

Net Zero Carbon Buildings

# Acknowledgements

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### Advancing Net Zero Global Programme Partners











### Foreword

Cristina Gamboa

CEO, WorldGBC

The sixth assessment report from the Intergovernmental Panel on Climate Change (IPCC) is a 'final reminder' that the global community urgently needs to mobilise and scale available solutions to deliver a decarbonised. sustainable and resilient future. The report states that demand-side measures can reduce emissions in the building and construction sector by up to 66% by 2050, compared to baseline scenarios.

80% of countries now refer to buildings as part of their Nationally Determined Contribution (NDC) action plans, compared to around 69% in 2020. However, only 26% of countries have mandatory codes for the entire building sector, and those that do exist often do not align with the UNFCCC Human Settlements Climate Action Pathway, meaning action for decarbonisation of the built environment is not happening at the scale and speed needed to halve emissions by 2030.

The Advancing Net Zero (ANZ) programme from World Green Building Council (WorldGBC) is is making critical steps towards total sector decarbonisation. This report once again highlights the game changing achievements from the pioneering work of our Green ng Councils (GBCs), programme partners and Net Zero Carbon Buildings Commitment signatories, who are driving solutions and demonstrating that industry is ready for bolder ambition.

A key driver of Advancing Net Zero and its mission to raise the bar for industry climate action, is through WorldGBC's involvement at the UN's Climate Change Conference of the Parties (COP). In collaboration with the #BuildingToCOP Coalition, and delegates of several Green Building Councils, at COP27 we shared existing solutions to advance energy efficiency, adaptation, and resilience. reduce embodied carbon, and to work in harmony with nature-based solutions.

In the run up to COP28 in Dubai, UAE, the world's first Global Stocktake year should serve as a call to action for governments to reflect on how their actions and policies will help them achieve the goals they are signed up to under the Paris Agreement.

We know that the solutions exist for a decarbonised future; and our network is ready to support industry and government to ensure that pledges, commitments and promises are turned into action that is delivering the change our world demands.











# Advancing Net Zero Partners



#### **Bianca Wong**

Global Head of Sustainability, Kingspan Group

Decarbonising the built environment is critical if we are to limit global temperature rise to 1.5°C. Global initiatives like WorldGBC's Advancing Net Zero programme are vital to support and facilitate this change. At Kingspan we are on a journey, as part of our ten-year Planet Passionate Programme, to reduce absolute greenhouse gas emissions across our supply chain, operations and within our products, while also exploring the use of pioneering bio-based and recycled materials in the construction sector. The onus is on all of us across the built environment value chain to engage positively and decisively to accelerate

#### Vicente Saiso

Vice-President Global Sustainability, Cemex

Climate change is the biggest challenge of our time, and the building materials decarbonising the built environment. Partnering with WorldGBC's Advancing Net Zero programme we are further demonstrated by Science Based Targets Initiative's (SBTi) validation of our decarbonisation targets and our pledge of becoming a net zero emissions company by 2050. Through our Future in Action programme, we are reducing carbon emissions in every part of our with lower carbon products so they can also be part of the solution.

#### Maria Mendiluce

CEO, We Mean Business Coalition

Zero-emission, efficient and resilient buildings and infrastructure are vital for our collective goal to cut emissions in half by 2030 and develop an inclusive net zero economy. We Mean Business Coalition is proud to work with WorldGBC and forward-looking businesses that are cutting emissions throughout the whole lifecycle of the buildings they own and operate. We're committed to providing the very best resources, guidance and expertise to realise their emission reduction commitments. The demonstrable progress of those companies is then, in turn, making it easier for policymakers to create the right regulatory frameworks to drive the net zero transition.

#### Alaa Abusiam

CEO of Middle East and South Asia, Egis Group

We can no longer ignore our responsibility for the ecological and climate crises. We must prioritise the relationship between nature and humans in our decision-making process. As a leading consulting, engineering, and operating firm headquartered in France, Egis is committed to aligning its global business portfolio with the Paris Agreement. In 2017, we became a signatory of The Shift Project's manifesto, advocating for decarbonisation in Europe. Collaborating with WorldGBC's Advancing Net Zero programme is an exciting opportunity to utilise our size and reach to help fight climate change, adapt to the energy transition, and create resilient infrastructure for our projects.

#### **Madeleine Rawlins**

Global Practice Leader - Climate Change, Mott MacDonald

Taking action this decade to decarbonise our built environment is critical if we are to realise the potential of both new builds and retrofits to support the delivery of buildings and working with our clients and the communities we work in to do the same. Our teams are delivering reductions that integrates nature-based solutions, circular economy, low carbon materials,

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We Invite You to Join Us





CBRE is scaling our decarbonisation services for clients by using technology and data to realise our 2040 goal of net zero emissions. We have mapped a strategy for our own operations to use renewable energy as we electrify our buildings and our fleet. We will leverage these insights to drive progress for our clients, our communities and the commercial real estate industry. Collaboration through regional Green Building Councils and WorldGBC's Advancing Net Zero programme plays an important role in accelerating the decarbonisation of the sector.

#### Vanessa Miler-Fels VP Global Environment, Schneider Electric

Buildings are critical to our transition to a lower-carbon future. They are where we live, rest, and work – and they are responsible for about 40% of global energy consumption. Solutions to decarbonise exist and can already be deployed at scale, to deliver the outcomes championed by WorldGBC's ANZ programme. They involve energy efficiency measures, decarbonised heating technologies (notably electric), digital solutions, and on-site solar and storage. Modern technology offers the opportunity to decarbonise the stock by around 20-80% today (and 60-90%) by 2030) while providing energy spend savings of a similar magnitude, a major positive equation for building dwellers.

### Hossain Towid Director, Built Environment, Envision Digital

The clock is ticking. The urgent need to halve global carbon emissions by 2030 is clear, and it's a reality that the built environment plays a critical role in meeting this goal. Programmes like Advancing Net Zero are key to achieving a sustainable future, encouraging collaboration to drive significant change. At Envision Digital, we're deeply committed to the mission, harnessing our expertise and innovative technology to help companies accelerate their journey towards net zero. With this collective effort and the transformative power of digital solutions, we can enact change at an unprecedented scale, making a palpable difference in our global climate crisis.

#### Mina Hasman Sustainability Director, Skidmore, Owings & Merrill

As a leading global architecture and engineering firm, we are working with our clients, peers, and collaborators to accelerate climate action. Our commitment to decarbonisation extends from our own business operations to every project we design: we are targeting net zero whole life carbon emissions in all of our active design work by 2040 and aiming to help scale positive impact across the entire industry. Supporting WorldGBC's Advancing Net Zero programme has amplified our impact by giving us a global platform to reach a broad audience, and to strengthen our collaborations with other industry leaders at the vanguard of climate action.



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## **About World Green Building Council**

The World Green Building Council (WorldGBC) is the largest and most influential local-regional-global action network, leading the transformation to sustainable and decarbonised built environments for everyone, everywhere.

Together, with 75+ Green Building Councils and industry partners from all around the world, we are driving systemic changes to:

- Address whole life carbon emissions of existing and new
- Enable resilient, healthy, equitable and inclusive places
- Secure regenerative, resource-efficient and waste-free infrastructure

We work with businesses, organisations and governments to deliver on the ambitions of the Paris Agreement and UN Global Goals for Sustainable Development (SDGs)

Find out more www.worldgbc.org

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The world's largest sustainable built environment network advancing net zero solutions for industry and policymakers.



# Advancing Net Zero: Accelerating Towards Critical Mass

#### We are at a crucial junction in a key decade of climate action.

The building and construction sector accounts for 37% of global energy related emissions. Whilst many actors and stakeholders are now aware of the impact that buildings and infrastructure have in terms of the climate emergency, we are collectively not taking action at a scale or pace fast enough to curb the impacts of our sector. We are not on track.

The sector's energy use emissions have reached an all time high, exceeding pre-pandemic levels. Emission reductions from improvements in energy and carbon intensity have been outpaced by emissions increases from rising global activity levels in industry, including the building sector. As highlighted by a multitude of reports, including the most recent IPCC warning, all industries must act now to keep the world on track for a 1.5°C Paris Agreement aligned future.

#### We know the building and construction sector has a key role to play and we have the solutions today.

Across our network, we are advancing net zero and accelerating action on built environment decarbonisation. Since the last Status Report, we've seen further implementation of action towards achieving our Whole Life Carbon Vision.

Green Building Councils (GBCs) are leading the charge. GBCs such as GBCSA and USGBC are updating certification tools to reflect action on whole life carbon. Additional whole life carbon roadmaps have been published by <u>DGNB</u>, <u>GBC Italia</u> and <u>Croatia GBC</u>, providing critical national industry targets and goals. Others are producing innovative tools such as the <u>Jenga Green</u> <u>Library</u> by <u>KenyaGBS</u>, or industry leading guidance such as electrification guides for both new and existing buildings from GBCA.

This year has seen promising private sector action showcasing signals of change. A new report from WBCSD and Arup, 'Net-zero buildings: Halving construction emissions today', shows it is possible to at least halve embodied carbon emissions immediately by using what is already available; seven years in advance of the 2030 targets in WorldGBC's Whole Life Carbon Vision for the entire sector. The Low Energy Transformation Initiative (LETI) has produced detailed case studies highlighting embodied carbon reductions to showcase best practice and provide further transparency with reporting. The Science Based Targets Initiative has consulted on and will soon release building sector specific guidance on both operational and embodied carbon targets aligned to a 1.5°C scenario, giving businesses a clear pathway to net zero. Throughout this report we also show how Net Zero <u>Carbon Buildings Commitment</u> signatories are delivering decarbonisation at scale, and how our programme partners are building resilience across the value chain towards decarbonisation.

The global GBC network stands ready to show that the built environment can create more resilient communities and be a critical climate solution. We will continue to engage, elevate and empower stakeholders to accelerate action on sector transformation. Together, through unprecedented collaboration, we can deliver the breakthrough moment for the built environment needed to achieve critical mass towards our shared goals.

Check out other outputs from WorldGBC and our network, helping to accelerate decarbonisation action:



Global Policy Principles for a Sustainable **Built Environment** 



Climate Change Resilience in the **Built Environment Guide** 



The Circular Built Environment Playbook

#### Reaching wider audiences

WorldGBC collaborated with ULI Europe, WBCSD, and to deliver the first ever Road to Zero stage at MIPIM in Cannes, France, 14-17 March 2023 to deliver a dedicated programme of content and inspire attendees of the world's leading international real estate event to We also reached diverse new stakeholders through participating in events for proptech, climate tech, students and industry bodies across other sectors.

"The first ever Road to Zero stage at MIPIM investors, decision makers and practitioners, to reinforce that net zero makes business sense, and is achievable today.



**Hugh Garnett** 











### **COP27:** The Africa COP



The 'Africa COP' in Sharm El Sheikh, Egypt, 6-18 Nov 2022 brought leaders together from around the world to find solutions to the climate crisis. As a sector, we showcased how the built environment can respond to all of the challenges among the themes across the two weeks, with • solutions ready to scale now.

Over the two weeks, more than 200 events on the built environment took place and WorldGBC participated in more than 36. Led by Global Alliance for Buildings and Construction (GlobalABC) and The United Nations Environment Programme (UNEP), the Buildings Pavilion hosted over 50 events in line with the daily themes interconnected with the COP27 Presidency and Marrakech Partnership for Global Climate Action (MPGCA) agendas. WorldGBC was represented by nine women from our global team, which was another first for us.

Together with the <u>UN High Level Climate Champions</u> team, we delivered the Implementation Lab for the event on Achieving the Built Environment 2030 Breakthrough, which involved frontrunner representatives from each lever of change (supply, demand (public), demand (private), policy, finance, civil society, regulation), and explored how enabling actions could support the scaling up of proven solutions across the value chain.

The <u>BuildingToCOP Coalition</u> rallied the sector, responsible for almost 40% of global greenhouse gas (GHG) emissions, around flagship events focused on the key themes of: finance, decarbonisation, adaptation and resilience.

In total there were 19 built environment initiatives launched at COP27. Here are some notable announcements:

- 2030 Built Environment Breakthrough Outcome
- WorldGBC Guide to Climate Resilience and Adaptation in the Built Environment
- · Africa Manifesto for Sustainable Cities and the **Built Environment**
- African Alliance for Sustainable Cities and Built **Environments**
- 2022 Global Status Report for Buildings and Construction, GlobalABC

We left COP27 feeling invigorated and ready to showcase more action from the sector at COP28 in Dubai, United Arab Emirates.



### **COP27 Highlights:**

**Events related to the Built Environment** 200

WorldGBC spoke at more than 36 Events

**Built Environment initiatives launched** 19

WorldGBC was represented by 9 Women

"We have reinforced our important place in the global conversation and strengthened our position as a leader in providing insights and advocating for impactful action to move towards net zero. In cooperation with the Egyptian Ministry of Planning and Economic Development, we acknowledged a fırst-of-its-kind rural village project – Fares Village in Aswan which obtained the Tarsheed communities rating system, demonstrating the potential of a low carbon future in Egypt."



Dr Salah El Haggar President of Egypt GBC

"As a core partner of the BuildingToCOP Coalition alongside WorldGBC, WBCSD supported a strong presence and visibility of the building sector during COP27, notably through the Buildings Pavilion. Importantly, the Coalition was able to bring in participation from finance, which is critical if we are to decarbonise an economic sector that represents 50% of global wealth creation."



Roland Hunziker Director, Built Environment & Member of the Extended eadership Group at WBCSD



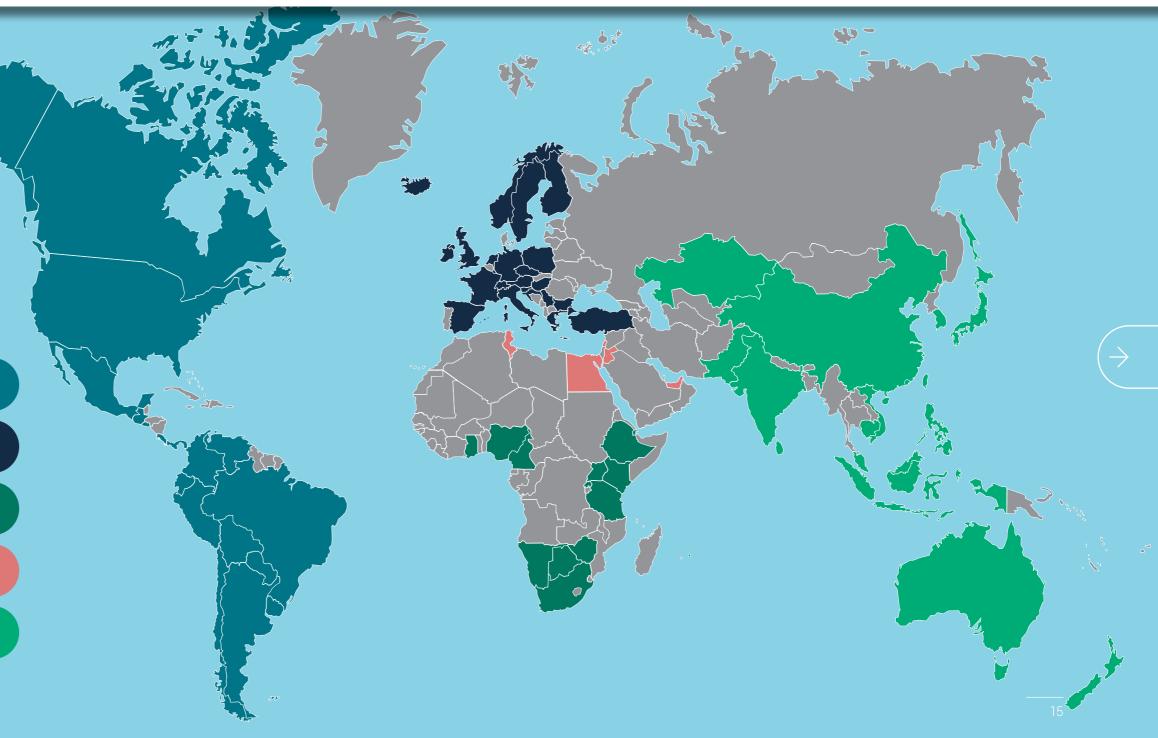














# Americas Regional Network

2022 was a key year for the <u>Americas Regional Network</u> with the launch of the Net Zero Readiness Framework.

We work collaboratively with the GBCs to break down the critical elements needed to accelerate the uptake of national net zero and climate resilience roadmaps.

Through the Zero Carbon Building Accelerator (ZCBA), Colombia GBC supported the development of the National Roadmap for Net Zero Carbon Buildings and action plans to achieve net zero carbon buildings in the cities of <u>Bogotá</u> and <u>Santiago de Cali</u>. <u>Costa Rica GBC</u> supported the construction of four roadmaps for the decarbonisation of the municipalities of Belen, Curridabat, Moravia, and Santa Ana.

Through the WorldGBC Cities Climate Action Project (formerly the Cities Climate Action Project) and with the support of Venezuela GBC, the municipality of Maneiro joined the Building Efficiency Accelerator (BEA). We continue to

explore the implications in the transition from energy efficiency to net zero in the Americas, and the best practices for the design of roadmaps for the decarbonisation of the built environment in <u>Latin America</u> through various regional forums.

The commitment and leadership of the business sector in Latin America to move towards carbon neutrality is reflected in the signing of WorldGBC's Net Zero Carbon Buildings Commitment in 2022 by the City of Cali, Colombia.



Pamela Castellan



Americas Net Zero Readiness Framework



### **Europe** Regional Network

The <u>Europe Regional Network</u> (ERN) has been driving climate action in three key areas:

- The #BuildingLife project has seen 10 GBCs launch decarbonisation roadmaps and built a community of hundreds of leaders across the region calling for urgent political and industry action to bring down whole life carbon (wlc) emissions. An EU WLC Policy Roadmap was launched in 2022 and is being used as a reference point by the European Commission, for example in the recently published Transition Pathway for Construction. The #BuildingLife project has brought WLC into the mainstream in Europe.
- Closely linked to this, European Regional Network advocacy has helped deliver a major political breakthrough, with the European Parliament approving plans to introduce WLC reporting requirements into Europe's key buildings legislation. At national level, countries such as Finland, Ireland, Spain and the UK have all made important political progress on tackling the total carbon impact of buildings.

Thirdly, the ERN has been leading efforts to ensure sustainable finance helps drive the transition to a fully decarbonised built environment. As part of the EU Platform on Sustainable Finance, we have helped shape the criteria for buildings in the EU Taxonomy and GBCs are now collaborating in WorldGBC's Sustainable Finance Taskforce to ensure the taxonomy is consistently applied and its implementation supports our goals.



Alicja Kuczera
Past Chair, WorldGBC
Furope Regional Network



**194**Campaign
Ambassadors

10 Green Building Councils

**53,000** EU Roadmap page views













## Africa Regional Network

The last 12 months have been a remarkable period for the Africa Regional Network and the 12 participating Green Building Councils spread across our vast continent.

Africa is set to experience exponential growth, becoming a hub for future investments and developments. In light of this, we must continue to advocate to ensure that this development produces a sustainable, healthy, equitable and resilient built

To facilitate this, the Africa Manifesto for Sustainable <u>Cities and the Built Environment</u>, setting out actions needed from policymakers and businesses across the continent to deliver the 'Africa We Want', was launched on 4 November 2022 at GBCSA annual conference.

But building an inclusive continent means not leaving anyone behind. Connecting small business owners, businesses and GBCs across the vast continent requires a solution. The African Alliance for Sustainable Cities and the Built Environment represents part of this solution. It is a platform that will connect Micro, Small and Medium Enterprises (MSMEs) to a network of businesses and GBCs to share knowledge and learning opportunities. The African Alliance was launched on 11 November 2022 at COP27 at the SDG7 Pavilion in collaboration with SEforALL.

Alongside this work, GBCs across the region continue to push for sector transformation in their local markets, including:

- GBCSA updating GreenStar SA to include embodied carbon and develop a local embodied
- GBC Mauritius developing a Net Zero Roadmap alongside a sustainable construction app to help industry deliver best practices and services
- Egypt GBC hosting the Net Zero International Conference, with the aim to use this event to kickstart the process of developing a national roadmap and advocacy action

To overcome the obstacles ahead of us we must collaborate towards a sustainable, inclusive Africa.



Elizabeth Wangeci Chege Past Chair, WorldGBC Africa Regional Network





African Alliance

# Middle East and North Africa Regional Network

The Middle East and North Africa (MENA) region's population growth has been characterised by rapid urbanisation, with the urban population expected to double from 2010 to 2050.

This means a large demand for buildings, complicated by the challenges of conflict-induced displacement of people. The MENA region is also warming nearly twice as fast as the global average, and is particularly vulnerable to the effects of climate change.

To mitigate these challenges, WorldGBC's MENA Regional Network, which is made up of nine Green Building Councils (and counting), is building a community of Regional Partners and Net Zero Collaborators to develop the MENA Net Zero Readiness ensuring that the region's buildings enable a high Framework.

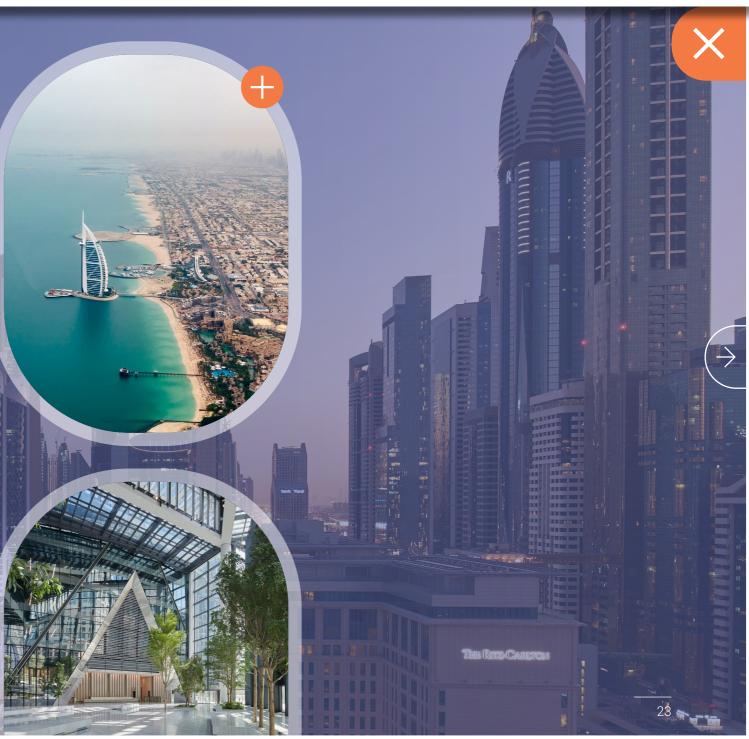
The framework will enable governments and industry professionals to share their knowledge and facilitate a more streamlined, context-based and home-grown approach to achieving net zero readiness within the MENA region, guided by WorldGBC's Climate Action North Star Goal of total decarbonisation of the built environment by 2050.

Acknowledging that in order to do so there is a pressing need for a shift in mindset and conversation from solely technical to a more human-centred approach. Focusing on education, involving the youth, and instilling a sense of empathy and collaboration amongst all stakeholders to pave a more sustainable. resilient and inclusive future for all.

GBCs in our MENA Regional Network are responding to challenges and opportunities on the ground, quality of life for people, minimise negative impacts on the environment, and maximise economic benefits.



Raii Hattar Chair, WorldGBC MENA Regional Network



### Asia Pacific Regional Network

The <u>Asia Pacific Regional Network (APN)</u> is dedicated to advancing its Net Zero Readiness Framework, developed in 2022, through ongoing collaborative efforts.

To achieve this goal, we are gathering information on the status of net zero readiness across Asia Pacific regions to reflect specific contexts, while also collecting case studies and educational content.

APN launched a knowledge hub featuring updates from GBCs worldwide, as well as thought leadership content from knowledge partners. We are also highlighting the launch of the Retrofitting Guidebook by Hong Kong GBC and celebrating significant accomplishments in the region. This platform serves as a valuable resource for professionals and organisations working towards a net zero future, allows for sharing knowledge, best practices, innovations in green building and sustainability.

Furthermore, APN recently celebrated the successful completion of its APN Festival, which brought together experts and professionals from across the region to exchange knowledge and experiences in sustainability and green building.

Through these initiatives, APN is promoting sustainable development in the Asia Pacific region and beyond. As a network, we are committed to fostering collaboration, empowering individuals and organisations to take meaningful action towards achieving a net zero future and creating a more sustainable world for future generations.



Cary Chan Past Chair, WorldGBC Asia Pacific Regional Network





### **GBC** Action Timeline

#### September 2022

#### **GBCA** release

#### NZGBC release

#### Phillippines GBC release

ANZ/PH Net Zero Energy

#### Kenya GBS event

#### October 2022

### Irish GBC launch

Polish GBC event

#### Malaysia GBC launch

#### India GBC event

#### WorldGBC release

#### November 2022

#### **DGNB** launch

#### **USGBC** event

Indonesia GBC event

#### **Croatia GBC launch**

### Türkiye GBC (ÇEDBİK)

#### WorldGBC announce

Advancing Net Zero

#### WorldGBC attend

COP27 on behalf of the Green Building Counci

#### December 2022

#### **UKGBC** release

#### GBC Italia launch

#### January 2023

#### HKGBC release

Advancing Net Zero Ideas

#### **HKGBC launch**

#### **HuGBC launch**

#### February 2023

#### FiGBC announce

#### March 2023

#### **USGBC** event

#### **GBCA** event

#### **UKGBC** event

Advancing Net Zero

#### DGBC release

### WorldGBC support

MIPIM Road to Zero

#### WorldGBC release

Ahead of the Wave: Financing the Transition to a Decarbonised Built <u>Environment</u>

#### April 2023

### NorwayGBC release

#### Chile GBC launch

#### Singapore GBC release

#### WorldGBC release

for a Sustainable Built

#### May 2023

#### **USGBC** release

#### NZGBC release

#### NZGBC release

#### NZGBC event

**Green Property Summit:** Working together to 2030

#### NZGBC release

Net Zero Buildings **Certification Tool** 

### Sweden GBC release

Update to NollCO,

#### **GBCA** release

A Practical Guide to Upfront Carbon Reductions: For New **Buildings and Major** Refurbishments

### **HuGBC** event

Green Brunch on Zero Carbon Framework

Net Zero Carbon - Open National Launch

#### KGBC event

Green Building's Day

**GBC Italia launch** 

#### WorldGBC release

#### WorldGBC release

The Circular Built **Environment Playbook** 

#### June 2023

### WorldGBC announce

#### CaGBC conference

Building Lasting Change

#### **HKGBC** release

Climate Change

#### **GBCA** release

From Net Zero to Zero: A Discussion Paper on Grid-interactive Efficient

#### **UKGBC** release

Carbon Offsetting and

#### CCCS launch

CASA Colombia V3. Zero Scheme





# Whole Life Carbon Roadmaps

Whole Life Carbon (WLC) roadmaps continue to be an important way that GBCs adopt WorldGBC's WLC approach and provide guidance for local markets on how to decarbonise their built environments. This year, we've expanded the map to highlight all GBC roadmaps, those already published and those in development, as well as external roadmaps linked to the building sector.



**ALL ROADMAPS** 



GBC ROADMAPS

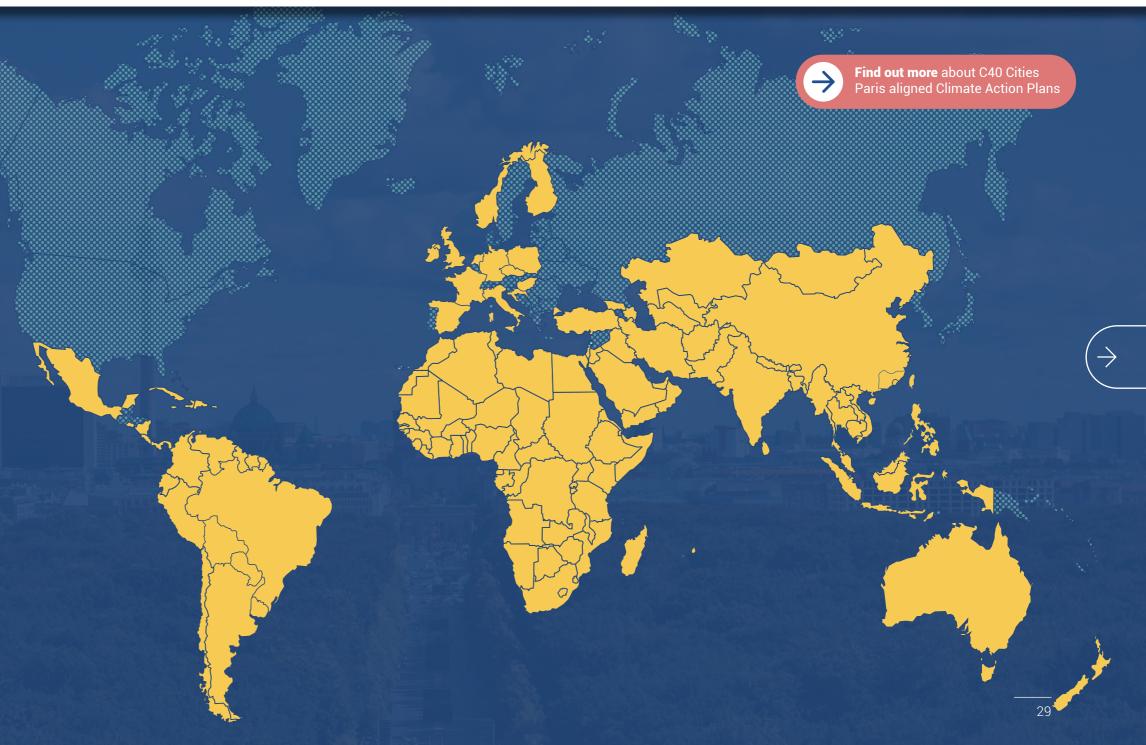


EXTERNAL ROADMAPS: REGIONAL\*



EXTERNAL ROADMAPS: NATIONAL

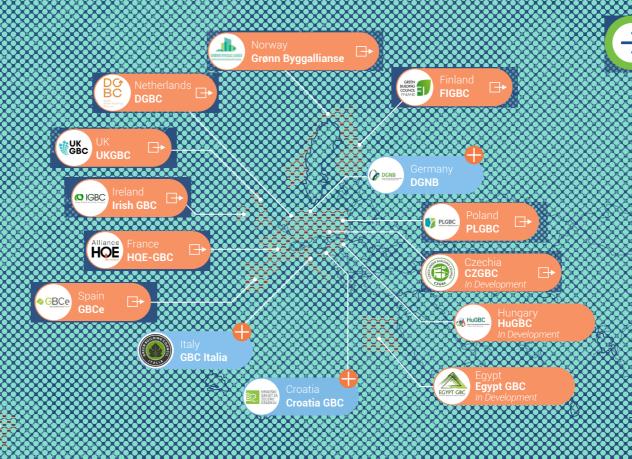
\*Regional refers to regional grouping of countries.





# GBC Roadmaps













EXTERNAL ROADMAPS NATIONAL

\*Regional refers to regional grouping of co







**→** AFRICA

ASEAN IEA GlobalABC

# External Roadmaps

**ALL ROADMAPS** GBC ROADMAPS EXTERNAL ROADMAPS: REGIONAL\* **EXTERNAL ROADMAPS: NATIONAL** 

\*Regional refers to regional grouping of countries.

Asia Globa → Arab League → LATIN AMERICA

China Greater Bay Area (Guangdong, Hong Kong, Macat Dena, ICLEI East Asia, China Academy of Building Research

### **GBC** Italia

The Italian Roadmap proposes a systemic approach to achieve climate neutrality for the built environment, through 53 objectives divided into 3 priority areas:

- Decarbonisation of buildings
- Circularity for the construction industry
- · Quality and resilience of cities

Several actions are identified and attributed to six categories of stakeholders:

- 1. Government and public administrations
- 2. Real estate developers
- 3. Professionals, consultants and construction companies
- 4. Manufacturers
- 5. Energy services
- 6. Private financial sector

For its development, a national discussion forum was launched including GBC Italia's members and a wider community of stakeholders from the construction supply chain.

In addition to the main document, four technical annexes were developed:

- The national energy context, including: legislation, plans and decarbonisation scenarios
- Technological solutions to support the roadmap for the decarbonisation of built environment by 2050
- Private and public finance for the decarbonisation of the construction sector
- Tools for decarbonisation: accounting for embodied carbon in the life cycle of a building



Valentina Marino International Activities, GBC Italia



### **DGNB**

Deutsche Gesellschaft für Nachhaltiges Bauen – DGNB e.V. German Sustainable Building Council



With the broad participation of active members of the association and external experts as part of the European joint project, #BuildingLife, DGNB's roadmap 'Guide to Climate Positive Building Stock' (Wegweiser Klimapositiver Gebäudebestand) was released in November 2022.

The roadmap consists of three main elements:

- "Our common path" is a document that describes the status quo and states the overarching strategic objectives, as well as the top 50 actions for all actors in the building and real estate sector. The strategic objectives are:
  - Eliminating emissions associated with energy consumption and making a positive contribution to the energy transition with renewable energies
  - 2. Preserving the value of existing buildings, minimising the use of resources and ensuring long and intensive use of buildings

- Renovating existing buildings and building necessary new buildings emission-free and with climate positive materials and
- Creating political and financial framework conditions for transformation
- In alignment with the objectives, the annex provides a list of nearly 350 actions, characterised for different stakeholder group and prioritised
- The third element is "My contribution" which details actor-specific climate action lists



**Dr Anna Braune**Director Research and
Development, DGNB



### Croatia GBC



The Croatian National Decarbonisation Roadmap for the building sector is a critical component in achieving the country's climate goals. This roadmap outlines a comprehensive strategy for reducing greenhouse gas emissions in the building sector, which accounts for a significant portion of Croatia's overall emissions.

the evolution of the EU's and Croatian national efforts to reduce greenhouse gas emissions and promote energy efficiency in buildings. The 20-20-20 plan, launched in 2007, set targets for reducing energy consumption from fossil fuels, improving energy efficiency, and increasing the use of renewable energy sources. The EU has implemented a series of directives and regulations aimed at reducing emissions in the building sector, which accounts for over 40% of total emissions.

The roadmap highlights the importance of transparency in the market, ensuring that buyers and renters have access to information on a building's energy consumption and its impact on the environment. Despite progress, Croatia, similar to the EU level, has not yet met its emissions reduction targets and has introduced new regulations and policies. The roadmap also discusses the need to take advantage of digital technologies to track the environmental impact of buildings and The roadmap developed by Croatia GBC provides construction products throughout their life cycle. The Croatia GBC has created the document to encourage synchronised efforts among all stakeholders in the construction industry to build environmentally sustainable and economically valuable buildings.



**Dean Smolar** CEO, Croatia GBC

**Croatia GBC Nationa** Decarbonisation Roadmap

The state of the s







# Advancing Net Zero in Numbers



35

Number of GBCs participating in the ANZ programme



18

Number of GBC net zero certification schemes



5,704

Number of ANZ Accredited Professionals



856

Number of buildings certified by GBCs as operating at net zero\*



268

Number of net zero webinars run in 2023



26,251

Number of attendees to net zero events and training courses in 2023

\*This is an approximate total figure based on best available data at time of publication

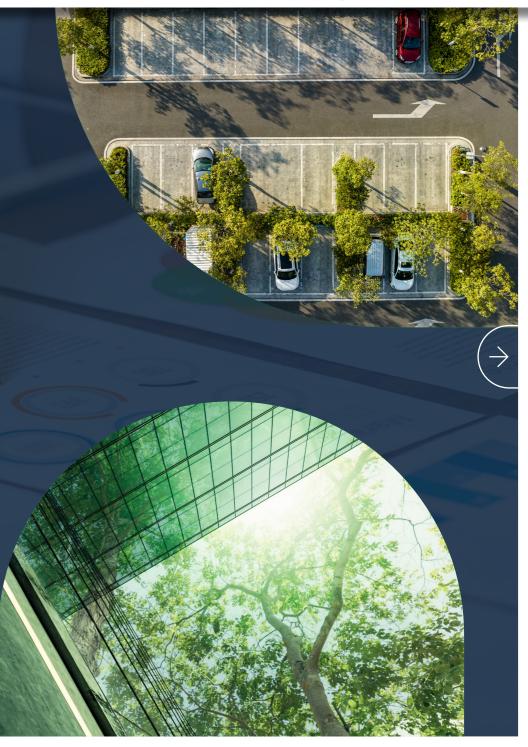
EMBODIED CARBON

FINANCE The problem with net zero:

Achieving total decarbonisation of the sector will require overcoming the remaining barriers preventing uptake. With increasing technology advancements and frontrunner action, every day brings new solutions to those barriers.

Click on each problem to learn about new trends and innovations from across the sector.

**ECTRIFICATION** EXISTING BUILDINGS EMBODIED CARBON





The problem with net zero:

Achieving total decarbonisation of the sector will require overcoming the remaining barriers preventing uptake. With increasing technology advancements and frontrunner action, every day brings new solutions to those barriers.

Click on each problem to learn about new trends and innovations from across the sector.

**EXISTING BUILDINGS •** DATA & EPDS • NDCS +

**EMBODIED CARBON •** 

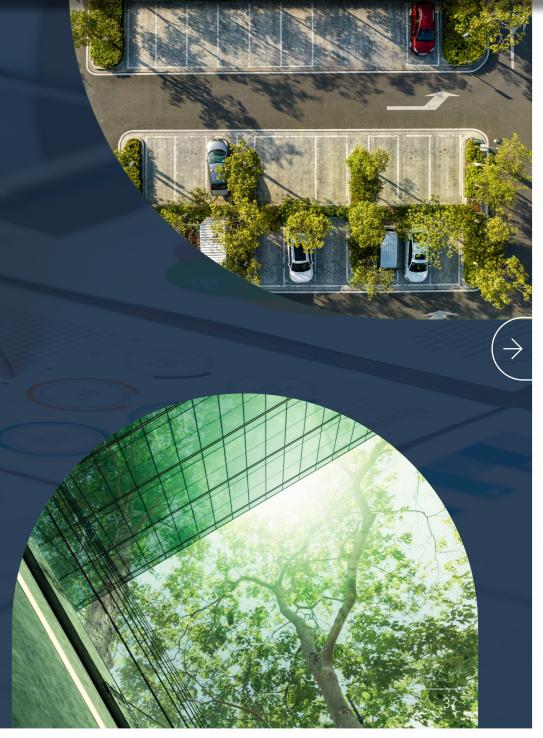
FINANCE •

**ELECTRIFICATION** •

NDCs •

OFFSETS •

**DEFINITIONS, TARGETS** • AND BENCHMARKS





Retrofitting an existing building has been deemed more challenging compared to building new.

However, retrofitting can create environmental, commercial and social benefits, such as reducing operational carbon through energy efficiency and removing fossil fuel connections, creating significant embodied carbon savings, improving health and wellbeing outcomes, preserving heritage sites, improving community spaces and increasing property value.

Here are some of the trends and innovations in this space:





How can you tackle what you cannot measure? Measuring emissions data behind our buildings is key to understanding how to implement the best decarbonisation solutions. Data will be crucial to delivering total sector decarbonisation.

EPDs (Environmental Product Declarations) are documents which transparently communicate the environmental performance or impact of any product or material over its lifetime. Widespread industry production and use of EPDs are needed for accurate whole life carbon calculations and decarbonisation solutions.

Here are some of the trends and innovations in this space:



Click on each problem to learn about in and innovations from across the sectors.

Embodied carbon

Embodied carbon emissions have historically been largely overlooked yet they contribute to around 11% of all global carbon emissions. Therefore, to truly decarbonise the built environment, we must rapidly increase efforts to tackle embodied carbon emissions at a global scale.

In recent years, we have seen mainstream actors accounting for whole life carbon in their decarbonisation strategies.

Achieving total decarbonisation of t require overcoming the remaining b uptake. With increasing technology and from the thorough the sale time to the sale beginning.

Click on each problem to learn about named innovations from across the sector

Here are some of the trends and innovations in this space:















Finance

Unlocking sustainable finance is a crucial part of advancing net zero and accelerating industry transformation.

To deliver net zero buildings at scale, we need finance mechanisms that deliver investment and support for net zero solutions and projects.

The problem

Achieving total decarbonisation of t require overcoming the remaining b uptake. With increasing technology and frontrunner action, every day breadlytions to those barriers

Click on each problem to learn about no and innovations from across the sector Here are some of the trends and innovations in this space:





Electrification is a crucial solution to built environment decarbonisation in both existing buildings and new developments.

By removing fossil fuel connections we remove a significant source of carbon emissions, preparing buildings for the decarbonisation of energy grids.

Converting large numbers of buildings to electric heating, even with highly efficient heat pumps, also brings challenges in terms of increased demand on the energy grid. But solutions such as demand-side management, building-integrated renewables and energy storage can help mitigate this.

Here are some of the trends and innovations in this space:



require overcoming the remaining barrie uptake. With increasing technology adva

d frontrunner action, every day lutions to those barriers.

Click on each problem to learn about n and innovations from across the secto

Nationally
Determined
Contributions

To achieve total sector decarbonisation, we need to see governments of all levels collaborating. Nationally Determined Contributions (NDCs) are climate action plans from national governments to cut emissions and adapt to climate impacts.

Each Party (country) to the Paris Agreement is required to establish an NDC and update it every five years. According to GlobalABC, 80% of countries now refer to buildings as part of their NDC action plans, compared to around 69% in 2020.

Here are some of the trends and innovations in this space:



Click on each problem to learn about r



Offsets

Offsets are a contentious topic in relation to global efforts to tackle the climate crisis. WorldGBC acknowledges that there are clear problems with poor quality, unverified offset credits, however there is progress being made in ensuring the credibility and integrity of the offsets market on a global scale.

Although WorldGBC advocates that emission reduction efforts should be prioritised at all opportunities, in the immediate term, offsets are a necessary part of the transition towards total sector decarbonisation. They can be used to accelerate the decarbonisation agenda and help achieve tangible environmental and social co-benefits such as improved air quality, access to renewable energy and quality of life.

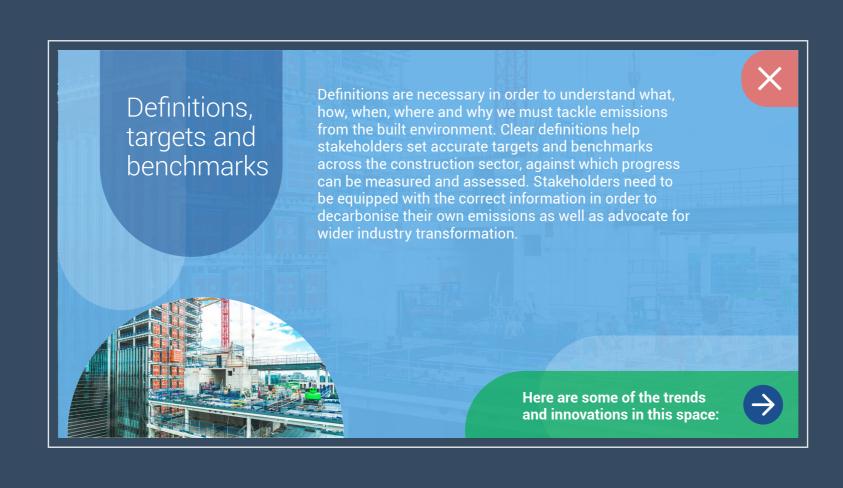
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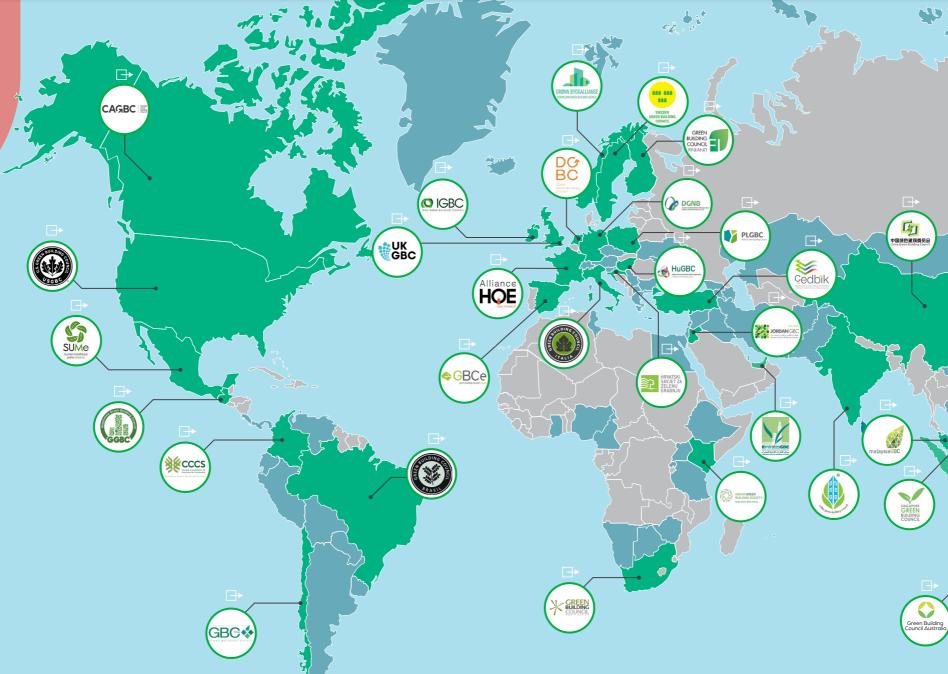
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ANZ GBCs

Member GBCs

### Net Zero Carbon Buildings Commitment: Delivering at Scale

Over the last twelve months, we have seen more signatories moving from making their commitments to taking action. The Net Zero Carbon Buildings Commitment (the Commitment) continues to showcase the leadership of stakeholders from across the built environment who are delivering decarbonisation at scale. In this section, we dive into examples of action from across the globe, showcasing how each stakeholder category is initiating change throughout the building life cycle.

The GPT Group updated and expanded their commitment, and also delivered Australia's first Climate Active/GBCA certified upfront embodied carbon neutral development. The business currently has more carbon neutral floor space than any other Australian property owner. Last year, Africa Logistics Properties (ALP) became the first African signatory to the Commitment and in April 2023 the business submitted for EDGE Zero Carbon certification for the ALP North Tatu City Industrial development. SOM announced that it's now a net zero emission business, and will continue to reduce emissions, setting its sights on becoming a net zero business without the use of offsets by 2030. AMP Capital have also upcycled AMP Centre in Sydney,

Australia, now known as <u>Quay Quarter Tower</u> (featured on our front cover), from an outdated 1970s skyscraper. Two-thirds of the old structure and 95% of the building's core were salvaged, saving around 12,000 tonnes of carbon and an estimated \$102 million. Commitment signatories Arup and Multiplex were also involved in this ambitious project, with Dexus and Deloitte as anchor tenants.

This collaborative action directly feeds into the Ambition Loop. Signatories are taking accelerated action to decarbonise their building portfolios through business activities; proving the possible and sending the necessary market demand signals to accelerate sector transformation.

We need more businesses and cities to be inspired by these examples, to go further and faster to decarbonise the built environment. Join this growing cohort of leaders by signing up to the <u>Net Zero Carbon Buildings</u> Commitment and take action now!



Join the Net Zero Carbon Buildings Commitment



**ALP Net Zero** 

**Africa** Logistics **Properties** 

Net Zero Carbon Buildings Commitment: Pelivering at

In March 2022, Africa Logistics Properties (ALP) became the first African signatory of the WorldGBC's Net Zero Carbon Buildings Commitment. In Q2, 2023, we intend to raise the bar even higher, by submitting our very first EDGE Zero Carbon certification for the award winning ALP North Industrial development in Tatu City, Kenya.

Off the back of certifying an additional four industrial assets within our portfolio in the last twelve months, ALP has commissioned ten industrial buildings (+75,000 sgm (square metres) gross leasable area) within the portfolio since September 2018, all having achieved EDGE Advanced certification.

Across our portfolio ALP has achieved 41% average energy savings and 55% less embodied energy in materials.

We are transforming the green building market in Kenya and the entire East African region, one kg of CO<sub>2</sub> at a time.



Maruza Chikwanha Development Director, Africa Logistics Properties





# Commitment: Pelive





























# Net Zero Carbon Buildings Commitment: Pelivering at





2022 Sustainability **Performance Report** 

Sustainability





Since signing on to the Commitment in 2021, Hesperia has moved directly to net zero carbon projects, ensuring that all of our work minimises greenhouse gas pollution and offsets remaining emissions. But we feel strongly that the carbon outcome needs to be accompanied by a broader commitment to responsible

Our Rivermark project (pictured) is a great example where land has been recovered from former industrial use. This section of the Swan River had been fenced off from the public for decades, but has since been reopened. The biodiversity value of the landscape has been retained and improved, with comprehensive and ongoing engagement with local Aboriginal people being central to the

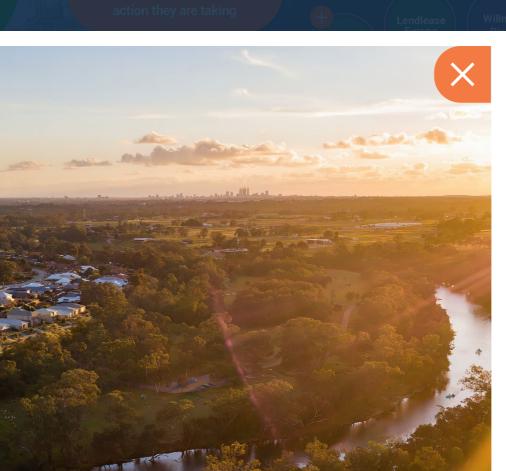
Recycled and low carbon materials have been used throughout the project and all families that make their home at Rivermark will be enabled to operate on 100% renewable, affordable energy.

Hesperia is a major developer in the region that we work in – beautiful Western Australia – and we are determined to show leadership and set the benchmark for what good, sustainable development looks like.





# Net Zero Carbon Buildings Commitment: Pelivering at 9







## Net Zero Ca Commitmer

Over the last twelve months, we more signatories moving from commitments to taking action. Carbon Buildings Commitment to showcase the leadership of sfrom across the built environment are delivering decarbonisation. In this section, we dive into exaction from across the globe, show each stakeholder category change throughout the building

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Lendlease Europe



2022 Progress Towards Mission Zero Report Lendlease Europe is leading the industry in decarbonising construction and developing fossil fuel free, energy efficient assets, using low carbon materials.

In Lendlease's latest progress report, we reported a 56% reduction in scope 1 and 2 emissions, and shared tangible examples of how we are acting with urgency to cut carbon across our business, including:

Fossil fuel free construction – An Alternative Fuels Policy is helping Lendlease to make all construction sites in the UK fossil fuel free. In the financial year 2022, Lendlease switched over three quarters of fuels to low carbon alternatives, such as hydrotreated vegetable oil (HVO) derived from used cooking oil, slashing site emissions by 65% despite an increase in construction activity. The next step is to shift to 100% renewable electricity or a green hydrogen powered plant by 2030.

**Tackling Embodied Carbon** – We are working with GPE to reduce the embodied carbon of their 2 Aldermanbury Square development in

London. Opportunities have been identified to cut carbon by 36% from the initial design, creating a new target of 572 kg CO<sub>2</sub>e per sqm of upfront embodied carbon (modules A1-A5), demonstrating what is possible when like-minded developers, contractors and suppliers collaborate on carbon reduction.

Overcoming barriers through collaboration – Lendlease partnered with Climate-KIC, the EU's climate innovation initiative, Arup and grant-making fund Built by Nature to identify barriers preventing the use of mass timber as a low carbon construction material and solutions to help overcome them. The 'Perceptions of Timber' initiative brought together developers, investors, designers, insurers, assets owners and government officials for a series of workshops and exhibitions at the Milan Innovation District (MIND), showcasing the project's prototype multistorey mass timber structure.



Paul King
Managing Director Sustainability
& Social Impact, Lendlease Europe















Majid A Futtain









Foreword

ancing Net Zo
Partners

ts Advancing Net Zero: A

World Map

Net Zero Carbon Buildings nmitment: Delivering at Scale st of Commitment



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BAM Construction

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Keva

Majid Al Futtaim

Kojam





# Net Zero Carbon Buildings Commitment: Pelivering at

Willmott Dixon





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Willmott Dixon has the construction sector's most ambitious sciencebased targets to make our own operations zero carbon by 2030. So far, we have reduced our absolute carbon emissions by 47%, since 2018.

As one of the leading UK Passivhaus contractors, we are members of the <u>UK Passivhaus Trust</u>, supporting the Educational Steering Group's target to train 50% of the construction industry to deliver Passivhaus or equivalent standards by 2030.

Willmott Dixon contributes to the <u>UK Net Zero Carbon Building Standard</u> Task Groups, with Sustainability and Environmental Manager, Francesca Wilkinson (TG3 Reporting, Disclosure and Verification) and Doug Drewnia (TG 1A Operational Energy), helping industry create a net zero carbon performance standard.

Watch this video about our Collida Living prototype Passivhaus Plus homes, which use 35% lower embodied carbon than the Low Energy Transformation Initiative (LETI) benchmark and outperform the 2025 Future Homes Standard. Using modern methods of construction, completion took 15 weeks and required 40% fewer workers.

Willmott Dixon has just completed 18 ultra-efficient Passivhaus homes for Caerphilly County Borough Council in South Wales. The average property produces one tonne of carbon emissions per year and the estimated annual energy cost for each home is £362.



Doug Drewniak Senior Building Performance Manager, Willmott Dixon





**Built** 



**Net Zero Carbon Operation** Plan for Developments

Taking Action on **Embodied Carbon** 

Demystifying the Circular Economy

Behind the Scenes of the World-leading Atlassian **Central Project** 

Built has been working closely with clients to unlock complex problems, finding ways to set a roadmap look for ways to set a roadmap to net zero. Built has worked to achieve a net zero in operation pathway on 12 large-scale projects around Australia by taking them all-electric. For example, at Phive Parramatta, which is now one of Australia's most sustainable public buildings, we identified opportunities to optimise the building's design to include natural ventilation, reduce energy demand and completely remove the need for gas to make the building 100% electric, and are therefore able to achieve net zero operations from day one. The introduction of natural ventilation enabled the project to reduce operational energy by a projected 35% and water usage by 90% through elimination of cooling towers, rainwater reuse and water efficient fittings.

Built is also working on Atlassian's new Australian headquarters, set to be the tallest hybrid timber commercial tower in the world. The project is targeting a 50% reduction in embodied carbon, compared to a conventional building, along with very efficient all-electric operation powered by on and off-site renewable electricity.

One of our commitments has been to share what we are learning with industry through publishing reports, including a simple how-to guide to help developers and asset owners start the process of achieving net zero, sharing the embodied carbon data from our completed projects and collaborating with industry leaders to develop the top ten actions the buildings sector can take towards circularity.



Joe Karten Head of Sustainability & Social Impact, Built





**BAM** Construction



BAM 2021 **Annual Report** 



**BAM Sustainability** 

Carbon Reduction

Plan 2022



BAM has committed to achieving net zero carbon in our direct operations by 2026. Our target not only encompasses direct scope 1 and 2 emissions, but also selected scope 3 emissions.

We are already close to achieving this target. In 2021, our carbon intensity was 44% lower than in 2015. This has been achieved through working towards procurement of 100% renewable electricity, reducing energy use by digitalising business operations and improving efficiency, reducing fossil fuel use on project sites, electrifying equipment and using alternative fuels (biofuels) where possible. We are also working with clients and supply chain partners to reduce carbon emissions in the value chain, bringing low or zero carbon products and services to the market to scale up their positive impact. This has led to a further increase in our ambition to reduce scope 3 emissions, including embodied carbon of projects, and to strive for a 50% reduction by 2030 vs 2019 (this was previously set at a 20% reduction by 2030).

We cannot do this alone. If we are to accelerate progress towards net zero, we need to come together as an industry to support our clients and supply chain to reach their goals.

To facilitate this, we are focusing on helping our clients achieve their own net zero carbon ambitions, through the decarbonisation of their assets. One example is our collaboration with the UK Department for Energy on the delivery of Southam College. Designed to achieve net zero carbon in operation, the development is a 'pathfinder project', which will set the standard for how net zero schools are built in the future.



Dan Whiteley BAM UK&I Environmental Sustainability Director, BAM Construction Ltd









# Net Zero Carbon Buildings Commitment: Delivering at







Responsible Investment



Responsible Investment in Practice: Environmental strategy for real estate investments



a solar panel system was installed at Hermian Farm in line with the project's renewable energy targets. The project's objective is to reduce the consumption of district heating by more than 70%, which in turn reduces greenhouse gas emissions from heating.

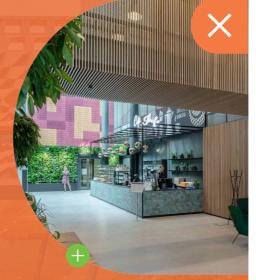
In 2022, one of the largest environmental investments in Keva's direct real estate portfolio was the energy efficiency and energy recycling project of Hermian Farmi, a business park in Tampere. The project focused on reducing energy consumption and accelerating the transition to renewable energy sources. The project included the construction

geoenergy field for seasonal storage of waste heat and utilisation of ground heat. At the same time, the site's ventilation system and building

The project also promotes the climate goals of the city of Tampere and Keva's real estate investments.



**Tuomas Helin** Environmental Manager, Property Asset Unit, Keva



Keva to use only carbon-neutral electricity in its investment properties





Majid **Al Futtaim** 



Driving Majid Al Futtaim's Climate

Transition with

Science-Based

Targets

standards and a wider breadth of stakeholders. In 2022/23, we received validation for our near-term science-based targets for each operating company, who are now developing their emission reduction

Since committing to become a net positive carbon business by 2040, and as

will require enhanced engagement with our supply chain through existing environmental criteria relative to their fit-outs and operations.

Most recently, we've been working with our supply chain partners to help identify our key risks and opportunities for mutually beneficial emissions reductions.

collecting scope 3 data, providing a platform for us to work collaboratively and











































## Net Zero Ca Commitmer

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Kojamo Plc



Annual Report 2022



Kojamo Plc signed WorldGBC's Net Zero Carbon Buildings Commitment in 2020, and since then, we have systematically worked towards our net zero target by decreasing our annual  $\mathrm{CO}_2$  emissions per apartment from 1.4 tonnes to 1 by the end of 2022. As Finland's largest private residential real estate investment company, we are firmly focused on achieving our target by 2030 and have outlined a roadmap ensuring progress towards reaching it.

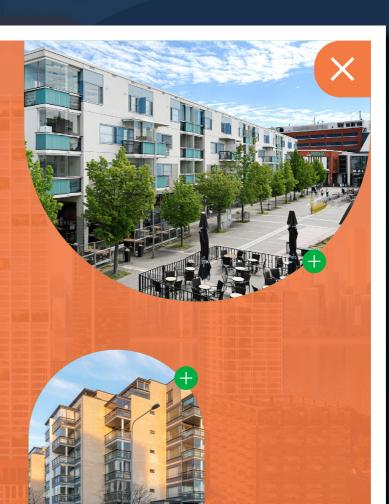
Our annual target is to reduce CO<sub>2</sub> emissions from each apartment by 4% and we are well ahead of our estimated annual trajectory.

The roadmap includes actions such as energy optimisation measures, retrofitting of our existing portfolio, and installation of geothermal energy systems.

A notable ongoing project is the installation of geothermal energy systems for seven sites in the capital district. These buildings have previously been using district heating, but as a result of the installation of a geothermal energy system, they will be disconnected from district heating. This results in zero carbon emissions from heating for the seven sites. For some of the sites, the geothermal system will be connected with a heat recovery system, which further increases the efficiency of the geothermal heat pump.



Ville Raitio Executive Vice President, Investments & Portfolio Management, Kojamo Plc



Majid Al

Kojamo

AMP Capital have also upcycled AMP Centre in Sydney



SOM





Through our built work, research initiatives, and our role as advocates in our industry and beyond, SOM is advancing strategies to decarbonise our portfolio and the wider built environment.

In 2022, we became a net zero emissions business through a combination of strategies to reduce emissions across our global operations, bolstered by carbon offsets. For 100% of our active design work, we are targeting net zero operational carbon by 2030, and net zero whole life carbon by 2040.

We've developed self-initiated research projects like <u>Urban Sequoia</u>, a design concept first presented at COP26, which sets the stage for a new carbon removal economy and a resilient future for cities.

We believe that we can only confront the climate challenge collectively, so we have additionally focused on contributing our expertise and teaming up with several industry organisations to make an impact. In addition to leading the MEP 2040 we've also co-authored the RIBA 2030 Climate Challe been heavily involved in the <u>UKGBC's Whole Life Carbon Ro</u> (launched at COP26), and most recently, the UK Net Z Buildings Standard, which we are helping to shape and develop.



**Mina Hasman** Sustainability Director, Skidmore, Owings & Merrill









Grimshaw **Architects** 



Civil Engineering Building, University of Cambridge, UK In late 2019, taking a lead in the industry, Grimshaw set targets to deliver net zero carbon ready designs by 2025, and aspires to create socially and environmentally regenerative designs by 2030.

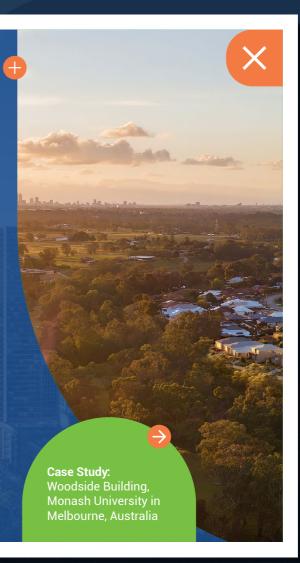
The practice is also committed to net zero carbon business operations by 2030. In line with science-based targets, in 2021 a target of a 50% reduction of 2019 scope 1 and 2 baseline emissions by 2030 was set. This was significantly surpassed by 2021 as the practice reduced emissions from 546 tonnes of CO<sub>2</sub>e in 2019 to 45 tonnes.

The reduction in emissions was achieved through multiple actions: switching studio energy supplies to 100% certified renewable energy; improving energy efficiency and reducing consumption; and coordinating studio-led environmental management plans accompanied by a green action guide. Alongside this action, the practice has reported against scope 3 emissions, including business travel, commuting and working from home impacts. Grimshaw has also operated as a carbon neutral company since 2020.

In line with the practice's net zero design ready target, our design projects measure whole life carbon, the success of which is evident in award-winning projects including Terra, The Sustainability Pavilion Dubai Expo and the Woodside Building, Monash <u>University in Melbourne, Australia</u>, the largest Passive House certified building in the southern hemisphere; the Walton Centre for Planetary Health at Arizona State University USA; and the Civil Engineering Building at the University of Cambridge in the UK.



Paul Toyne Practice Leader, Sustainability,





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Dar Group

Para



When Dar signed WorldGBC's Net Zero Carbon Buildings Commitment, we began implementing a net zero strategy for all of our assets.

To track a pathway for our flagship LEED Gold headquarters to reach net zero, a team of Dar experts developed Para, a building portfolio management platform – powered by digital twin technology and advanced machine learning and analytics.

The platform empowered operators at Dar's headquarters to implement a phased approach to improving operational efficiency and shrinking the headquarters' environmental footprint. The platform recommended interventions that boosted operational efficiency by 15% and reduced the building's total energy consumption by 25%.

Moreover, the platform was used to simulate the impact of potential technologies, leading to the successful implementation of direct expansion air conditioning units in IT spaces, internet of things (IOT) sensors, and a shared after-hours workspace. Para forms an important part of our net zero strategy and will assume a larger role as we make progress towards net zero.



**Balsam Nehme** Head of Buildings Sustainability, Dar Group





Natwest

**S** 

ion

Lloyds Banking Group

Keva

Majid Al Futtaim

ojamo

Architect

# Commitment: Pelivering at





Breathe is a carbon neutral architecture studio advocating for the decarbonisation of the construction industry. We have worked to crunch carbon within our own operations and assets, in the buildings we design, via active promotion of values aligned initiatives, and by sharing the knowledge we have developed in a series of sustainability guides.

Our office is powered by 100% renewable certified GreenPower and operates in a building with a photovoltaic array and energy storage. We purchase carbon credits to offset our business' residual carbon footprint.

Breathe **Sustainability Guides** 



Our <u>Sustainability Action Plan</u> pledges to deliver only net zero ready buildings, designed to industry leading building performance targets, and to track and taper upfront carbon toward a climate positive 2040.

Sustainability Action Plan



We care deeply about the planet, and recognise our part in its peril. Through our work, advocacy and integrity we can build a better future.



**Bonnie Herring** Director of Sustainability,



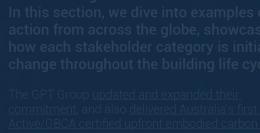




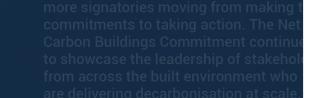












2022 Profound

Impacts Report

Nexii Green Metrics

Case Study: Design for Deconstruction

Nexii



# Commitment: Delivering



by building envelope improvements and increased equipment efficiency. We also

Longer term, we are prioritising facility electrification and access to low carbon grids and renewable electricity. Nexii is committed to attaining 50% less embodied carbon in our products versus conventional construction by 2025, which will waste, integration with mass timber, and design for reuse.



**Gregor Robertson** Executive Vice President, Strategy and Partnership, Nexii







**Armstrong** Fluid **Technology** 



Armstrong Sustainability



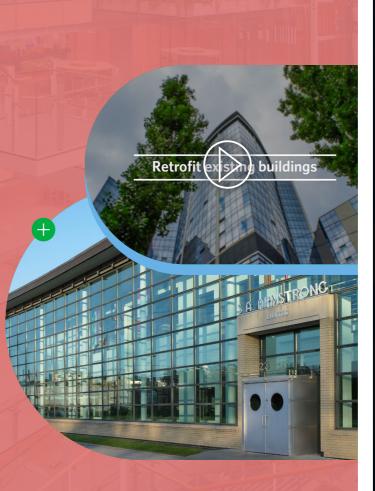
portfolio, and in line with <u>The Roadmap to Net Zero</u>, Armstrong's renovation linoleum. In the factory, fast-opening rubber doors were linked to an automated control system to turn off unit heaters when the doors are open, conditioning (HVAC) optimisation study identified further energy savings.

For our customers, Armstrong made a commitment to reduce GHG emissions by five million tonnes by 2025 through our HVAC optimisation the environmental impacts of its products, a team of Armstrong engineers undertook life cycle analysis (LCA) reports.

Through implementation of existing energy-saving solutions, and tireless innovation to develop ground-breaking solutions that are even more efficient, Armstrong is working to create a built environment that provides indoor comfort at the lowest possible environmental cost.



**Peter Thomsen** Director, Building System Solutions, Armstrong Fluid Technology

















# Net Zero Carbon Buildings Commitment: Delivering at





Signify 2022 **Annual Report** 

Signify Climate Action Report

Signify Ultra Efficient Bulb





Since 2020, we have been carbon neutral in our own operations and we still continue to source 100% renewable electricity.

In the past two years, we have extended our efforts beyond our own operations and across our entire value chain to minimise our impact on climate change and avoid 21 million tonnes of CO<sub>2</sub>e by enabling the transition to energy efficient and connected LED lighting. To combat climate change in our supply chain, we proactively initiated, developed, and supported emission reduction activities for



Maurice Loosschilder Head of Sustainability,













### **NatWest**

Climate Related

Disclosure Report 2022



Last year, a 46% carbon reduction was achieved in direct own operations, against a 2019 baseline, and renewable electricity consumption increased to 98% globally, meaning we are well on track to meet our targets.

In 2021, our first sustainable hub in Bristol was delivered, achieving the Royal Institute of Chartered Surveyors' (RICS) SKA Silver accreditation, and provided valuable insights into the practices that can be deployed elsewhere in other branches. Since then.

a further four sustainable hubs have been completed, with the most recent being Milton Keynes branch, where we continue to maximise the use of pre-loved furniture and recycled materials, as well as implement technology such as heat pumps and building management systems to assist with reducing energy requirements.

Work continues on various projects across our portfolio including Manchester Spinningfields, which is the bank's new flagship building for sustainability, and is due for completion this year. Air-source heat pumps have been installed to decarbonise the heating of the building, which will lead to 147 tonnes CO<sub>a</sub>e reduction in its scope 1 emissions. NatWest Group understands the importance of continually transforming in line with our commitment to only retain assets that reduce our carbon impact, while trying to achieve value creation for our customers and colleagues, and utilise growth opportunities for our stakeholders.



Leiah Dodsworth Head of Climate Own Operations

















Commonwealth Bank of **Australia** 







At Commonwealth Bank (CommBank), we are committed to playing our part in Australia's transition to a net zero emissions economy.

We've made progress in becoming more energy efficient by implementing LED lighting, solar panels, smart digital meters and intelligent controls in our corporate offices. We have purchased the equivalent of 100% renewable electricity for our Australian operations, which in combination has delivered a 90% reduction in our scope 1 and 2 emissions (including Australian data centres) since 2014, and we have expanded our purchase of renewable electricity to our global operations.

In the refurbishment of our current head office at Commonwealth Bank Place in Sydney, we've met our embodied carbon target through careful design and reuse of building materials, such as access floors, workstations and services pipework and ducts.

As Australia's largest bank, we are committed to supporting a purposeful transition through lending to support the transition and helping customers navigate the transition.



Jennifer Saiz Executive General Manager Group Corporate Services, Commonwealth Bank



Lloyds Banking Group





Case Study: Net Zero Operational Branch



We're making good progress against our targets. We've reduced our direct carbon emissions by 36% and our energy consumption is down 25.5% compared to our 2018/19 baseline. In order to achieve our net zero ambitions, we need to invest in our buildings by expanding our use of energy efficient technology, including LED lighting and improved building controls, removing all use of natural gas from our estate, replacing gas boilers with low carbon heating technologies and creating more sustainable branches in communities across the UK.

In 2022, we implemented a multitude of energy reduction measures alongside the continued procurement of 100% renewable electricity. These include an ongoing energy optimisation programme, resulting in 89 GWh of cumulative savings; a continuation of our LED lighting install programme across offices and branches and upgrading Building Management Systems at our branches, resulting in 687 MWh of savings.

We recently installed a ground source heat pump system at our Halifax head office and have undertaken a deep retrofit of our first net zero operational carbon office, Andover Keens House.



Matteo Deidda Senior Sustainability Manager, Lloyds Banking Group









Powerhouse



Climate Action Plan 2022-2025

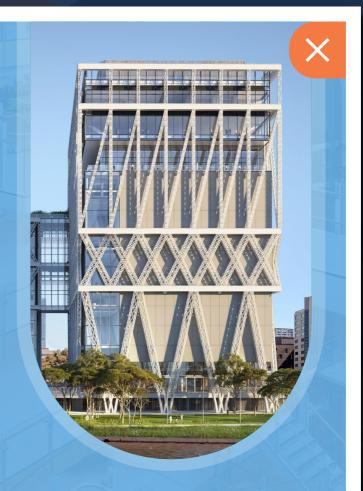
Powerhouse Parramatta, the renewal of Powerhouse Ultimo, the expansion of

We are committed to achieving net zero carbon building operations and reducing upfront carbon emissions through the renewal programme. No new gas uses will be introduced into building functions, with existing uses to be phased out.

The Powerhouse Parramatta project is targeting a 40% reduction in upfront carbon emissions. The flagship museum's exoskeleton superstructure is a celebrated Cranes used will be the first in Australia to be powered by 100% renewable diesel, marking a critical transition towards fossil fuel free construction.



**Carmel Reyes** Climate Action and Sustainability Manager,





One Click LCA

City Policy Framework for

Embodied Carbon

## Net Zero Carbon Buildings Commitment: Delivering at

Over the last twelve months, we have so more signatories moving from making to commitments to taking action. The Net Carbon Buildings Commitment continue to showcase the leadership of stakehold from across the built environment who are delivering decarbonisation at scale. In this section, we dive into examples of action from across the globe, showcasi how each stakeholder category is initial change throughout the building life cycles.

The GPT Group updated and expanded their commitment, and also delivered Australia's first Active/GBCA certified upfront embodied carbon development. The business currently has more of neutral floor space than any other Australian proowner. Last year, Africa Logistics Properties (ALI became the first African signatory to the Commit and in April 2023 the business submitted for EDI Zero Carbon certification for the ALP North Tatu Industrial development. SOM announced that it's a net zero emission business, and will continue to reduce emissions, setting its sights on becoming the serious without the use of offsets by 200 Managements.

Click on each signatory to learn more about the action they are taking

At One Click LCA, we are committed to power the makers of a zero carbon future. We do hat for the architecture, engineering and construction (AEC) and manufacturing industry by delivering easy to use and locally adopted life cycle analysis (LCA) software that helps its users calculate and reduce their buildings' and products' whole life carbon emissions and other environmental impacts.

In addition, with the One Click LCA Academy we offer training to thousands of construction professionals every year on the topic of LCA and decarbonisation, at no cost.

With our research work we provide useful insights to regulatory authorities and policymakers who are developing new policies and regulation around embodied carbon and whole life carbon emissions of buildings. Two recent examples of such involvement are the "City policy framework for dramatically reducing embodied carbon", which provides guidance for cities considering policies that can deliver the highest impact within their geopolitical contexts and regulatory systems; and secondly, the review of building carbon assessment regulations in Europe.

Panu Pasanen CEO, One Click LCA CERTIFIED AS CONSTRUCTION LCA SPECIALIST

with Construction LCA Bootcamp

ENROLL FOR FREE

One Click

LCA Academy

Built

BAM
Construction

Natwest

S

Commonwealt
Bank
Financial
Institution

Lloyds
Banking
Group



-12%

reduction in emission intensity in 2022 compared

with previous reporting

period



# What impact is the **Net Zero Carbon Buildings Commitment** having?

As of June 2023

**Businesses &** Organisations

States & Regions

Signatories commitment to reduce a cumulative total annual portfolio emissions of approximately

million\* (tCO2e)

Assets in more than

countries

Equivalent to emissions from 1.4 million homes' electricty use, or emissions sequestered by 119

million tree seedlings grown for 10 years\*\*

gnatories account for...

Around annual turnovei

**About** million sqm total floor area

Nearly assets

\*according to cumulative signatory data provided when joining the Commitment, \*comparative figure calculated acording to the US Environmental Protection Agency Greenhouse Gas Equivalencies Calculator

**Total Signatories** 

## **Business Signatories:** Analysis and Insights

Commitment signatories report annually on their progress towards portfolio decarbonisation, submitting both quantative and qualitative information on their emission reduction efforts. Here we look at the analysis and insights drawn from this data.

### **Insights:** How Signatories Set Their Targets for Decarbonisation?

When developing their bespoke decarbonisation roadmaps, businesses are setting targets to help steer their buildings to net zero by applying five critical metrics:

#### 1. Energy efficiency

A selection of signatories set quantitative metrics like target percentages for the reduction of either energy or emission intensity by 2030, or even earlier, compared with their baseline years. A few signatories work on enhancing energy efficiency in buildings through the process of achieving energy-related requirements under green building certifications or energy rating schemes, thus they have set target coverage and rating levels that buildings in their portfolios will achieve.

#### 2. Renewable energy (on-site)

Renewable energy is a key source of power that helps reduce scope 2 emissions under the GHG Protocol. Some signatories have set a target percentage of building energy to be powered by on-site renewable energy, with the majority aiming for no more than 20%, while some other signatories have set a quantitative target for on-site renewable energy capacity.

#### 3. Renewable energy (off-site)

An alternative source of renewable energy for buildings is off-site generation, which can be secured through procurement contracts by businesses. Some signatories have already been fulfilling their targets in procurement of renewable energy and communicating their achievements regularly. Others have set a target earlier than 2030, implying accelerated action to reduce emissions of their building portfolios.

#### 4. Maximising reduction of embodied carbon

For signatories who have direct control of new developments or major renovations, some have set quantitative targets in the form of a percentage reduction of embodied carbon emissions by 2030, or earlier. Signatories at an early stage of measuring have set targets covering life cycle assessments of new developments, and others are conducting retrospective analyses of projects in order to set future targets.

#### 5. Carbon offsets

Some signatories have set ongoing targets for offsetting their residual operational carbon emissions, meaning that procurement of carbon offset credits is already in place. A number of signatories have set explicit targets in procuring carbon removal credits for neutralising residual emissions.

### **Insights**: Verification Methods by Signatories

As part of the Commitment requirements, third-party certification schemes such as green building ratings are the preferred delivery method of asset verification for the Commitment, as the ratings demonstrate an asset's enhanced levels of energy efficiency beyond local regulatory requirements. Some schemes have even certified assets as net zero carbon.

The GBC network administers many certification schemes, but other third-party tools are often adopted in regional markets. For portfolio level verification, where individual asset level certification is not achievable for every asset, signatories verify performance through third-party portfolio data verification and assurance.

### Insights: Signatories' Advocacy Actions

Apart from decarbonising their own building portfolios, signatories are advocating for the uptake of net zero carbon buildings, taking actions to influence their value chain. Such advocacy actions send strong demand signals for net zero carbon buildings and accelerate a wider industry transformation to a more sustainable built environment.

- Tenant support on decarbonisation
Developers have initiated sustainability programmes
such as educational workshops and
certification support to involve tenants in reducing
emissions that arise from the whole building.
Signatories support tenants by providing sustainability
guidance on fit-out and improving energy efficiency in
occupied spaces.

#### - Sustainability services for clients

A number of signatories have provided advisory and consultancy services on building decarbonisation for their clients. As well as addressing their clients' needs, they encourage clients to adopt net zero carbon building methods during design and construction.

#### Supplier engagement

With procurement strategies and policies in place, signatories engage their suppliers through surveys, training, and conversations, to help them understand the requirements of sustainability procurement and take actions to fulfil them. A few signatories go further by mandating sustainability requirements on suppliers for compliance, as well as offering support to suppliers' decarbonisation journeys.

- Advocacy through membership and partnership
Signatories are further demonstrating their influence
through membership of, and active participation
in, national GBCs and other industry organisations.
They contribute their expertise, share knowledge
and experience in building decarbonisation through
advocacy at the membership organisations, and by
partnering for publication, case studies, research and
standard development.

#### - Advocacy communications

As industry leaders, signatories engage in different communications activities to accelerate further transformation. Key executives speak at events to promote the actions they are taking under the Commitment, to drive the decarbonisation agenda and stimulate further action within the industry. Signatories host campaigns and events to gather industry stakeholders for knowledge and experience sharing, and to foster dialogue for collaboration.





## Cities' Progress on Advancing Actions for the Net Zero Carbon Buildings Commitment

Many city signatories form part of the C40 network of cities, and are adopting resilient and inclusive climate action plans aligned with the 1.5°C ambition of the Paris Agreement. They are committed to enacting regulations and/or planning policy to help achieve net zero carbon buildings, as well as owning. occupying and developing municipal assets that are net zero carbon in operation.

#### New buildings net zero carbon by 2030

Cities are moving forward with more ambitious requirements to reduce emissions from new buildings, and in some cities fossil gas is already being removed as an option for space conditioning, water heating, cooking and other systems. The City of San Francisco is enforcing the All-Electric New Construction Ordinance introduced in 2021, which rules out fossil gas as an option for new buildings. In Los Angeles, similar action has been taken following the passing of a new ordinance in December 2022 that requires all new buildings to be all-electric.

#### Existing buildings net zero carbon by 2030

Actions to decarbonise existing buildings are continuing with equal ambition. In Washington DC, the District launched the in December 2021 by blending federal and local funds

and collaborating with District of Columbia Sustainable Energy Utility and the DC Green Bank to package a comprehensive suite of technical and financial assistance for affordable housing to achieve the Building Energy Performance Standard (BEPS).

#### Municipal buildings net zero carbon by 2030

In addition to being policymakers, cities are also often large owners of municipal buildings. These can include their own offices, and also public facilities like schools and hospitals, and they provide an opportunity to implement net zero carbon strategies ahead of, or in tandem with, policy measures. The City of Melbourne has developed a 'gas-free roadmap' which sets out a pathway to electrify the top 10 gas consuming municipal buildings by 2030. To complement and identify efficiency opportunities for municipal buildings, a new Emissions Reduction Plan (2021-26) was developed and endorsed.



**Paul Cartwright** Building Efficiency, Energy &

## States' and Regions' Progress on Advancing Actions for the Net Zero Carbon Buildings Commitment



States, regions and other subnational governments of the Under2 Coalition are committed to delivering net zero emissions by 2050 or earlier.

Through their policies, they're compelling developers to adopt higher standards for new buildings and retrofits that will ensure energy efficiency and greater climate resilience. In many places, such as California, Baden-Württemberg and Scotland, they are also leading by example in signing up to the Commitment. Prioritising the built environment in this way will be critical in driving down emissions and delivering a resilient net zero future.



lehmat Kaur



# List of Commitment Signatories

#### Black = Original Commitment (2019 version) Blue = Updated Commitment (2021 version)

#### **BUSINESSES / ORGANISATIONS**

**Active Super** — Sydney, Australia ADP Consulting — Melbourne, Australia AECOM (UK & Ireland) — London, UK AESG - Dubai, UAE

**Africa Logistics Properties (ALP)** — Nairobi, Kenya AMP Capital Wholesale Office Fund — Sydney,

Australia

**Antilooppi** — Helsinki, Finland

ARA Asset Management Limited — Singapore.

**Argent Services LLP** — London, UK

**Armstrong Fluid Technology** — Toronto, Canada Arthaland Corporation — Manila, Philippines

**Arup** — London, UK Assura — Warrington, UK



**Avara Amplus** 

Avison Young UK — Birmingham, UK **B+H Architects** — Toronto, Canada **BAM Construction** — Hemel Hempstead, UK Bennetts Associates — London, UK Berkeley Group — London, UK

#### Bioconstrucción y Energía Alternativa -San Pedro Garza García, Mexico

Bioregional – London, UK Brandix — Colombo, Sri Lanka British Land — London, UK



**Breathe Architecture** 

**Brunswick Property Partners** — Leeds, UK **Bruntwood** — Manchester, UK **Built** — Svdnev. Australia

Buro Happold — Bath. UK

CannonDesign — New York, New York, USA Cbus Property — Melbourne, Australia

Charter Hall — Sydney, Australia

**City Developments Limited** — Singapore, Singapore

Citycon — Espoo, Finland Commonwealth Bank of Australia - Sydney, Australia

Cundall - Newcastle, UK Currie & Brown (UK and Europe) — London, UK

Dar Group — Beirut, Lebanon **Deerns** — The Hague, Netherlands

Deloitte — Toronto, Canada **Deutsche Bank** — Frankfurt, Germany

**Dexus** — Svdnev. Australia EcoReal — Helsinki, Finland Evora Global — London, UK FORE Partnership — London, UK

Foster + Partners — London, UK Frasers Property Australia — Sydney, Australia GI Quo Vadis Inc — Montreal. Canada

Goldman Sachs - New York, New York, USA **Grab** — Singapore, Singapore

**Grainger Plc** — Newcastle upon Tyne, UK Granlund Group — Helsinki, Finland

Greengage Environmental — London, UK Grimshaw — London, UK

**Grosvenor** — London, UK

**Hesperia** — Subiaco, Australia

Hibernia REIT Plc — Dublin, Ireland Hilson Moran — Farnborough, UK

Hoare Lea LLP — Bristol, UK Hudson Pacific Properties — Los Angeles, California.

USA

ICD Brookfield Place — Dubai, UAE Instituição Adventista Sul Brasileira de Educação -

Curitiba Brazil Integral Group — Oakland, California, USA

Investa — Sydney, Australia IPUT Property Fund — Dublin, Ireland

ISPT — Melbourne. Australia

JLL - Chicago, Illinois, USA Joseph Homes — London, UK



Cambridge, UK

Keva — Helsinki, Finland

Kilroy Realty Corporation — Los Angeles, California, USA King's Cross Central Limited Partner — London, UK

Kingspan — Dublin, Ireland Koiamo — Helsinki, Finland

LähiTapiola Kiinteistövarainhoito — Espoo, Finland **Lamington Group** — London, UK

**Lemav** — Montreal, Canada Lendlease Australian Prime Property Fund (APPF)

Commercial — Sydney, Australia

Lendlease Australian Prime Property Fund (APPF) Industrial — Sydney, Australia

**Lendlease Europe** — London, UK Lendlease International Towers Sydney Trust -

Svdnev. Australia Lendlease One International Towers Sydney Trust -

Sydney, Australia Lloyds Banking Group — London, UK

MACE - London, UK

Maiid Al Futtaim — Dubai. UAE Make Architects - London, UK

Max Fordham — London, UK Modomo — London, UK

Monash University — Melbourne, Australia

Mott MacDonald — Croydon, UK Multiplex - London, UK

Natural Resource Defense Council - New York, New York, USA

NatWest Group — Edinburgh, UK

**NEO** — Taguig, Philippines Newsec Finland — Helsinki, Finland

Nexii Building Solutions Inc — Vancouver, Canada Nightingale Housing — Melbourne, Australia

One Click LCA - Helsinki, Finland OP Real Estate Asset Management - Helsinki,

Perkins&Will — Chicago, Illinois, United States

Petinelli — Curitiba, Brazil



Powerhouse Sydney, Australia

Precinct Properties — Auckland, New Zealand Premico Residential Fund III Closed End Fund -

QIC Office Fund (QOF) — Brisbane, Australia QIC Town Centre Fund & QIC Property Fund -Brisbane, Australia

QIC Active Retail Property Fund — Brisbane, Australia QIC Australia Core Plus Fund — Brisbane, Australia **Redevco B.V.** — Amsterdam. The Netherlands

Rest Direct Property Holding Trust — Sydney, Australia Robert Bird Group — London, UK

Salesforce - San Francisco, California, USA

Savills (UK) Limited — London, UK Schneider Electric — Paris, France Shaw Contract — Dalton, Georgia, USA

Siemens AG — Munich, Germany **Signify** — Eindhoven, The Netherlands

**SOM** — Chicago, Illinois, USA Stanhope — London, UK

Stockland — Sydney, Australia

**Surbana Jurong** — Singapore, Singapore Sydney Opera House — Sydney, Australia **Tandem Property Asset Management** — London, UK

**Technopolis** — Espoo, Finland The Crown Estate — London, UK

The GPT Group — Sydney, Australia

THREE Consultoría Medioambiental — Monterrey,

**Trevian Funds AIFM** — Helsinki, Finland Tritax Big Box — London, UK

Tritax EuroBox — London, UK **Troup Bywaters + Anders** — London, UK

UMC - Dubai, UAE Varma — Helsinki, Finland

Varming Consulting Engineers Ltd — Dublin, Ireland Veev - San Mateo, California, USA

Walsh Structural and Civil Engineers — London, UK Watkins Payne — London, UK

**Wereldhave** — Haarlemmermeer, The Netherlands Willmott Dixon — Letchworth Garden City, UK

WSP UK Limited — London, UK YLVA — Helsinki, Finland

#### **GREEN BUILDING COUNCILS**

**UKGBC** — London, UK FiGBC — Helsinki, Finland

#### CITIES

Copenhagen, Denmark Cape Town, eThekwini (Durban), Johannesburg & Tshwane. South Africa Heidelberg, Germany

Helsinki, Finland London, UK

Los Angeles, New York City, Newburyport, Portland, San Francisco, San Jose, Santa Monica, Seattle & Washington DC, USA

Medellín, Santiago de Cali, Colombia Melbourne & Sydney, Australia Montreal, Toronto & Vancouver, Canada

Oslo. Norway Paris. France Stockholm, Sweden Tokyo, Japan Vallalodid, Spain

#### **STATES & REGIONS**

Baden-Württemberg, Germany California, USA Navarra & Catalonia, Spain Scotland, UK Yucatan, Mexico





# **COP28**: A Breakthrough for the Sector

The 28th session of the Conference of the Parties (COP28) to the United Nations Framework Convention on Climate Change (UNFCCC) will take place in Dubai, United Arab Emirates from 30 November to 12 December 2023. This provides another opportunity for progress towards a key breakthrough moment for the built environment, stemming from deep and urgent action from all stakeholders.

The first Global Stocktake (GST) will take place and provide a comprehensive assessment of progress since adopting the Paris Agreement. This will help align efforts on climate action, including measures that need to be put in place to bridge the gaps in progress.

COP28 will build on the successes of COP27 where the 2030 Breakthroughs were introduced.

This includes the 2030 outcome for the built environment outlining the levers of change required to transition the sector.

Non-party (private, city, academia etc.) stakeholders are showcasing action by participating in the Race

At COP28 we hope to see increased commitment from national governments as part of the Buildings Breakthrough, co-led by France (Ministry of Ecological Transition) and the Kingdom of Morocco (Ministry of National Territory Planning, Land Planning, Housing and City Policy), coordinated under the umbrella of the UNEP-hosted GlobalABC.





"The built environment is critical for climate action. The building and construction sector is responsible for almost 40% of global energy-related carbon emissions and 50% of all extracted materials. The Buildings Breakthrough provides a platform for delivering on climate action, nature loss and the energy transition in a just and equitable way for a more resilient future for all."



H.E. Razan Al Mubarak JN Climate Change High-Level Champion, COP28

### Race to Zero and Race to Resilience

Led by the UN Climate Change High-Level Champions - Dr Mahmoud Mohieldin and H.E. Ms Razan Al Mubarak – the Race To Zero mobilises non-state actors (businesses, cities, regions, financial, healthcare and educational institutions) to commit to robust net zero targets and collectively halve global emissions by 2030.

Since June 2020, over 11,000 members have joined the campaign and are committed to reducing emissions across all scopes in line with the Paris Agreement, with transparent action plans and robust near-term targets.

The building and construction sector plays a key role in the Race to Zero campaign, with a growing number of key stakeholders joining the race:

of major architects/ engineers by revenue

of major construction companies by revenue

of major real estate investment companies by revenue

of major real estate asset managers by

Race to Resilience, the sibling campaign to Race to Zero, is the race to catalyse a step-change in global ambition, to accelerate the investment and implementation of adaptation solutions, and to put people and nature first in pursuit of a resilient world. A world where we don't just survive climate shocks and stresses, but thrive in spite of them.

The ultimate goal of the Race to Resilience is to increase the resilience of four billion people living in vulnerable communities, in collaboration with partner organisations from around the world, while developing tools to support them in their

**Read more** about the latest progress on the campaigns.

Don't get left behind, join the race today.



Will Wild Built Environment Lead, Climate Champions Team



2030 Breakthroughs



Race to Zero



Race to Resilience



## COP28 UAE: Time for Action

COP28 in the UAE represents an opportunity to showcase the action being taken in the region to decarbonise the built environment. Stakeholders from across the value chain recognise the role that the built evironment plays in achieving sustainable and equitable growth.

For non-party private stakeholders, they are showcasing what is achievable now with innovative solutions being implemented by leaders. National governments must now rise to the challenge. The United Arab Emirates signed the Net Zero 2050 Charter, confirming their national net zero target. Other countries have also set net zero targets, Oman by 2050 and Saudi Arabia by 2060. But the region must do more.

COP28 will bring together governments alongside businesses and civil society to ensure concrete commitments, systemic strategies and inclusive collaboration

Priority focus areas at this year's COP are expected to include the energy transition, inclusivity, youth, and nature — and the building and construction sector is a critical component in supporting action across all of these themes.

In collaboration with the #BuildingToCOP Coalition, and delegates of several GBCs, WorldGBC will represent the global network by sharing existing solutions from the sector to address climate, resilience and biodiversity crises, to enable the transition to a future that is net zero, regenerative, and equitable.

Together, we can accelerate action and achieve a breakthrough moment for the built environment.



COP28 UAE

"COP28 presents a key opportunity for and construction sector. As the UNEPhosted Global Alliance for Buildings and Construction, we look forward to working closely with the UAE, with the entire MENA and with the BuildingToCOP Coalition on advancing the Buildings Breakthrough



Nora Steurer JNEP, Global Alliance of Buildings "As we approach COP28, the spotlight on the role of buildings to mitigate climate risks better for both people and planet: designed demand for renewable energy options. We urge all stakeholders from the building and take action and join the Commitment and



Haithem Ibraheem

"2023 is the year of sustainability and the year during which UAE will host COP28 in Expo City, in Dubai. Emirates GBC believes that the built environment must be positioned as a critical aspect in achieving the needed transition to a zero emissions future and as a solution to scaling economic, social and climate resilience, in order to keep a 1.5°C future within reach. We see COP28 as the COP of ambitious solutions and accelerated actions."



Dr Ali Al Jassim













## In Focus: **GBC** Leadership Action

### Advancing Net Zero in Kenya: Building capacity

In early November 2022, Kenya Green **Building Society (KGBS) joined the Advancing** Net Zero programme, joining 33 other GBCs in the commitment to support their local building sector in the transition to a net zero built environment.

The programme complements KGBS's activities in World Resources Institute's (WRI) Zero Carbon Building Accelerator project, working with Laikipia county to identify policy and regulatory pathways that enable the construction and operation of zero carbon buildings in the county.

As the pilot and face of the Zero Carbon Building Accelerator project, Laikipia county has taken a bold step towards a more sustainable, net zero future by participating since June 2022.

The county aims to reduce the carbon footprint of buildings and, with the assistance of KGBS and WRI, is developing a baseline for the building sector in the county, identifying gaps and developing strategies to overcome the barriers to zero carbon buildings and improve the business case.

By participating in this project, Laikipia county is setting an example for others to follow, demonstrating that sustainable practices can be incorporated into infrastructure development. KGBS attended COP27, where CEO Nasra Nanda spoke at the 'Climate Resilience in the Built Environment: Adapting to a Changing Climate' event at the Buildings Pavilion, with a focus on civic participation. As a result, KGBS was able to attend Kenya's Delegation Meetings at COP27 and succeeded in including the built environment amongst the climate action agenda discussed in the report submitted to the national government, something that was not formally touched on before in the discussions.

Kenya is an emerging green and sustainable finance hub driven by private sector commitments and supportive government policies. Last year, KGBS facilitated its first cross-border capacity building sessions in Nigeria for FMDQ Group and FSD Africa.

These sessions took participants through a number of diverse topics including ESG, green real estate, green financing, green bonds, sustainable design and green buildings (including green building certifications) with a focus of highlighting Kenya as a case study and learning path for Nigeria.

The sessions aimed to enhance the capacity and knowledge to attract green financing for buildings, and understand Kenya's journey so far, as Nigeria embarks on the same journey.

The new government has placed the green agenda as a key priority, and as KGBS, we are keen to ensure that the built environment is part of the solution.



Nasra Nanda



Louis Kariuki









## Advancing Net Zero in Chile: Mobilising the Industry

In June 2022, the Climate Change Framework Law was enacted, making Chile the first developing country to have a carbon neutrality commitment by law. This important milestone builds on the launch of the Long-Term Climate Strategy to 2050, defined as the general long-term guidelines the country will follow in a transversal and integrated manner.

The Long-Term Climate Strategy is recognised in the Paris Agreement and linked to Nationally Determined Contributions (NDCs), sectoral mitigation and adaptation plans (including infrastructure, housing and cities), and regional and community action plans.

Chile GBC participated as an expert stakeholder in various roundtable discussions related to the infrastructure, housing and cities sectors. We discussed the importance of this strategy in combination with other public and private development tools and roadmaps that are linked to whole life carbon management and circular economy for the construction sector

At the local level, Chile GBC has led the discussion on the importance of considering whole life carbon and its link with circularity strategies to contribute to the reduction of environmental impacts. Developing technical documents that provide valuable information to the sector, including carbon management manuals and guides for materials and buildings, has been established as a priority.

In October 2022, during Chile Green Building Week, the document 'First Diagnosis of Regulatory Policies and Instruments in Chile for the Construction Sector' was launched, which highlights gaps, opportunities and strengths of different sectors including industry, consulting and services, real estate development and academia.

The document 'Strategies for Measurement, Verification and Communication of Environmental Impacts in the Construction Sector' was launched at the members assembly in April 2023. This technical manual compiles the main methodologies, standards, software and certification schemes related to carbon management in materials and buildings, and strategies to move towards net zero.

In partnership with CTeC (Centro Tecnologico de la Construcción, Santiago), Chile GBC launched the first stage of the P+MAS Passport - a sustainable materials and assets passport that is the first of its kind in Latin America. The project includes environmental impact performance indicators and an embodied carbon baseline in collaboration with the <a href="Embodied Carbon">Embodied Carbon</a> in Construction Calculator (EC3) from Building Transparency, Carbon Leadership Forum and Building Information Modelling (BIM). This will allow for impact management through reduction strategies and comparability based on carbon intensity



María Fernanda Aguirre Executive Director, Chile GBC





### **Advancing Net Zero in India:** Mission on Net Zero

Over the last two decades, IndiaGBC has spearheaded the green building movement in India with immense support from various stakeholders. India's green building movement began in 2001 with the certification of India GBC's 20,000 sqft (square feet) headquarters; the total now exceeds a 10.27 billion sqft green building footprint with over 11,053 green building projects.

In 2003, India GBC headquarters achieved the status of the first Platinum rated building in India, and later upgraded to net zero energy in 2019 to showcase the viability of net zero energy buildings in the country. Furthermore, India GBC's Executive Board strategically chose to have a stepby-step approach for excellence in net zero energy, water and waste subjects to eventually achieve the target of net zero carbon.

Subsequently, on Earth Day in 2021, India GBC launched 'IGBC Mission on Net Zero' with a vision to facilitate India becoming one of the foremost countries in transforming to net zero by 2050 in all aspects, i.e. energy, water, waste and carbon. During the last four years, India GBC has launched exclusive rating systems on net zero energy, water, and waste to landfill to facilitate this transition. India GBC has also formed national committees with industry leaders and experts to develop these rating systems.

So far, more than 350 organisations from the Indian building sector have committed to achieve net zero status for their new and existing buildings, and over 100 projects across the country are using the India GBC net zero rating systems.

India GBC is working closely with several state and central government bodies (associated with housing and urban development, environment, renewable energy, power, and water) and financial institutions (public and private) in the country on policy interventions and incentives. Alongside this, India GBC is collaborating with leading industry associations (of developers, architects, landscape architects, interior designers, and engineers) to advance the net zero agenda in the country.

Despite the challenges, India GBC is committed to achieve the net zero carbon status for buildings and the wider built environment in the coming years through a multi-pronged approach and intermediate targets.

At the COP26 Summit in Glasgow, India's Prime Minister, Shri Narendra Modi, made a statement that India will achieve the target of net zero carbon in emissions by 2070. India GBC's vision and all its initiatives are fully aligned and committed with the national priorities and India's Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate.



Anand Muthukrishnan



Sampath Kumar Kabothu













Building resilience is crucial to the mitigation of emissions and adaptation to the effects of the climate crisis.

Industry leaders are accelerating action to decarbonise their own portfolios and beyond, engaging with their value chains both upstream and downstream to facilitate change.

Our ANZ global programme partners share what actions they are taking to decarbonise and build a sustainable, resilient, equitable built environment for everyone,





## **Systems Thinking Our Way Towards Net Zero**

Data driven systems thinking that joins the dots at estate level and beyond, rather than isolated buildings made from unconnected components, will help us win the net zero prize.

The world has many complex problems and one of the greatest issues is the need to cut carbon in the built environment. As an industry, we have to embrace the net zero challenge to radically decarbonise our buildings, but achieving this remains incredibly complicated. Cutting carbon in buildings has many moving parts and interconnected issues, with multiple stakeholders and sometimes conflicting technical, social, economic, and financial constraints. There is always the risk that a solution for one problem can potentially create new problems or exacerbate existing ones down the line. Seen in these terms, it makes less sense for developers and owners of multiple buildings to approach net zero piecemeal at the individual building level. Instead, they should step back to see the whole picture and understand how their buildings – and the spaces between the buildings – interrelate with each other at the estate, campus, and precinct level.

Viewing things holistically as a system of integrated parts, rather than as a series of isolated assets to be improved, leads to more robust decarbonisation strategies and targets, and more realistic net zero roadmaps. It enables better decision-making too – from deciding which low carbon technologies and measures to adopt, to deciding whether to reuse or rebuild assets.

As a multi-disciplinary design consultancy, we at Mott MacDonald have been pushing this systems thinking approach by teaming up our experts. For the London School of Economics, for example, our net zero and sustainability experts worked with our mechanical, electrical and plumbing (MEP) engineers to create an estate-wide net zero strategy for the university's inner-city campus of 30 buildings. It included the use of renewables and low carbon retrofit measures.

Engaging properly with stakeholders is critical to this kind of systems thinking. It's important to note that good data fuels the insight needed to create a 360-degree view of things.

Our engineering science colleagues routinely use dynamic parametric modelling that applies algorithms to guickly analyse thermal and energy performance of multiple building elements at portfolio level, which otherwise would have to be modelled separately. This helps us when analysing large portfolios against short timescales, as we've done for the UK Department for Education. We produced feasibility studies for 60 schools across England to secure funding for energy efficiency measures.

We've taken this portfolio approach a step further with our Smart Invest tool, which was piloted by the city of Niort, in France. Using Smart Invest, we simulated alternative scenarios for maintenance and investment operations across 150 assets as diverse as libraries, swimming pools, technical buildings, and museums. This has reduced risk and improved the impact of strategic environmental, productivity and operational objectives, evaluated against agreed budgetary constraints.

We have the desire, talent and tools to make the change. The difference between success and failure is therefore a question of viewpoint and how we harness it to create the desired outcomes.



James Middling









## **A Future in Action:** The Path to Carbon Neutrality

At Cemex, our purpose is to build a better future and to do that we must address humanity's most pressing issue: climate change.

For many decades we have leveraged our technical capacity to implement sustainable practices that mitigate CO<sub>2</sub> emissions across our operations. In 2021, we launched Future in Action, Cemex's programme to achieve sustainable excellence through climate action, circularity, and natural resource management, with the primary objective of becoming a net zero CO<sub>2</sub> company. Through Future in Action, Cemex has achieved record-breaking progress in reducing its carbon footprint over the past two years. The full-scale development of breakthrough technologies across the whole value chain will help us achieve zero emissions across the company by 2050.

Based on six pillars, Future in Action topics have defined key performance indicators that are allowing us to track our performance across the value chain in the construction industry to achieve our ambitious targets.



Sustainable Products & Solutions



Circular Economy



Water and **Biodiversity** 



Decarbonising

our Operations

Innovation & Partnership



Promoting a **Green Economy** 





#### **Decarbonising our operations**

Cemex has been working globally to take full advantage of proven technologies and maximise the technical levers currently available in the cement and concrete production processes to decarbonise our global operations.

To achieve our 2025 and 2030 CO<sub>2</sub> reduction goals, we are focused on maximising the following proven levers:

- Accelerating the use of alternative fuels with high biomass content
- Clinker factor optimisation
- Increasing the use of decarbonated raw materials
- Improving specific heat and energy consumption
- Increasing the consumption of clean electricity
- Reducing our transport emissions

In 2022, Cemex was among the first companies in the cement industry to achieve validation by the Science Based Targets initiative (SBTi) of our scope 1, 2 and 3 2030 targets that align to the 1.5°C scenario and our 2050 net zero CO, emissions goal. With this, Cemex has set out one of the most ambitious decarbonisation pathways in the cement industry.

### Sustainable products and solutions

Product decarbonisation is crucial to allowing our customers to reduce emissions in their projects and improve resilience across the value chain, therefore Cemex is focused on providing a comprehensive portfolio of sustainable products. Vertua®, launched in 2020, is a suite of sustainable products and solutions that deliver five key sustainability attributes: lower carbon, energy efficiency, water conservation, recycled material, and design optimisation. As of 2022, 41% of total cement sales and 33% of total concrete sales were attributed to Vertua®, putting Cemex on track to achieve our 2025 goal of sustainable products accounting for 50% of total sales in cement and concrete.

#### **Outstanding sustainable projects**

We are proud that in less than three years of launching Vertua®, our suite of products and solutions is supporting our customers, architects, designers, and construction professionals to respond to the increased trend of sustainable building certifications such as LEED, BREEAM, WELL, EDGE and CASA, among others. Its recent application on the Snapdragon Stadium at the San Diego State University contributed to its achievement of LEED Gold certification and an overall reduction in CO<sub>2</sub> of almost 4,000 tonnes. It was also instrumental at the Eco 23 Residences (RDOM) mixed-use development project in the

We have been preparing our sales force and customers to understand the application and benefits of our solutions in the entire construction life cycle, and providing environmental product declarations (EPDs) or global warming potential (GWP) calculations when required.







## **Decarbonising the Supply Chain**

Kingspan is the global leader in high performance insulation and building envelope solutions. Through our Planet Passionate programme, launched in 2019, we are on a mission to halve the carbon intensity of key raw materials from our primary supply chain partners.

Although our supply chain decarbonisation journey is challenging and continuous hurdles are faced, we are continuously putting measures in place to progress this goal

We are among a growing number of companies that are recognised by the Carbon Disclosure Project (CDP) for actively engaging supply chains. Each year, we invite a group of supply partners to the Kingspan Supplier Forum - with a mix of materials, geographies and sectors represented. The intent of the forum is to align everyone around the delivery of the Planet Passionate programme and support suppliers in advancing the agenda in their organisations too.

Mark Broderick, Kingspan Insulated Panels Procurement Director, arranges the forum annually and said, "About 80% of our carbon is sitting in our supply chain, and we have committed to a 50% reduction in product carbon intensity from our primary supply chain partners by 2030, so we need their support and commitment to hit our own targets."

The event is focused on knowledge sharing. Engaging suppliers has benefitted us as it has accelerated the process of bringing lower embodied carbon materials into their supply chain. These new products sit under our lower embodied carbon (LEC) badge, such as QuadCore LEC. To further tackle upstream GHG supply chain emissions we have invested in H 2 Green Steel (H2GS), a company pioneering green production methods for steel manufacturing using hydrogen.



65% of Kingspan's business revenue comes from its insulated panels. Moving to the use of lower emissions steel would see a reduction in embodied carbon in these products by over 20%, and deliver up to a 35% reduction in the Group's scope 3 emissions.

With targets set for 2030, maintaining momentum is crucial for success. To create and drive pace around the delivery of our Planet Passionate targets, it continues to be central to the business' strategy and future profitability. Continuous engagement, annual progress tracking and collaboration with our suppliers is critical for us to achieve emissions reduction through our supply chain.

In addition to supply chain focus, we aim to achieve a 90% reduction in manufacturing carbon emissions by 2030 from a 2020 base year. We have already made good progress; in 2022 we achieved a 26% reduction in absolute scope 1 and 2 GHG emissions, marking significant progress against our SBTi approved target.



Bianca Wong Global Head of Sustainability. ingspan Group Plc







# We invite you to Join Us and Take Action Today!

Our time is running out and the reports are clear — we have to act NOW. Let 2023 be the year we get the Global Stocktake on emissions right.

WorldGBC invites all stakeholders within the built environment to take action and work with us and our global network of GBCs, as well as our partners to ensure that we create sustainable, net zero buildings for everyone, everywhere.

We encourage everyone to join the Race to Zero and become a frontrunner by signing the Net Zero Carbon Buildings Commitment. Let's go further and faster together, and tackle the emissions from the built environment.

Participate in our #BuildingToCOP28 campaign that runs throughout the year leading up to the conference, join us this World Green Building Week 2023 in #BuildingTheTransition and get in touch with your local GBC to find out how you can be #AdvancingNetZero.



#BuildingToCOP28



World Green Building Week #BuildingTheTransition



#AdvancingNetZero #NZCBCommitment



#BuildingTheTransition



