounting, in line with the GHGP scope 3 standard relating to investment-specific method of reporting investments. This includes scope 1 and 2 emissions, and any scope 3 emissions considered significant. • **Include all real estate asset class:** cover all real estate related asset classes i.e., individual properties, funds, or companies through direct or indirect investment (e.g., lending) - Scope 3 Cat 15 Investments specifically will cover all on-balance sheet loans and investments for commercial real estate (CRE) without operational control, encompassing assets used to conduct income-generating activities, and also includes CRE investments with partial ownership where there is no operational control (joint ventures, joint operation, and joint ownership) • **Emission scopes covered:** for assets already been built, report absolute scope 1 and 2 emissions (from the whole-building use of energy). Inclusion of the asset's scope 3 emissions is recommended where possible, particularly in the case of financed emissions associated with shares in real-estate companies. Reporting emission related to construction or renovation is also optional, and when carried out, must follow the GHG protocol guidelines. • **Equations to calculate financed emissions:** calculate financed emission by multiplying the attribution factor by the building emissions - The attribution factor refers to the share of total emissions allocated to the investment (or loan), calculated as the ratio of the outstanding investment (or loan) amount and the property value at the time of the loan or equity origination • **Data required:** in cases where actual data is not available, estimate energy consumption based on the asset type and building characteristics. Disclose the estimations in the form of PCAF Data Quality Score • **Emission factors:** correctly apply emission factors in alignment with the emission source, and in cases where data is estimated, regional specific building characteristics should be considered to apply average energy consumption by floor area (benchmarks). For Europe, PCAF has developed an emission factors database which reporting companies can use in the absence of more-specific data.

[135]https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf
[136]https://carbonaccountingfinancials.com/files/downloads/ghg_emissions_real_estate_guidance_1.0.pdf
[137]https://carbonaccountingfinancials.com/files/downloads/ghg_emissions_real_estate_guidance_1.0.pdf
[138]https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

5.6.5 Partnership for Carbon Accounting Financials (PCAF) Standard continued

	Initiative name	CRREM Decarbonisation Pathways
Core attributes	Actionable steps	• **Limitations:** when actual data is not available, apply country-specific assumptions to tailor their approach to estimating data, to account for the categorisation of energy efficiency in buildings. In cases where the property value at the time of the loan or equity origination is not available, the latest value should be used for GHG accounting consistency • **Third-party assurance:** audit and verify financed emissions and the entire carbon accounting process including methodology, and underlying input data • **Disclosure:** publicly disclose financed emissions
	Emissions scope	Scope 1, 2 and 3 Aside from scope 1 and 2, financial institutions shall account, at a minimum, for all financed emissions under scope 3 category 15 (Investment) emissions
	Latest update	December 2022 – PCAF Financed Emissions, second edition March 2023 - Accounting and Reporting of GHG Emissions from Real Estate Operations Technical Guidance
	No. of companies engaged	510 financial institutions Total financial assets of $87.4 trillion[139]
Insights	Common challenges	• Addressing data availability and quality is often the main challenge in calculating financed emissions • Engaging stakeholders to acquire a comprehensive data set will require cooperation among stakeholders • Engaging organisations who are disinclined to align to the standard due to concerns of not being able to address in scope GHG emissions in the future
	Common opportunities & benefits	• Allow financial institutions to compare the carbon performance of their loan/investment against industry peers • Enhance risk management by quantifying the carbon emissions associated with loans/investments, which enables climate-related risks to be identified • Enhance transparency by taking a standardised approach to measuring and disclosing carbon emissions

[139]https://carbonaccountingfinancials.com/financial-institutions-taking-action#financial-institutions-taking-action

5.6.6 Science Based Targets initiative (SBTi) Corporate Net-Zero Standard

The SBTi Corporate Net Zero Standard, created by the SBTi, provides organisations with the guidance to set science-based company-wide emissions targets in line with the goals of the Paris Agreement, addressing the challenge of ensuring that corporate targets are credible, ambitious, and contribute to global climate goals.[140] In addition, the SBTi sector-specific guidance will provide supplementary information and recommendations to help specific industries navigate the process of setting science-based targets.

	Initiative name	SBTi Corporate Net-Zero Standard
General	Geographic scope	Global
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2021
Core attributes	Origin	Developed in consultation with the SBTi's Scientific and Technical Advisory Groups and a dedicated Net Zero Expert Advisory Group
	Goal	Accelerate the transition to a low-carbon economy by providing a clear, consistent, and science-based framework for companies to set and achieve net zero targets.[141]
	Actionable steps	**Organisations setting science-based targets must:**[142] • Account for all material scope 1, 2 and 3 emissions sources in alignment with the GHG Protocol • **Set near-term emissions reduction targets with a timeframe between 5 to 10 years from submission date on:** - **Scope 1 and 2** (minimum 95% to be covered by target) emission targets need to be consistent with the level of decarbonisation required to limit global warming to 1.5°C compared to pre-industrial levels[143] - **Scope 3** (if scope 3 emissions represent 40% or more of total scope 1, 2 and 3 emissions, minimum 67% to be covered by target) **emission targets** need to be consistent with the level of decarbonisation required to keep limiting global warming to well-below 2°C compared to pre-industrial levels • **Set long-term targets with a target year no longer than 2050 on:** - **Scope 1 and 2** (minimum 95% to be covered by target) and **scope 3** (minimum 90% to be covered by target) **emission targets** need to be consistent with the level of decarbonisation required to limit global warming to 1.5°C compared to pre-industrial levels • **Neutralise residual emissions at net zero target year** with permanent carbon removal and storage to counterbalance the residual emissions that cannot be eliminated - Most companies will be required to contract emissions by 90% or more compared to current levels leading to no more than 10% residual emissions levels needing to be neutralised, and carbon offsets cannot count towards meeting emissions reductions targets developed using the SBTi tools • **Beyond Value Chain Mitigation (BVCM):** invest in measures that mitigate and remove emissions beyond value chains before reaching net zero to support the wider transition effort
	Emissions scope	Scope 1, 2 and 3 (all material categories as per the GHG Protocol, including operational and embodied carbon)
	Latest update	March 2024 (Version 1.2) Ongoing major revision, which will result in Version 2.0
	No. of companies engaged	8,567 companies taking action 5,769 companies with science-based targets 3,313 companies with net zero commitments[144]

[140 - 142]https://sciencebasedtargets.org/net-zero
[143]https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf
[144]https://sciencebasedtargets.org/companies-taking-action

5.6.6 Science Based Targets initiative (SBTi) Corporate Net-Zero Standard continued

	Initiative name	CRREM Decarbonisation Pathways
Insights	Common challenges	• Ensuring comprehensive and accurate accounting by emission scopes, especially for scope 3 emissions • Addressing risks involved with the requirement to re-baseline targets due to significant changes in business operations • Addressing highly prescriptive criteria and guidance leading to a laborious and time-consuming process for target development and validation • Overcoming challenges regarding availability of sector specific guidance for all economic sectors • Verifying performance and action against target (not verified by the initiative)
	Common opportunities & benefits	• Enable business leaders to set comparable net zero targets based on a robust science-based standard, in line with the objectives of the Paris Agreement • Demonstrate climate leadership and enhance brand reputation in addressing climate challenges and driving positive change • Improve risk management by addressing climate-related risks related to transitioning to net zero and ensuring long-term resilience • Connect with a large community of like-minded organisations

Note

As this report aims to analyse existing initiatives, this section focuses on the SBTi's Corporate Net-Zero Standard. Nevertheless, it is important to note that the release of the SBTi building sector guidance coincided with this paper being published.[145] Therefore, any future revisions of this report will include a detailed review of the building sector guidance in the "Guidelines" section.

[145]https://sciencebasedtargets.org/news/the-sbti-unveils-framework-to-accelerate-buildings-sectors-alignment-with-net-zero-targets

5.6.7 Standards conclusion

Having identified the key elements within each of the standards, we'll now summarise and synthesise the key findings across areas such as scope, carbon offsets, interdependencies among standards and challenges.

Collectively, the standards evaluated promote best practices for transparently measuring and managing environmental impacts, serving as tools for monitoring and reporting emissions, with many of them containing specific guidelines for the real estate sector. At the individual level, they have a variety of methodology criteria and requirements, based on their end-use and aims. The SBTi, CRREM, and GRESB are focused on reporting, target setting, and evaluation against targets. However, the WLCA, GHG Protocol, and PCAF standards have been produced as best practice guidance for their specific purpose and reporting outputs. SBTi and CRREM have the same operational carbon targets and have long-term targets set to 2050, enabling organisations to map out their decarbonisation pathways, whilst considering more ambitious short-term Paris-aligned targets to limit global warming to 1.5°C.

When considering initiatives, market and location-based approaches can be considered. Studies have identified that market-based reporting doesn't necessarily drive carbon reduction due to organisations purchasing green energy. As a result, the market is generally moving toward more of a location-based approach and therefore an improvement across initiatives would result from mandating a location-based approach to drive consistency in reporting and more impactful interventions.

All standards in this section incorporate scopes 1-3 operational and embodied carbon, with the exception of CRREM. Although CRREM allows for retrofit embodied carbon to be inputted, it does not publish an embodied carbon pathway, and instead focuses on operational energy consumption and associated operational carbon. While GRESB, CRREM, and PCAF standards mandate the disclosure of operational carbon emissions, they do not contain standardised guidance for reporting embodied carbon emissions at the asset or organisational level.

When considering carbon offsets, the standards have varying approaches and requirements. The GHG Protocol must not be used to quantify the reductions associated with GHG mitigation projects for the purpose of offsets or credits. For GRESB, carbon offsets can be disclosed as part of the asset level energy and emissions disclosure, however the standard does not mandate an approach for the use of carbon offsets. Similarly, PCAF omits carbon offsets from the guidance, WLCA does not include carbon offsets as part of the WLC calculation, and CRREM do not include carbon offsets as means to meet the pathways. Within SBTi offsets should not count towards emission reductions of science-based targets, however companies are allowed to use offsets in their net zero target year to offset residual emissions as part of the guidance.

The most notable interdependency between the standards is the adoption of GHG Protocol principles when establishing the GHG reporting requirements, ensuring consistent carbon accounting methods. Adherence to initiatives like the SBTi, CRREM, and WLCA can also enhance GRESB's performance metrics, fostering robust carbon management and reporting practices.

Nonetheless, organisations still face challenges when aligning to the standards such as addressing data availability and quality, especially for scope 3 emissions, refrigerant losses, and embodied carbon. When utilising CRREM and WLCA, organisations may struggle with robust data inputs and assumptions. The GHG Protocol, while widely used for carbon accounting, can pose challenges for businesses with complex organisational structures due to difficulty in defining operational boundaries. One of the other issues with the GHG Protocol is the level of assumption included within the protocol. Meeting the extensive data and evidence requirements for standards such as WCLA and GRESB can also be demanding, often necessitating multiple stakeholders' cooperation and specialist expertise. These challenges can make the process of adherence to these standards both time-consuming and resource intensive.

		Greenhouse Gas (GHG) Protocol	GRESB Real Estate Assessment	Whole Life Carbon Assessment (WLCA) for the Built Environment, 2nd Edition	Carbon Risk Real Estate Monitor (CRREM) Decarbonisation Pathways	Partnership for Carbon Accounting Financials (PCAF) Standard	Science Based Targets initiative (SBTi)
KEY SIMILARITIES & DIFFERENCES AMONG STANDARDS	Timeline	N/A	N/A	N/A	2050	N/A	Near-term SBTs: 5-10 years Long-term SBTs: 2050 latest
	Scope	Scope 1, 2 and 3.	Scope 1 and 2 (minimum), scope 3 (optional if tenant emissions are already within scope 1 & 2).	Scopes 1, 2 and 3 (operational and embodied carbon).	Scope 1, 2 and 3 related to energy consumption in a building ('Whole Building Approach'). Only considers operational energy consumption.	Scope 1, 2 and 3. Financed emissions categorised into scope 3 category 15 (Investment) emissions.	Scope 1, 2 and 3. All material emissions sources, with the inclusion of operational carbon and embodied carbon at a minimum.
	Carbon Offsets	The standard must not be used to quantify the reductions linked with GHG mitigation projects for the purpose of offsets or credits.	GRESB do not impose or mandate an approach for the use of carbon offsets, however, they offer the ability for offsets to be disclosed as part of the asset level energy and emissions disclosures.	Carbon offsets at product or asset-level are not considered as part of the WLC calculation.[146]	CRREM does not allow offsets to be used towards meeting the pathways.	The standard does not include guidance or mandate an approach to carbon offsets.	Carbon offsets must not count towards emissions reductions of science-based targets. Companies can use offsets (carbon removal type) at net zero target year, to offset any residual emissions.
	Coverage	Equity share approach: GHG emissions based on operations according to share of equity in operation. Control approach: 100% GHG emissions which company has operational control over.	Entire portfolio of company or fund.	All built and in development assets, including types of building, infrastructure assets, and civil engineering works.	Entire portfolio (operational energy use).	Financial institutions must disclose all absolute emissions for all relevant asset classes.	Entire portfolio. Near-term SBTs: scope 1 and 2: 95% coverage (1.5°C ambition) scope 3: 67% coverage (if scope 3 >40% total scope 1-3 emissions)(well-below 2°C ambition) Long-term SBTs: Scope 1 and 2: 95% coverage (1.5°C ambition) Scope 3: 97% coverage (1.5°C ambition)
	Reporting	Organisations are advised to report a baseline year for which verifiable emission data is available and annually thereafter.	Annual reporting submission.	Minimum level of reporting requirements is stipulated in accordance with key phases of the project (early design, technical design, and post-project completion).	Results: asset and portfolio-level.	Financial institutions are advised to disclose financed emissions publicly in annual reports, website articles or any other publicly available sources.	Following approval of the science-based target, companies must disclose emissions annually, in addition to monitoring progress made towards the target. Recommendations for disclosure include CDP and annual sustainability reports.
INTERDEPENDENCIES AMONG STANDARDS		GHG Protocol carbon accounting principles adopted in all initiatives (SBTi, CRREM, WLCA, PCAF and GRESB)	GRESB utilises the GHG Protocol principles for carbon emissions accounting. Aligning to frameworks such as the SBTi, CRREM Pathways, WLCA, and PCAF can all provide evidence and guidance for better performance on GRESB, and vice-versa GRESB requirements can prompt uptake of other initiatives.	WLCA utilises the GHG Protocol principles for carbon emissions accounting. CRREM refers to WLCA 2nd edition in its 'embodied carbon and retrofits' publication.	CRREM utilises the GHG Protocol principles for carbon emissions accounting. CRREM uses a transparent downscaling methodology based on the sectoral decarbonisation approach (SDA) promoted by the SBTi.	PCAF utilises the GHG Protocol with some additional criteria and guidance around scope 3 Cat 15 Investments.	SBTi utilises the GHG Protocol with some additional criteria. Joint commitment with CRREM to develop 1.5°C-aligned in-use operational pathways and building sector pathways, both for in-use and upfront embodied emissions.[147]
SYNERGIES WITH OTHER INITIATIVES		Integrated into IFRS S2 Climate-related Disclosures and European Sustainability Reporting Standards (ESRS 1).[148] Recommended protocol within initiatives such as CDP.	GRESB Real Estate Assessment aligns with CDP, SASB, GRI and PRI.[149] TCFD alignment report is available to entities reporting to any of the three GRESB assessments.[150]	Endorsed and recognised by CRREM for its leading methodology on decarbonisation within built environment.[151]	Input variables for the tool are largely based upon existing frameworks such as GRESB, EPRA sBPR, GRI and the GHG Protocol.[152] CRREM outputs can assisting with TCFD disclosures.[153]	PCAF methodologies support CDP and TCFD disclosures and target-setting in line with SBTi.[154]	Referenced as a credible target setting methodology for several prominent global initiatives such as CDP, NZIF, NZAM and NZAOA.

[146]https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf
[147]https://sciencebasedtargets.org/resources/files/SBTi_Buildings_Guidance_Draft_for_Pilot_Testing.pdf
[148]https://ghgprotocol.org/sites/default/files/2024-03/GHG-Protocol-Integration.pdf
[149]https://www.gresb.com/nl-en/how-gresb-aligns-with-common-esg-reporting-frameworks/#CDP
[150]https://www.gresb.com/nl-en/products/tcfd-reporting/#:~:text=Available%20to%20entities%20reporting%20to,Identify%20TCFD%20gaps.
[151]https://www.rics.org/news-insights/wlca-standard-2nd-edition-now-in-full-effect
[152]https://www.crrem.eu/wp-content/uploads/2023/04/CRREM-Risk-Assessment-Reference-Guide-V2_20_03_2023.pdf
[153]https://www.crrem.eu/wp-content/uploads/2023/04/CRREM-Risk-Assessment-Reference-Guide-V2_20_03_2023.pdf
[154]https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

6.0 Country carbon initiative glossary

This section highlights specific initiatives originating from select EPRA members by market capitalisation that meet the real estate and carbon focus criteria outlined in the methodology. While these initiatives originate from specific countries, many of them have expanded to or replicated in other jurisdictions, showing their applicability beyond their initial scope. It is important to note that this list serves as an illustration and is not exhaustive, as well as that regional and city level legislation is outside of the scope of this report.

Despite the initiatives being spread across many focus areas and covering a wide range of topics, they often face common challenges. For example, commitments, frameworks, guidelines, regulations, and standards can all pose the challenge of gathering reliable scope 3 data from upstream, downstream, and financed emissions, which can be hindered by poor data availability and low third-party engagement. All the initiatives other than NABERS UK and REIDA CO_2 Benchmark require adherence to specific requirements. Compliance with these requirements often poses cost-related challenges, such as financing the upgrade of existing buildings to meet efficiency requirements and the higher cost of developing net zero new builds.

6.1 Initiative glossary

	Initiative name	Minimum Energy Efficiency Standards (MEES)
General attributes	Geographic scope	England and Wales
	Compliance type	Mandatory (non-domestic private rented)
	EPRA category	Regulation
	Effective date	2018
Core attributes	Aim	Incentivise landlords to improve the energy efficiency of their private rented properties by introducing restrictions on the minimum EPC required to legally let the property. Domestic and commercial properties obtaining new tenancies have been required to have an EPC of E or above since 2018. For domestic properties, this minimum standard has applied for all tenancies, including existing ones, from 2020.[155] For commercial properties, this minimum standard has applied for all tenancies, including existing ones, from 2023.[156] Domestic properties can be exempt in certain situations, such as when the least expensive energy efficiency measure costs over £3,500, or when improving the energy efficiency is not feasible. Commercial properties can also be exempt, such as when the energy efficiency improvement would devalue the property by more than 5%, or when the payback period of the energy efficiency improvement would be over seven years.

	Initiative name	Décret Tertiaire
General attributes	Geographic scope	France
	Compliance type	Mandatory for commercial properties > 1,000 m^2
	EPRA category	Regulation
	Effective date	2019
Core attributes	Aim	Reduce energy consumption in tertiary sector buildings. Buildings in scope are obliged to reduce their energy consumption by at least 40% by 2030, 50% by 2040, and 60% by 2050 compared to the reference year.[157] The obligation is enforced on both landlords and their tenants.

	Initiative name	RE2020
General attributes	Geographic scope	France
	Compliance type	Mandatory (new construction)
	EPRA category	Regulation
	Effective date	2022
Core attributes	Aim	Reduce operational carbon emissions of new buildings through implementing requirements on insulation and a focus on renewable energy, limit the environmental impact of new constructions measured through LCA by promoting sustainable materials, and limit physical discomfort levels during periods of high temperatures through new requirements on summer comfort (degree-hours of discomfort).[158] The carbon requirements will become more stringent from 2025, 2028, and 2031.[159]

[155]https://www.gov.uk/guidance/domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance
[156]https://www.gov.uk/guidance/non-domestic-private-rented-property-minimum-energy-efficiency-standard-landlord-guidance
[157]https://www.ecologie.gouv.fr/politiques-publiques/eco-energie-tertiaire-eet
[158]https://www.ecologie.gouv.fr/sites/default/files/documents/guide_re2020_version_janvier_2024.pdf
[159]https://www.storaenso.com/en/newsroom/news/2023/9/re2020

6.1 **Initiative glossary** continued

	Initiative name	Carbon Dioxide Cost Sharing Act
General attributes	Geographic scope	Germany
	Compliance type	Mandatory
	EPRA category	Regulation
	Effective date	2023
Core attributes	Aim	Provide a new allocation of the cost of CO_2 from fuel usage between tenants and landlords and makes the cost apportionment mandatory. The price of CO_2 is derived from the Fuel Emissions Trading Act, where utility companies buy certificates to allow for certain amounts of CO_2 to be emitted over a set period.[160] The certificate costs are passed down to the customer (landlord) who has traditionally passed down the whole cost to the tenant. This act defines how the costs now must be shared between landlord and tenant. For residential buildings, a 10-step model will be followed where the less efficient the building, the higher share of costs the landlord will pay. For commercial leases, a 50/50 split is required, with plans to use a tiered model by 2025.[161]

	Initiative name	Climate Protection Act (Klimaschutzgesetz KSG)
General attributes	Geographic scope	Germany
	Compliance type	Mandatory
	EPRA category	Regulation
	Effective date	2021 - revised
Core attributes	Aim	Support Germany's commitment to pursue GHG neutrality by 2045. The act established binding annual emissions targets at the national level, where the emissions budget decreases each year in line with meeting Germany's targets. The act also defines sectoral budgets, such as for the building sector, where the responsible federal ministry oversees implementing relevant legislation to achieve the sector's emissions budget.[162]

	Initiative name	German Buildings Energy Act (GEG)
General attributes	Geographic scope	Germany
	Compliance type	Mandatory
	EPRA category	Regulation
	Effective date	2020
Core attributes	Aim	Ensure that the Federal Government's energy policies are achieved. It sets out compulsory requirements on the energy efficiency of new builds and the refurbishment of existing buildings, the issuance and use of energy performance certificates, and the use of renewable energy. The effectiveness of the act is further supported by other standards and laws, such as the Energy Efficiency Act (EnEfG) and the Climate Protection Act (KSG).[163]

[160]https://www.gesetze-im-internet.de/behg/index.html#BJNR272800019BJNE000902116
[161]https://www.goodwinlaw.com/en/insights/publications/2022/11/11_17-new-costs-for-landlords
[162]https://www.gesetze-im-internet.de/englisch_ksg/englisch_ksg.pdf
[163]https://www.dena.de/en/topics/energy-efficiency/buildings/consulting-and-planning/german-buildings-energy-act-geg-standards-and-laws

6.1 **Initiative glossary** continued

	Initiative name	Energy Declaration for Buildings Act (SFS 2006:985)
General attributes	Geographic scope	Sweden
	Compliance type	Mandatory
	EPRA category	Regulation
	Effective date	2006
Core attributes	Aim	Promote efficient energy use and a good indoor environment in buildings.[164] The act sets requirements to ensure that buildings captured under the regulation declare their energy usage. An energy declaration must be drawn up for the building in any of the following circumstances: the building is newly built, over 250 m^2 of the building is often visited by the public, a building where at least part of it is let with right of use, or if a building or share of the building is being sold.

	Initiative name	The Act on Climate Declarations for new buildings (2021:787)
General attributes	Geographic scope	Sweden
	Compliance type	Mandatory (new buildings)
	EPRA category	Regulation
	Effective date	2022
Core attributes	Aim	Highlight the negative climate impacts from the construction of new buildings by requiring developers to report the impact in a climate declaration.[165] The climate declaration is a partial LCA covering stages 1-5, including raw material supply, transport, product manufacture, and the actual construction work.

	Initiative name	Real Estate Investment Data Association (REIDA) CO_2 Benchmark
General attributes	Geographic scope	Switzerland
	Compliance type	Voluntary
	EPRA category	Standard
	Effective date	2022
Core attributes	Aim	Improve the comparability of environmental indicators in investment properties across Switzerland, as well as promote transparent calculation methodologies and conversion factors.[166] Companies must complete an annual survey for each portfolio that is submitted to the benchmark. Once the results are released, asset owners or asset managers can compare the real energy data of their buildings and portfolios with those of their peers and the industry. The benchmark key figures include CO_2 emissions, energy consumption, and share of renewable energy for the submitted real estate portfolios.[167]

[164]https://www.riksdagen.se/sv/dokument-och-lagar/dokument/svensk-forfattningssamling/lag-2006985-om-energideklaration-for-byggnader_sfs-2006-985/
[165]https://www.ca-epbd.eu/Media/638373595736227761/Implementation-of-the-EPBD-in-Sweden.pdf
[166]https://www-reida-ch.translate.goog/index.php/co$_2$-benchmark?_x_tr_sl=de&_x_tr_tl=en&_x_tr_hl=en&_x_tr_pto=sc
[167]https://www.sustainablefinance.ch/api/rm/33DYR5T92XPH3G4/ssf-pub-report-real-estate-en-final.pdf

6.1 **Initiative glossary** continued

	Initiative name	Better Buildings Partnership (BBP) Climate Commitment
General attributes	Geographic scope	UK
	Compliance type	Voluntary
	EPRA category	Commitment
	Effective date	2019
Core attributes	Aim	Deliver net zero buildings by 2050 incorporating direct and indirect investments, operational and embodied carbon, and scope 1, 2 and 3 emissions. It requires signatories to publish net zero carbon pathways and delivery plans, disclose the energy performance of their assets, and develop comprehensive climate resilience strategies.[168]

	Initiative name	LETI Climate Emergency Design Guide
General attributes	Geographic scope	UK
	Compliance type	Voluntary (new buildings)
	EPRA category	Guideline
	Effective date	2020
Core attributes	Aim	Provide architects, developers, and building professionals with guidance on designing and developing sustainable and climate-resilient buildings to ensure the UK's climate change targets are met. It covers five key areas (operational energy, embodied carbon, the future of heat, demand response, and data disclosure) for four key building archetypes (small scale residential, medium/large scale residential, commercial offices, and schools).[169]

	Initiative name	LETI Climate Emergency Retrofit Guide
General attributes	Geographic scope	UK
	Compliance type	Voluntary (existing domestic buildings)
	EPRA category	Guideline
	Effective date	2021
Core attributes	Aim	Provide comprehensive guidance and resources to owners, managers, and professionals in the residential property retrofitting process, targeting energy consumption reductions of 60-80% for the average UK home. The guide promotes a whole house approach, such as through upgrading the building fabric, incorporating energy efficiency measures, improving ventilation, and fitting heat pumps.[170]

[168] https://www.betterbuildingspartnership.co.uk/member-climate-commitment
[169] https://www.leti.uk/cedg
[170] https://www.leti.uk/retrofit

6.1 **Initiative glossary** continued

	Initiative name	National Australian Built Environment Rating System (NABERS) UK
General attributes	Geographic scope	UK
	Compliance type	Voluntary
	EPRA category	Label
	Effective date	2020
Core attributes	Aim	Provide a simple, reliable system for rating the energy efficiency of office buildings, assimilating the existing Australian rating model. There are currently two product offerings available: Design for Performance, to drive energy-efficient new buildings, and NABERS Energy ratings, to measure how energy-efficient existing buildings are. Both use a rating system of one to six stars.[171] All ratings are carried out by certified NABERS UK assessors and certified by CIBSE Certification.

	Initiative name	Net Zero Carbon Buildings Framework
General attributes	Geographic scope	UK
	Compliance type	Voluntary
	EPRA category	Framework
	Effective date	2019
Core attributes	Aim	Provide the industry with guidance on how to achieve net zero carbon buildings. The framework sets out an overarching set of principles to follow for both construction and operational buildings, with a 'reduction first' approach to achieving net zero carbon where energy demand reduction measures are prioritised over renewables and offsetting solutions.[172] The framework has a close relationship with the UK Net Zero Carbon Buildings Standard, whose beta test is expected to be launched later in 2024.[173] The standard will supersede the framework. However, an updated version of the framework will also be released to complement the standard.

	Initiative name	Transition Plan Taskforce (TPT)
General attributes	Geographic scope	UK
	Compliance type	Voluntary
	EPRA category	Framework
	Effective date	2024
Core attributes	Aim	Provide a gold standard framework for private sector climate transition plans, with sector specific guidance for nearly 40 sectors across finance and the real economy.[174] The guidance is aligned with IFRS 2, TCFD, GFANZ (Glasgow Financial Alliance for Net Zero), and Corporate Sustainability Reporting Directive (CSRD).

[171]https://www.cibsecertification.co.uk/2060
[172]https://ukgbc.org/resources/net-zero-carbon-buildings-framework/
[173]https://www.nzcbuildings.co.uk/
[174]https://transitiontaskforce.net/about/

7.0 Case studies

This section includes implementation examples of the carbon initiatives from select EPRA members involved in the EPRA Sustainability Committee, offering valuable insights into the real-world challenges, benefits, and key learnings experienced. The carbon initiatives' case studies were selected based on two criteria:

1. Global and European carbon initiatives analysed in section 5 (final short list of initiatives)

2. Among the short list, carbon initiatives that are implemented by EPRA members from the top six countries outlined in the methodology (EPRA member jurisdictions/countries by full market capitalisation at the time of the research)

Those criteria led to the selection of 16 case studies featuring 12 initiatives from a diverse group of EPRA members across Europe, covering REITs (Real Estate Investment Trusts), construction and property development firms, and specialised real estate entities. The more prominent initiatives are featured twice. Case studies are presented by initiatives' alphabetic order.

7.1 Commitments

Company	British Land
Initiative name	NZCB Commitment
EPRA category	Commitment
Aim	To use the NZCB commitment to demonstrate its dedication to decarbonisation.
Challenges	• Discrepancies around a common definition of net zero • Implementation of the commitment can be complex
Successes	Multiple decarbonisation pathways can be implemented at an asset-level.
Lessons learned	There is a need for engagement with multiple stakeholders.

Company	Landsec
Initiative name	ConcreteZero
EPRA category	Commitment
Aim	To use ConcreteZero to further drive industry demand for low-carbon concrete, meanwhile sending market signals to concrete suppliers.
Challenges	Addressing the challenge of decarbonising a carbon-heavy industry.
Successes	Bringing together end users of concrete to send market signals to suppliers.
Lessons learned	It takes time to start seeing tangible results from cross-industry initiatives.

7.2 Frameworks

Company	Inmobiliaria Colonial
Initiative name	CDP
EPRA category	Framework
Aim	To use CDP to improve transparency on the company's disclosures and environmental performance, and to attain international recognition for the environmental sustainability measures it has in place.
Challenges	Collecting data for the disclosure.
Successes	Improved reputation. CDP also provides a platform to compare the decarbonisation path of the company against a scientific scoring approach.
Lessons learned	The importance of having a robust data collection process.

Company	IGD
Initiative name	CDP
EPRA category	Framework
Aim	To use CDP to participate in an external climate and disclosure evaluation, which gives the company a comparison of its measures against global players.
Challenges	• Providing answers for detailed risk management questions • Completing the questionnaire can be time consuming
Successes	CDP enables international comparability, as well as allowing the company to gain an understanding of areas for improvement.
Lessons learned	The importance of having access to a good risk management system and robust environmental data, such as that aligned with GRI reporting.

7.3 Guideline

Company	Prodea
Initiative name	ULI TRA Guidelines
EPRA category	Guideline
Aim	To use ULI guidelines to comply with CSRD/ European Sustainability Reporting Standards (ESRS) regulations, as well as helping the company to identify significant risks which may affect its operations.
Challenges	• Accessing the data and specific tools needed • Related commitments such as National Energy and Climate Plans (NECPs) are still likely to be amended
Successes	The guidelines have enabled a clearer strategy and capital expenditure plan for Prodea, while also allowing the identification and therefore minimisation of risk exposure.
Lessons learned	The importance of working with both bottom-up (building-level) and top-down approaches, and ensuring alignment of the CRREM tool with updated NECPs.

7.4 Labels

Company	Gecina
Initiative name	LCBI
EPRA category	Label
Aim	To use LCBI to decrease the embodied carbon of refurbishment projects by using a standardised LCA methodology, and to gain recognition through the LCBI label.
Challenges	• Sourcing low-carbon building materials or materials where a robust LCA can be undertaken • Working with suppliers to determine the LCA of materials
Successes	The initiative has supported a reduction of embodied carbon by 45% over 6 years. It also standardised the LCA assessment and can help to compare and challenge various projects against each other.
Lessons learned	It can aid learning around decarbonisation and promote a standardised LCA. Additionally, the label is not mandatory.

Company	Icade
Initiative name	BREEAM
EPRA category	Label
Aim	To use BREEAM for commercial and technical purposes whilst giving priority to the Haute Qualité Environnementale (HQE), a stringent French green building certification.
Challenges	• Identifying eligible buildings • Optimising time and costs when both BREEAM and HQE are being used
Successes	BREEAM is visible on an international scale and is therefore useful for client's recognition, especially large internationals or foreign groups. The BREEAM certification process is also simpler than HQE.
Lessons learned	Actions with the greatest environmental impact should be prioritised first.

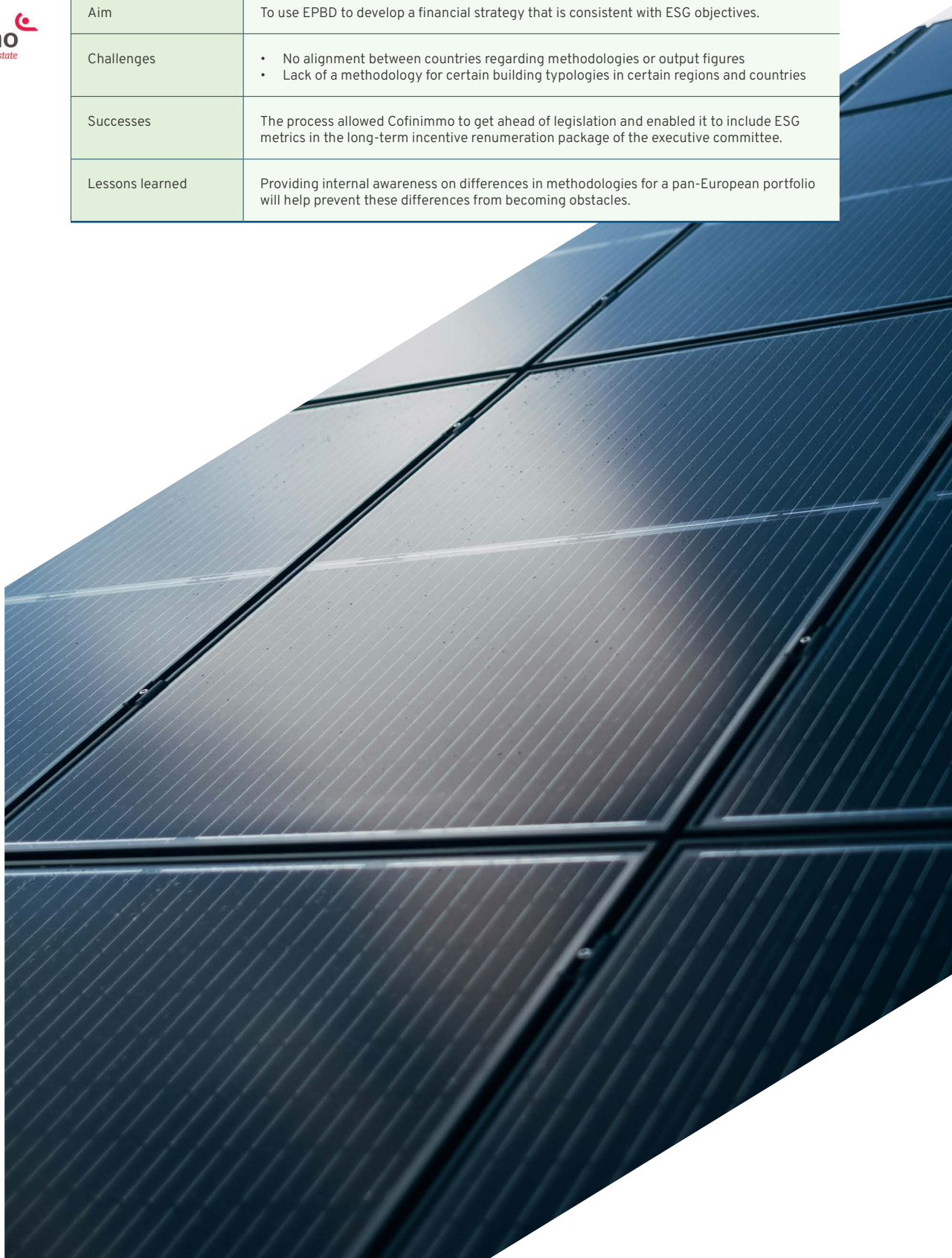
7.4 **Labels** continued

Company	Montepino Logistea Socimi SA
Initiative name	LEED
EPRA category	Label
Aim	To use LEED to demonstrate that the company's assets are achieving exemplary environmental performance. LEED also allows comparability to similar buildings.
Challenges	• Achieving LEED-compliant base design with the lowest economic impact • Finding appropriate sustainable solutions when there is low market availability
Successes	The certification has enabled a positive impact on asset value, a more prime tenant selection, and improved environmental performance.
Lessons learned	Engagement from the early stages of the project can save costs and helps to facilitate the project implementation.

Company	SEGRO
Initiative name	BREEAM
EPRA category	Label
Aim	To use BREEAM to certify assets with high sustainability credentials and align them to the EU Taxonomy where possible.
Challenges	Mapping the BREEAM certifications to the EU Taxonomy sufficiently.
Successes	The BREEAM certification provides a certain consistency across the markets where Segro operates.
Lessons learned	N/A

7.5 Regulation

Company	Cofinimmo
Initiative name	EPBD
EPRA category	Regulation
Aim	To use EPBD to develop a financial strategy that is consistent with ESG objectives.
Challenges	• No alignment between countries regarding methodologies or output figures • Lack of a methodology for certain building typologies in certain regions and countries
Successes	The process allowed Cofinimmo to get ahead of legislation and enabled it to include ESG metrics in the long-term incentive renumeration package of the executive committee.
Lessons learned	Providing internal awareness on differences in methodologies for a pan-European portfolio will help prevent these differences from becoming obstacles.



7.6 Standards

Company	alstria
Initiative name	GHG Protocol
EPRA category	Standard
Aim	To use the GHG Protocol to ensure consistency in emissions reporting.
Challenges	Some real estate emissions (largely scope 3) are not clearly defined, which can lead to some discretion.
Successes	Using the GHG Protocol allows consistency and comparability of emissions.
Lessons learned	N/A

Company	Castellum
Initiative name	WLCA for the Built Environment
EPRA category	Standard
Aim	To use the RICS assessment as it provides sectoral standardisation of LCA for buildings, which is key for comparability as well as reporting purposes.
Challenges	• Gathering EPD data for all materials • Calculating a reference building to be used as a baseline to track improvements • Integrating unique national frameworks
Successes	The standardisation of the overarching data set.
Lessons learned	Phase A1-A5 is easier to calculate than phases B and C. Focusing on where data availability is strong can be beneficial.

Company	GPE
Initiative name	SBTi
EPRA category	Standard
Aim	To use SBTi to align with a cross-industry initiative, which is recognised globally as well as by policy makers.
Challenges	Applying SBTi Corporate Net Zero standards for the built environment can have some uncertainty.
Successes	SBTi is widely recognised and adopted by peers, as well as being incorporated within legislation and guidance.
Lessons learned	The initiative may not be suitable for all organisations.

7.6 **Standards** continued

Company	Klépierre
Initiative name	CRREM
EPRA category	Standard
Aim	To use CRREM to benchmark assets against science-based targets and to ensure that the portfolio is contributing to the net zero transition.
Challenges	• Vagueness around methodology such as location vs market-based emissions • Some countries where Klépierre operates are not covered by CRREM targets
Successes	Provides clarity for stakeholders on decarbonisation progress and pathways.
Lessons learned	Support is needed for long-term action plans.

Company	PSP Swiss Property
Initiative name	GHG Protocol
EPRA category	Standard
Aim	To use the GHG Protocol to align the company's CO_2 reporting with international standards and to create comparable emissions data.
Challenges	Managing differentiation in guidelines compared to KBOB (Swiss sustainability body), such as different approaches to reporting scope 2 and 3 emissions for tenant spaces.
Successes	The GHG Protocol promotes comparability and common languages.
Lessons learned	It is important to stick to the framework and to cooperate with other peers to align on methodologies and key definitions (e.g., CO_2 factors for scope 2 and 3).

Company	Vonovia
Initiative name	CRREM
EPRA category	Standard
Aim	To use CRREM to demonstrate conformity to the Paris-aligned decarbonisation pathway.
Challenges	CRREM pathways are dynamic and therefore the level of requirements increase over time.
Successes	The process has aided an internal focus on key carbon reduction tools.
Lessons learned	Consider pathways as an overarching guidance framework rather than rigid boundaries.

7.7 Conclusions

The case studies presented in this section highlight the diverse and impactful carbon initiatives undertaken by EPRA members. These examples offer an insight into the real-world application of these initiatives, showcasing both the challenges faced and the significant benefits achieved.

Through these international initiatives, EPRA members ensure that their efforts are not only beneficial to clients, but also consistent with global sustainability standards. With the international alignment, companies improve their reputations ensuring their business is future-proof ready for incoming legislation and regulatory requirements.

Moreover, these case studies reveal that implementing carbon initiatives provides a clearer understanding of internal areas for improvement, fosters active market engagement, and can positively impact asset value. The experiences shared by EPRA members emphasise the importance of having robust data collection processes, the need for collaboration across different sectors, and the value of setting clear, actionable sustainability goals.

The collective experience and success of the EPRA members highlights the vital impact of sustainability initiatives in fostering positive change within the real estate industry. These efforts not only help reduce carbon footprints, but also align with broader ESG goals, promoting long-term resilience and value.

By sharing these best practices and insights, EPRA hopes to inspire and guide other real estate companies on their sustainability journey. The dedication and innovative strategies of our members demonstrates the power of committed action in addressing climate change.

8.0 Key challenges and recommendations

This report underscores the important role that initiatives play in decarbonising the built environment. This section delves into the emerging trends, challenges, and recommendations, clarifying the path forward for real estate stakeholders.

Expanding carbon scopes

In recent years, sustainability initiatives have expanded their carbon scope beyond operational emissions to encompass embodied carbon and the broader categories under scope 3. Specifically, all initiatives under standards now include scope 3 emissions. This shift signifies a comprehensive life cycle approach to carbon accounting—from material production through operational life to end-of-life phases. The broadening scope necessitates a more rigorous data collection process and increased tenant engagement.

Tenant engagement and green leases are crucial in capturing and managing data for tenant-related emissions, thereby addressing one of the significant challenges in data collection, also recognised by standards such as GRESB. Green leases, which outline sustainability performance criteria, can foster a collaborative approach between landlords and tenants, ensuring that both parties contribute to improving building performance and achieving shared carbon reduction goals. We see active tenant collaboration on sustainability as becoming a defining feature of sustainability leaders in real estate in the coming years.

Embodied carbon challenges

As carbon scopes expand to include both operational and embodied carbon, the need for comprehensive measurement methodologies becomes apparent. LCA methodologies is a critical step in accurately capturing these emissions. LCAs provide a systematic approach to assess environmental impacts from raw material extraction through construction, operation, and eventual demolition, critically informing the embodied carbon calculations.

Nevertheless, the variety of calculation and benchmarking approaches currently used across the market lead to inconsistencies in carbon accounting and reporting. Additionally, LCA studies can be complex and expensive to perform, highlighting the need for more reliable data.[175] The experience of Gecina who utilised the LCA methodology through the LCBI label underscores the broader challenges faced by the industry, such as sourcing low-carbon building materials and collaborating with suppliers on LCAs. Castellum LTD also faced challenges in gathering EPD data, evidencing the issue of data availability. The industry needs to align on standardised methodologies, ensure accessible data and robust data management systems to streamline carbon accounting, drive informed decision-making towards a low-carbon built environment, and enable accurate comparisons between projects and actors.

Persistent financial challenges

Funding the transition to net zero carbon buildings remains a challenge as real estate companies grapple with the sizeable upfront costs associated with implementing sustainability measures, in particular, retrofitting existing buildings. With the introduction of initiatives such as the TPT and ESRS, organisations will need to develop and disclose the financial plans behind their sustainability commitments, providing the needed impetus for investors to identify the required funding.

It is likely that organisations will need to innovate and leverage a mix of direct funding, grants, funding programmes, and green finance. Moreover, clear and transparent financial planning, showcasing how initiatives align with long-term sustainability and profitability, can attract ESG-focused investors, mitigating some of these financial challenges.

[175] https://kpmg.com/xx/en/home/insights/2023/10/life-cycle-assessment-guide.html

Green building certifications like BREEAM provide a comprehensive checklist and a bank of evidence, which not only aids in achieving certification but also acts as a compelling investor pack at the end of the process. This third-party verified data can reassure investors about the property's sustainability credentials, addressing their growing demands for sustainable investment validation.

While the initial costs of such schemes are often questioned, it is essential to consider the potential costs of inaction as buildings that fail to meet evolving regulations risk becoming stranded, requiring costly refurbishments in the future. This financial reality continues to alter the investment landscape. According to BRE, lending institutions are increasingly eager to support sustainable residential projects, yet the market currently lacks sufficient projects to meet this demand.[176] Adopting green building schemes not only enhances a project's viability by expanding access to capital but also instils confidence in the property's long-term value and safety, a crucial factor for both current and future owners.

Green building performance gap

Green building certifications offer several benefits, including support in meeting planning requirements, and are sought after by tenants, specifically for premium offices. However, it is important to recognise that they often fall short of guaranteeing lower emissions due to the lack of mandatory operational performance assessments, resulting in performance gap challenges. This gap refers to the discrepancy between the predicted environmental performance of a building at the design stage and its actual performance once operational. The gap arises due to optimistic assumptions made during the design phase, which often do not account for real-world operational conditions. These include differences in user behaviour, occupancy levels, and maintenance practices. Several studies such as JLL's paper, 'The Next Frontier for Green Building Certifications' have highlighted the lack of correlation between certification and energy and carbon performance in assets certified under labels such as LEED.[177]

Addressing the performance gap requires ongoing monitoring, advanced energy management systems, mandatory performance audits, and collaborative efforts among all stakeholders. These measures are essential to ensure that buildings not only achieve high environmental performance at the design stage but also maintain these standards throughout their operational life.

Certifications, such as EDGE and Zero Carbon Certification, are beginning to address this by mandating post occupancy audits and data to verify the performance of the building before issuing the final certification. These stringent requirements help mitigate the performance gap by ensuring that the building certification reflects not just design intentions but also real-world performance. By promoting actual measured outcomes, these certifications foster greater accountability and continuous improvement.

Transparency and assurance

The increase in sustainability-related disclosure regulations in Europe has led to an increasing requirement for third-party verification. Verifying decarbonisation efforts through accredited third-parties ensures the credibility and reliability of reported data, boosting transparency and accountability. This is essential for building trust among stakeholders, including investors, regulators, and tenants.

While certain initiatives themselves provide a level of third-party verification, participating in them often necessitates obtaining third-party verification for the efforts involved. The WorldGBC NZCB Commitment mandates the use of third-party certification or assurance to verify progress towards achieving the goals of the commitment. CDP encourages companies to carry out independent third-party verification of data to promote reliability and data accuracy.

Organisations should prioritise third-party verifications to authenticate their decarbonisation efforts. Initiatives like the GHG Protocol and the CDP offer frameworks for robust carbon accounting and disclosure. The incorporation of these standards into corporate practices, as done by companies such as PSP Swiss Property AG, underlines their commitment to transparency and ensures comparability and alignment with globally accepted standards.

Increasing alignment

A notable trend is the strong alignment of initiatives with the 1.5°C targets stipulated by the Paris Agreement. Initiatives such as the SBTi and CRREM prominently feature pathways that align with 1.5°C targets, encouraging organisations to adopt ambitious near-term and long-term decarbonisation goals. The alignment reduces the burden on real estate companies by providing a consistent and unified approach to reducing emissions.

[176]BRE 2024, Unlocking sustainable value: An introduction to Home Quality Mark (HQM) webinar
[177]https://www.jll.co.uk/en/trends-and-insights/research/the-next-frontier-for-green-building-certifications

Organisations implementing initiatives aligned with the 1.5°C target can significantly contribute to combating global warming, while also reaping benefits such as improved reputation, increased investor pools, and regulatory compliance. Leveraging frameworks and standards that align with these targets will enable real estate companies to stay ahead of regulatory changes and meet the growing market demand.

Vonovia SE demonstrates alignment to the Paris-aligned decarbonisation pathway using CRREM. Despite the challenge of dynamically increasing pathway requirements, the process has helped Vonovia emphasise internal focus on key carbon reduction tools.

Growing focus on energy efficiency

Initiatives are increasingly shifting their focus from decarbonisation to energy efficiency. Measures to improve energy efficiency lead to significant reductions in a building's carbon footprint. This reduction-first approach to achieving net zero has been adopted across various global initiatives. Programmes like the WorldGBC's NZCB Commitment emphasise improving energy performance as essential to reducing carbon emissions. This emphasis is mirrored across all building labels, which universally recognise energy efficiency measures and monitoring as essential components to lowering carbon footprints. The Climate Group's EP100 initiative similarly requires companies to double their energy productivity through efficient practices and advanced energy management systems. This shift can also be seen in the latest version of CRREM where the EUI limits exclude energy generated and consumed on-site, increasing the focus on needing to reduce gross energy demand.

This escalating emphasis on energy efficiency over broader decarbonisation should help drive effective action on climate change, requiring organisations to change the way they operate to lower energy consumption rather than operating business as usual and procuring their way to low-carbon by purchasing renewable energy. This efficiency first approach will also support grid decarbonisation by reducing the pressure buildings put on it. Organisations should consider energy efficiency as the focus of their decarbonisation journey as we are increasingly seeing sustainability leaders setting and chasing ambitious energy efficiency goals alongside their decarbonisation aims and occupiers seeking out highly efficient spaces to meet their own targets.

Portfolio-level disclosures

Initiatives are evolving to demand comprehensive reporting that encapsulates entire portfolios rather than individual assets. This shift reflects the understanding that effective decarbonisation requires a holistic approach, encompassing entire property portfolios rather than a focus on a limited number of flagship assets. Initiatives including commitments such as the WorldGBC's NZCB Commitment are becoming more stringent, requiring comprehensive portfolio-wide mandates to ensure that individual asset improvements contribute collectively to broader sustainability goals.

Highlighting this trend within organisational strategies ensures that stakeholders consider the collective impact of decarbonisation efforts rather than isolated successes. Despite the challenge it poses to the real estate sector by requiring significant refurbishments across existing assets, this comprehensive approach is needed to enable the sector to play its part in limiting climate change, as 80% of buildings standing today will still be in use in 2050.[178]

[178] https://www.netzerocarbonguide.co.uk/guide/early-decisions/retrofit-or-new-build/summary

9.0 Conclusion

The landscape of carbon initiatives continues to evolve, reflecting a growing commitment to comprehensive and science-based decarbonisation strategies. Key trends such as the expansion of scopes, the increasing importance of third-party verification, and strong alignment with 1.5°C targets are shaping the sector's sustainability trajectory and ensuring it plays its part in a low-carbon future. However, challenges remain, particularly in data collection, financing, and reporting practices.

A critical component for progressing at an appropriate pace is the alignment and cooperation among the various bodies issuing initiatives. Only through collaboration and coordination can we achieve the level of progress necessary. Before introducing new initiatives, it is essential to review existing ones to avoid redundancy, ensure coherence and limit the reporting burden on organisations. Enhancing current initiatives should involve bringing together the relevant parties to collectively discuss improvements. This unified approach will help streamline efforts, maximise resources, and ensure that all stakeholders are working towards the same objectives.

To overcome these challenges, the industry must continue to advocate for standardised methodologies, reliable funding sources, and transparent reporting practices.

The strengthening positive value thesis around low-carbon assets should help to support the case for implementing these changes in the face of the high upfront costs. The case studies demonstrate the potential for impactful change through well-implemented carbon initiatives. By leveraging these insights and continuing to refine their approaches, real estate organisations can significantly contribute to global decarbonisation efforts, ensuring long-term resilience and sustainability.

10.0 Appendix

Appendix 1: Long list of initiatives

Blue indicates initiatives included in the short list, **green** indicates initiatives included in the medium list, the remaining initiatives were considered in the long list.

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Commitments			
	WorldGBC Net Zero Carbon Buildings Commitment	Commitment	Yes	Primary
	EP100	Commitment	Partial	Secondary
	Climate Group ConcreteZero	Commitment	Partial	Primary
	The Net Zero Asset Managers Commitment	Commitment	Yes	Primary
	UN-convened Net-Zero Asset Owner Alliance	Commitment	Partial	Primary
	PAII Net Zero Asset Owner Commitment	Commitment	Yes	Primary
	ULI Greenprint Net Zero Carbon Operations Goal	Commitment	Yes	Primary
	The Paris Agreement	Commitment	No	Primary
	RE 100	Commitment	No	Secondary
	Climate Group SteelZero	Commitment	No	Primary
	Better Buildings Partnership (BBP) Climate Commitment	Commitment	Yes	Secondary
	UNFCCC Climate Neutral Now Pledge	Commitment	No	Primary
	The Climate Pledge	Commitment	No	Primary

Appendix 1: Long list of initiatives continued

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Frameworks			
	Carbon Disclosure Project (CDP)	Framework	Partial	Primary
	Equator Principles	Framework	Partial	Secondary
	Net Zero Investment Framework	Framework	Partial	Primary
	EU "Levels"	Framework	Yes	Secondary
	Global Reporting Initiative (GRI)	Framework	Partial	Primary
	The Climate Bonds Standard	Framework	Partial	Secondary
	EPRA sBPR Guideline	Framework	Yes	Secondary
	Net-Zero Initiatives Framework	Framework	No	Primary
	IFRS S2	Framework	No	Primary
	ISO 14064	Framework	No	Primary
	ISO 14040	Framework	No	No focus
	Net Zero Carbon Buildings Framework	Framework	Yes	Primary
	TPT (Transition Plan Taskforce) Disclosure Framework	Framework	Partial	Primary
	Sustainable Development Goals (SDGs)	Framework	No	No focus
	ISO 14001 (Environmental Management Systems)	Framework	No	Secondary
	ISO 26000 (Social Responsibility)	Framework	No	No focus
	UN Global Compact Principles	Framework	No	No focus
	Natural Capital Protocol	Framework	No	No focus
	Task Force on Nature-related Financial Disclosures (TNFD)	Framework	No	No focus
	ISO 50001	Framework	No	Secondary

Appendix 1: Long list of initiatives continued

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Guidelines			
	EU Policy Whole Life Carbon Roadmap for Buildings (World Green Building Council)	Guideline	Yes	Primary
	Global Alliance for Buildings and Construction (GlobalABC)	Guideline	Yes	Primary
	ULI Transition Risk Assessment (TRA) Guidelines	Guideline	Yes	Primary
	Leti Climate Emergency Design Guide	Guideline	Yes	Primary
	Leti Climate Emergency Retrofit Guide	Guideline	Yes	Primary
	Transform to Net Zero	Guideline	No	Primary

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Labels			
	Route to Net Zero Standard	Label	No	Primary
	LEED	Label	Yes	Secondary
	ZERO CARBON CERTIFICATION	Label	Yes	Primary
	Low Carbon Building initiative (LCBI)	Label	Yes	Primary
	BREEAM	Label	Yes	Secondary
	WELL	Label	Yes	Secondary
	FITWEL	Label	Yes	Secondary
	NABERS UK	Label	Yes	Secondary
	EDGE Excellence in Design for Greater Efficiencies (EN)	Label	Yes	Primary
	DGNB	Label	Yes	Secondary

Appendix 1: Long list of initiatives continued

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Regulation			
	EPBD (Energy Performance of Buildings Directive)	Regulation	Yes	Secondary
	Emissions Trading Systems (ETS)	Regulation	No	Primary
	Minimum Energy Efficiency Standards (MEES)	Regulation	Yes	Secondary
	Décret Tertiaire	Regulation	Yes	Secondary
	RE2020	Regulation	Yes	Primary
	The Act on Climate Declarations for new buildings (2021:787)	Regulation	Yes	Primary
	Energy Declaration for Buildings Act (SFS 2006:985)	Framework	Partial	Secondary
	Regulation	Yes	Secondary	Secondary
	Climate Protection Act (Klimaschutzgesetz KSG)	Regulation	Partial	Primary
	German Buildings Energy Act (GEG)	Regulation	Yes	Secondary
	Carbon Dioxide Cost Sharing Act	Regulation	Yes	Primary
	Waste Framework Directive (WFD)	Regulation	No	No focus
	EU Procurement Directive	Regulation	No	No focus
	EU Climate Law	Regulation	No	Primary
	The Corporate Sustainability Reporting Directive (CSRD)	Regulation	No	Secondary
	The Corporate Sustainability Due Diligence Directive (CSDDD)	Regulation	No	Secondary

Appendix 1: Long list of initiatives continued

	Initiative/Standard	Category	Real estate specific	Carbon focus
	Standards			
	Science Based Targets initiative (SBTi)	Standard	Partial	Primary
	Whole Life Carbon Assessment for the Built Environment, 2nd Edition (RICS)	Standard	Yes	Primary
	Greenhouse Gas Protocol (GHGP)	Standard	Partial	Primary
	CRREM (Carbon Risk Real Estate Monitor) Pathways	Standard	Yes	Primary
	Partnership for Carbon Accounting Financials (PCAF) Standard	Standard	Partial	Primary
	Sustainability Accounting Standards Board (SASB)	Standard	Partial	Secondary
	GRESB	Standard	Yes	Primary
	REIDA CO_2 Benchmark	Standard	Yes	Primary

Appendix 2: Glossary

ABC	Alliance for Buildings and Construction
BBP	Better Buildings Partnership
BNG	Biodiversity Net Gain
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
CDP	Carbon Disclosure Project
CPR	Construction Products Regulation
CSRD	Corporate Sustainability Reporting Directive
DCF	Discounted Cash Flow
DES	Dynamic Energy Simulations
EDGE	Excellence in Design for Greater Efficiencies
EPD	Environmental Product Declaration
EPBD	Energy Performance Building Directive
EPC	Energy Performance Certificate
EPFI	Equator Principles Financial Institutions
EPRA	European Public Real Estate Association
ESAP	Equator Principle Action Plan
ESG	Environmental, Social, and Governance
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management Systems
ESMP	Environmental and Social Management Plans
GAV	Gross Asset Value
GBCI	Green Business Certification Inc.
GHG	Greenhouse Gas
GFANZ	Glasgow Financial Alliance for Net Zero
GRESB	Global Real Estate Sustainability Benchmark
GRI	Global Reporting Initiative
HQE	Haute Qualité Environnementale
HQM	Home Quality Mark
HVAC	Heating, Ventilation, and Air Conditioning
IFC	International Finance Corporation
IIÖ	Institute for Real Estate Economics
IIGCC	Institutional Investors Group on Climate Change
ILFI	International Living Future Institute
INREV	Investors in Non-Listed Real Estate Vehicles
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LCBI	Low Carbon Building Initiative
LETI	Low Energy Transformation Initiative
LEED	Leadership in Energy and Environmental Design
LRE	Listed Real Estate
MC	Monitored Consumption
MEES	Minimum Energy Efficiency Standard
MEP	Mechanical, Electrical, and Plumbing
NABERS	National Australian Built Environment Rating System
NCM	National Calculation Methodologies
NECP	National Energy and Climate Plans
NJCBS	UK Net Zero Carbon Buildings Standard
NZCBS	Net Zero Carbon Buildings Standard
NZEB	Nearly Zero Energy Building
NZIF	Net Zero Investment Framework
NZAM	Net Zero Asset Managers (NZAM)
NZAOA	Net Zero Asset Owners Alliance
PAAO	Paris Aligned Asset Owners
PCAF	Partnership for Carbon Accounting Financials
PRI	Principles for Responsible Investment
RE2020	RE2020 Building Regulation in France
REIDA	Real Estate Investment Data Association
RICS	Royal Institution of Chartered Surveyors
RFO	Refurbishment and Fit-Out
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SDG	Sustainable Development Goal
TCFD	Task Force on Climate-Related Financial Disclosures
TNFD	Task Force on Nature-related Financial Disclosures
TPT	Transition Plan Taskforce
ULI	Urban Land Institute
UNEP FI	United Nations Environment Programme Finance Initiative
USGBC	US Green Building Council
WBCSD	World Business Council for Sustainable Development
WLCA	Whole Life Carbon Assessment
WRI	World Resources Institute
ZEB	Zero-Emission Building