ADVANCING NET ZERO

WORLD GREEN BUILDING COUNCIL

Status Report June 2021

Acknowledgements

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WORLD GREEN BUILDING COUNCIL

Foreword

**CRISTINA GAMBOA, CEO,
WORLD GREEN BUILDING COUNCIL**

It is a crucial year at the start of a crucial decade that brings an unprecedented opportunity for the building and construction sector to demonstrate its central contribution to achieving the Paris Agreement goals.

We are prepared to collaboratively tackle the emissions the sector is responsible for. WorldGBC and a coalition of NGOs are supporting the 'Cities, Regions and Built Environment Day' at the United Nations Framework Convention on Climate Change 26th Conference of Parties (COP26) to bring this to the forefront of the conversation.

As national governments submit updated Nationally Determined Contributions and embrace the opportunity of the green economy, we must ensure that the decarbonisation of the built environment is recognised as a specific target within their climate commitments and plans. The Race to Zero and Race to Resilience campaigns highlight non-party actor leadership ambition and action, demonstrating industry readiness for bolder regulation.

> ***We stand ready to harness the power of our Green Building Council (GBC) network and their membership to advocate for further government regulation and action towards net zero emissions in the lead up to COP26 and beyond.***

This report highlights the game changing achievements from GBCs, partners and Net Zero Carbon Buildings Commitment signatories.

Amongst these achievements will be the announcement of the next milestone — advancing a Whole Life Carbon Vision through updating our Net Zero Carbon Buildings Commitment. This vital expansion will ensure our sector tackles emissions throughout the building lifecycle with a focus on upfront embodied carbon of materials and construction.

I am hopeful for the future. I am energised to see Advancing Net Zero build momentum and continue to deliver on our shared vision of sustainable buildings for everyone, everywhere.

ANZ partner messages

As the world's largest manager of commercial property, CBRE has the opportunity – and the motivation – to help stem the rise in global temperatures and preserve our planet for future generations. We support WorldGBC's Advancing Net Zero project and the crucial work it does in engaging the sector to advance the uptake of net zero. At CBRE, we continue to do our part to significantly reduce emissions from our own operations and the properties we manage for clients.

Jennifer Leitsch

VICE PRESIDENT, CORPORATE RESPONSIBILITY, CBRE

The world is warming at an unsustainable rate and the built environment contributes about 40 percent of global greenhouse gas emissions. This means our industry has a unique responsibility and opportunity to act.

Given what's at stake, it's no longer enough to make ambitious commitments without translating them into real and tangible outcomes. This is why Lendlease has committed to #MissionZero and supporting important industry initiatives like the Advancing Net Zero project by the World Green Building Council. Industry collaboration is critical in order for our sector to meaningfully reduce its carbon footprint and tackle the climate crisis head on — it's our biggest challenge, with our smallest target.

Cate Harris

GROUP HEAD OF SUSTAINABILITY, LENDLEASE

The latest Advancing Net Zero Status Report showcases the critical role of the built environment in tackling carbon emissions and slowing the advance of global warming. There is a clear business case to realising net zero buildings, and business must play a driving role in the revolution that we need. As a signatory to the Commitment, Kingspan is proud to support this vital initiative, and share the success we have had to date in our own journey towards decarbonisation.

Bianca Wong

GLOBAL HEAD OF SUSTAINABILITY, KINGSPAN GROUP

We have entered a critical decade for the building sector to action net zero carbon and make it a reality at scale. Mott MacDonald is a proud signatory to the Commitment, it is in alignment with our carbon neutral certified company achievement and goal to become a Net Zero company. Advancing Net Zero is providing the critical guidance that we need to scale Net Zero Carbon Buildings and the whole life carbon vision is an important evolution for us to reach the carbon reduction that is essential for our future.

Amanda Sturgeon

MOTT MACDONALD, REGENERATIVE DESIGN LEAD, ASIA PACIFIC, NEW ZEALAND, AUSTRALIA

To limit the consequences of climate change, net zero must become the rule, not the exception, across the built environment sector. WorldGBC's Advancing Net Zero programme calls upon our industry to rise to the challenge. This initiative enables us to translate long-range ambitions into transformative actions we can take day by day.

At SOM, we are increasingly empowered by the positive change we're able to achieve by working with partners along the value chain. We are eager to lead by example, and through collaboration, to reinforce our commitment to decarbonising the sector — one team, one project, one place at a time.

Mina Hasman

ASSOCIATE DIRECTOR, SKIDMORE, OWINGS & MERRILL

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WORLD GREEN BUILDING COUNCIL

About WorldGBC

The World Green Building Council (WorldGBC) catalyses the uptake of sustainable buildings for everyone, everywhere.

Transforming the built environment across three strategic areas—climate action, health & wellbeing, and resources & circularity—we are an action network comprised of 70 Green Building Councils around the globe.

As members of the UN Global Compact, we work with businesses, NGOs and governments to drive the ambitions of the Paris Agreement and UN Global Goals for Sustainable Development. Through a systems change approach, our network is leading the building and construction industry towards a net zero carbon, healthy, equitable and resilient built environment.

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Delivering a Whole Life Carbon Vision

In 2018, the Intergovernmental Panel on Climate Change warned that global warming must not exceed 1.5°C to avoid the catastrophic impacts of climate change. To achieve this, greenhouse gas (GHG) emissions must halve by 2030 — and drop to net zero by 2050.

Despite the effects of the COVID-19 pandemic, 2020 - 2021 saw a net rise in emissions, with the building and construction sector continuing to contribute a large proportion.

> ***A bold approach is urgently required to reduce the impacts of the sector, which is globally responsible for 36% of energy consumption, 38% of energy-related carbon emissions, 50% of resource consumption, and expected to double in total footprint by 2060.***

And, whilst embodied carbon currently accounts for 10% of emissions globally, it is estimated that more than half of total carbon emissions from all global new construction between 2020 and 2050 will be due to upfront emissions.

WE MUST TAKE ACTION, TOGETHER.

WorldGBC's Advancing Net Zero is a global programme driving the 'Climate Action' pillar of our 2019 global strategy 'Sustainable Buildings for Everyone, Everywhere'. We work with GBCs to advance our Whole Life Carbon Vision to decarbonise the built environment globally by addressing both operational carbon and embodied carbon emissions. We deliver action through seven impact pathways: collaborate, advocate, rate, communicate, educate, innovate and invest.

The adoption of the Whole Life Carbon Vision continues apace with GBCs, helping to create opportunity by identifying innovative new projects, workstreams and initiatives to apply the concepts within a local context. This is building resilience for the planet, for people and for economies.

GBCs continue to lead in efforts to decarbonise the built environment through a multitude of activities, initiatives and campaigns. Crucially, one of the key ways in which GBCs are embracing, and in turn contributing to action being taken towards the Whole Life Carbon Vision, is through their rating tools. These schemes are regularly updated and increase standard over time, such as the recent update to Green Star by GBCA (Australia). A six star rating requires buildings to be fossil fuel free and operationally net zero, with whole life carbon considerations taken into account across an assets lifecycle. This standard will gradually be introduced to the lower levels of Green Star over time, ensuring that this leadership position becomes a minimum standard by 2030.

We also continue to see the benefits of local tools driving local action relative to market conditions. HKGBC (Hong Kong) are in the process of developing a new tool relevant to their local context, whilst SwedenGBC and EmiratesGBC are working on certifying the first buildings using their certification standards, NollCO_2 and ZeroEnergy / ZeroCarbon respectively. The continued development of both existing and new ratings tool will ultimately support the implementation of the whole life carbon roadmaps that many GBCs are working on via the #BuildingLife project and beyond.

Please see our World Map graphic on page 16-17 for the GBCs participating in the projects, and click on their logo to find out how they are advancing net zero buildings in their markets.

WORLD GREEN BUILDING COUNCIL

CASE STUDY: GREEN STAR - GREEN BUILDING COUNCIL AUSTRALIA

Launched by Green Building Council of Australia (GBCA) in 2003, Green Star is Australia's largest voluntary and holistic sustainability rating system for buildings, fitouts and communities. As of June 2021, Green Star has issued 3,000 Green Star certifications, representing 44% of commercial business district office space, 20% of retail space, and more than 17,000 hectares of certified precincts. Green finance mechanisms, construction approvals, tenant requirements, and building owners use Green Star to demonstrate the delivery of green buildings. Ratings for new assets are awarded on a scale of 4 star (best practice), 5 star (national excellence), and 6 star (world leadership).

In 2018, GBCA released a roadmap to decarbonise new buildings, fitouts, and communities by 2030. In addition to a wide-ranging advocacy platform in partnership with Australia's property sector, the roadmap called for updating Green Star. The update, called Green Star Future Focus, outlined a set of decarbonisation requirements that would be introduced over the next decade for all buildings seeking a rating. The goal of the update was to create climate positive assets, or fossil fuel free, highly efficient buildings and communities powered by renewables, built with low upfront carbon emissions, with remaining emissions compensated by nature.

Green Star Buildings, released in late 2020 was the first of the rating tools to introduce these requirements. Green Star Buildings aims to deliver healthy, resilient, and positive places for people and nature, built responsibly, and showcasing leadership. Key to the rating tool is delivering buildings that meet or exceed what is required to meet a 1.5°C trajectory.

To get a highly desired 6 star rating, any new building or major refurbishment using the new rating tool would need to be built to be climate positive. This requirement would then expand to cover 5 star rated buildings for those that register from 2023 and a 4 star rating from 2026. The requirement also applies to any building that is finished at or after January 2030.

The introduction of these requirements over the next decade aims to ensure Australia can decarbonise new building construction. The targets, and the consensus around them, would serve to prepare industry, create knowledge, and identify best practice solutions to enable a future update to Australia's National Construction Code.

The update to Green Star serves as an example of how holistic rating tools, together with a wide advocacy agenda, can serve to transform the market and deliver the goals of the Advancing Net Zero program.

JORGE CHAPA, HEAD OF MARKET TRANSFORMATION, GREEN BUILDING COUNCIL AUSTRALIA

FROM 2020	FROM 2023	FROM 2026	FROM 2030
onwards buildings that seek this rating	onwards buildings that seek this rating	onwards buildings that seek this rating	
6 star	5 star	4 star	
WORLD LEADERSHIP will need to be *Climate Positive*	**AUSTRALIAN EXCELLENCE** will need to be *Climate Positive*	**BEST PRACTICE** will need to be *Climate Positive*	Following this trajectory aims to create the conditions so that Australia's National Construction Code can be updated to deliver Climate Positive Buildings

greenstar

Elevating the climate ambition of the Net Zero Carbon Buildings Commitment

The Net Zero Carbon Buildings Commitment (the Commitment) sets out a leadership position for stakeholders displaying appropriate ambition and action in tackling the climate emergency, and specifically the emissions resulting from the built environment and the assets over which they have direct control.

The Commitment sets the direction of travel for the industry, providing a platform for championing leadership action in truly accounting for the emissions of projects being built today, whilst enabling the low carbon solutions for buildings of the future. To continue reflecting this industry leading position, WorldGBC will expand the scope of the Commitment to recognise leadership action in tackling embodied carbon emissions from the building and construction sector, and introduce requirements to consider whole life carbon, a key step in delivering our Whole Life Carbon Vision.

To ensure the Commitment maintains its sector leading position on net zero buildings, the 2021 update will include a refinement of the existing requirements for addressing operational carbon, as well as the addition of requirements on embodied carbon, combining to outline a whole life carbon approach to sustainable development. This follows the targets and actions set out in Bringing Embodied Carbon Upfront in 2019 and promotes leadership action now.

Our goal is to stimulate the supply chain solutions necessary, in order to prevent and mitigate embodied emissions, increase resource efficiency and stimulate the development and market supply of low carbon products and construction processes, the sector must (1) reduce and account for its impact on the environment and natural resources through design and construction, and (2) generate a strong and urgent demand signal to supply chains and investors to activate the necessary finance to decarbonise heavy industry processes.

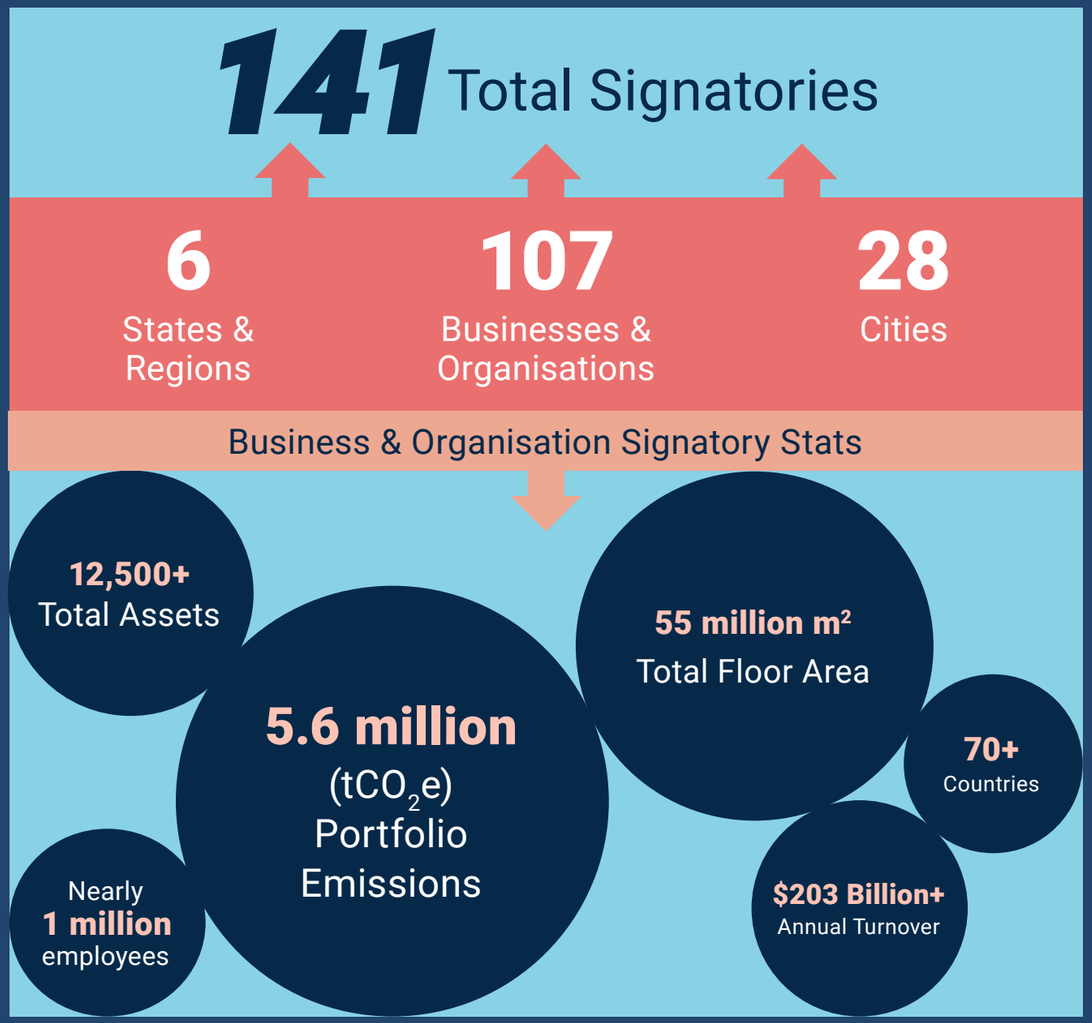
WorldGBC advocates for an approach to total decarbonisation of the building and construction sector that prioritises demand reduction strategies, and utilises offsets as a necessary part of the transition in order to compensate for the residual impacts of the sector and facilitate positive impact in pursuit of net zero emissions.

To support signatories in their efforts to pursue the best quality and most impactful offset choices, WorldGBC will release *'Achieving Net Zero Whole Life Carbon: Position Paper on Offsetting via Compensation and Negation for the Building and Construction Sector'*, that contains recommendations for when, how, and why carbon compensation and offsetting should be used in pursuit of net zero carbon emissions in the buildings sector.

Keep your eyes peeled for the release - coming soon!

WORLD GREEN BUILDING COUNCIL

What impact is the Net Zero Carbon Buildings Commitment having?



Aligning Initiatives in the Race to Zero

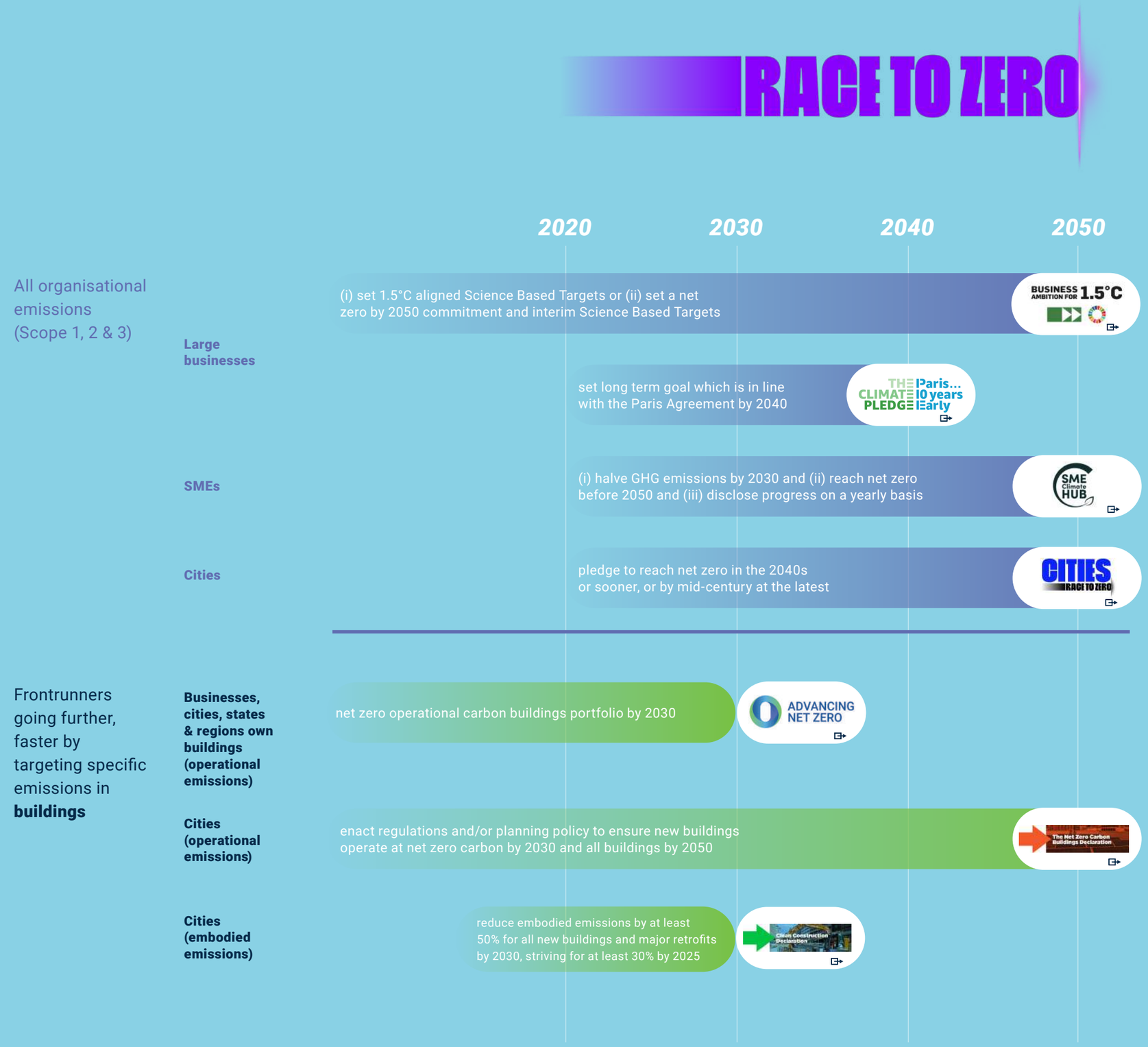
We continue to strive for further alignment between industry initiatives, radical collaboration will be crucial to achieving our shared goals. The Net Zero Carbon Buildings Commitment continues to be a powerful initiative, setting a leadership position and a crucial deadline of 2030 for those organisations who want to go further and faster by targeting specific action on emissions from the built environment.

Different climate initiatives have different requirements, deadlines and goals. It may be appropriate for some to sign multiple initiatives covering different areas or an initiative specifically focused on their industry or activities.

For those non-party actors that have set a net zero target covering the whole scope of their business, organisation, city, state or region emissions footprint via one of the official Race to Zero Partners such as Business Ambition for 1.5°C, The Climate Pledge or the SME Climate Hub, WorldGBC strongly encourages them to also take action earlier on their built environment assets.

BE A FRONTRUNNER IN THE RACE TO ZERO

By signing the Net Zero Carbon Buildings Commitment as well, those stakeholders are setting a leadership position to achieve net zero operational carbon by 2030 for their portfolio. Going further and faster than others, and contributing to wider market uptake of net zero, taking actions that are stimulating the innovative approaches, solutions and business models necessary for the entire sector to reach 2050 goals.



GBC Action Timeline

2020

May

WorldGBC MENA Green Building Congress
view full video playlist from the congress

ÖGNI release
Österreichische Gesellschaft für Nachhaltige Immobilienwirtschaft (Austrian Sustainable Building Council) release - 'Buildings and Energy'

FIGBC release
Low carbon vocabulary for real estate and construction sector (FI-ENG)

June

European Regional Network launch
'Starting a renovation wave'

August

PolishGBC & ChileGBC
join the Advancing Net Zero project

NZGBC + GBCA release
'Green Star in focus: the case for sustainable industrial buildings'

Alliance HQE release
'The Hidden Treasures of Renovation'

September

ACT!ON
World Green Building Week 2020 - #ActOnClimate campaign, Spotlight Series, Call to Action Statement.

PhilGBC launch
Advancing Net Zero Philippines (ANZ/PH) Program
ANZ/PH Net Zero Energy rating tool— Pilot Version launched running from September to December with 7 pilot projects.

WorldGBC release
'ANZ APN Embodied Carbon Primer'

DGBC launch
Paris Proof Commitment

SwedenGBC launch
NollCO$_2$ certification tool

UKGBC release
'Building the Case for Net Zero'

October

EmiratesGBC release
'Advancing Deep Retrofit Report'

IndiaGBC launch
IGBC Net Zero Water Rating

CCCS event
'Construverde - Intercontinental panel: The Road to Zero Carbon Net Buildings'

GBCA release
Green Star 6th Edition

November

UKGBC release
'Unlocking the Delivery of Net Zero Carbon Buildings'

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December

WorldGBC ERN launch
#BuildingLife project with 10 participating GBCs developing national whole life carbon roadmaps: Croatia, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Spain and the UK.

UKGBC launch
'Net Zero Whole Life Carbon Roadmap'.

Asia Pacific Leadership in Green Building Awards 2020

FIGBC release
Energy and emission reduction guide for housing companies (FI)

2021

January

UKGBC release
'Innovation Insight: Reducing Operational Carbon'

February

UKGBC release
'Retrofit funding propositions'
& 'Understanding how to motivate whole-house retrofit'

March

DGNB release
'Building for a better world' report on the Sustainable Development Goals

UKGBC release
'Renewable Energy Procurement and Carbon Offsetting Guidance for Net Zero Carbon Buildings'

CCCS event
Annual convention of Colombia GBC Members - Panel Net Zero Buildings and public policy for sustainable construction in Colombia

DGBC launch
WEii (Energy Use Intensity Methodology

April

PhilGBC launch
ANZ/PH Net Zero Energy — Version 1.0.0

CCCS
Launch the Zero Carbon Building Accelerator project with the Government of Colombia and WRI

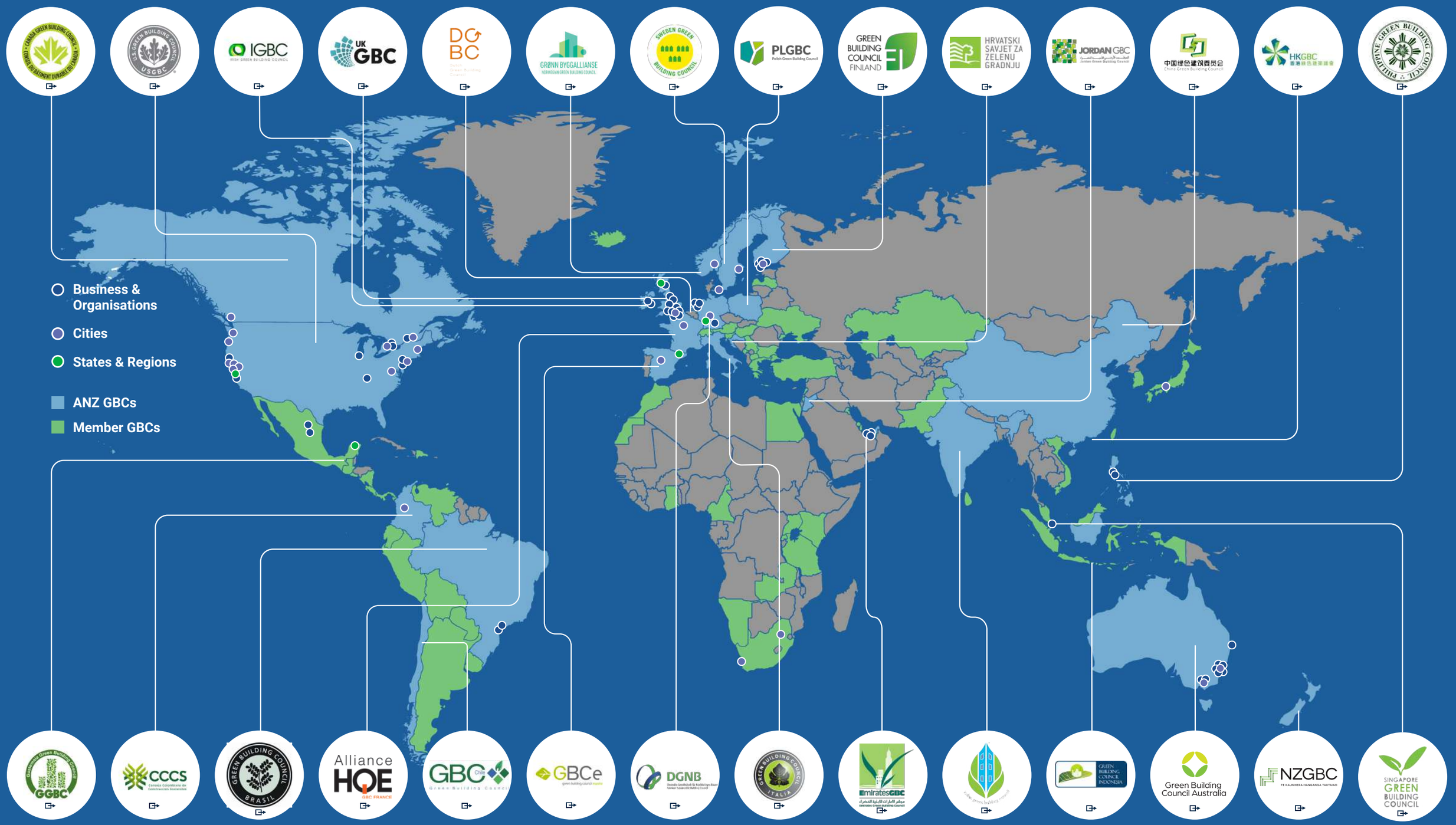
IndiaGBC launch
'IGBC Mission on Net Zero' (Total 277 organizations took Pledge to work towards achieving 'IGBC Net Zero' vision by 2050)

June

PolishGBC release
'How to Decarbonise the Built Environment by 2050: Whole Life Carbon Roadmap for Poland'

GBCA release
'Climate Positive Buildings and our Net Zero Ambitions'

World Map


Business & Organisations
Cities
States & Regions
ANZ GBCs
Member GBCs

Net Zero Trends & Innovations

TACKLING EMBODIED CARBON WITH BENCHMARKS AND TARGETS

In January 2021 the Carbon Leadership Forum published their Material Baseline Report, representing a conservative, or "high" estimate for embodied carbon per product category considering the variability in product manufacturing and uncertainty in Lifecycle Assessment (LCA) data. Such baselines can play an important role in supporting designers, owners, and policymakers in selecting low-carbon products during procurement and design. Find out more here

Similar efforts are taking place to develop a set of standardised metrics and benchmarks for measuring embodied carbon that can be used across Europe, spearheaded by Laudes Foundation and Ramboll. Such benchmarks (or baselines) will enable industry, finance, and policymakers to set ambitious yet realistic targets on embodied carbon and measure progress against them. WorldGBC is collaborating with these efforts as a steering committee member. Find out more here

The London Energy Transformation Initiative (LETI) continue to contribute to industry understanding of whole life carbon within the built environment. Following the release of the Embodied Carbon Primer in 2020, LETI has been consulting with industry groups and the Whole Life Carbon Network to align definitions, scopes, measurement methodologies and targets. Find out more here

In December 2020, WorldGBC launched the BuildingLife project by convening ten European Green Building Councils (GBCs) to deliver the EU Green Deal by tackling the whole life environmental impacts of the buildings sector. Ten national roadmaps and an EU policy roadmap will be developed to decarbonise the built environment across the whole lifecycle. The GBCs spearheading the project are: Croatia, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Spain and the UK. The project aims to achieve a mix of private sector action and enhanced regulation to address the whole lifecycle impact of buildings. Find out more here

INNOVATIONS IN MATERIALS AND TECHNOLOGY

Every ton of steel produced in 2018 emitted on average 1.85 tons of carbon dioxide, equating to about 8% of global carbon dioxide emissions. However, the industry is changing and steel production with lower carbon emissions, or even carbon neutral production could be on the horizon The 'Decarbonisation challenge for steel' report by Mckinsey & Company discusses different technologies that lower embedded carbon and decarbonise steel production, along with outlining a pathway towards industry transformation. Find out more here

New technologies for carbon capture are evolving, such as CarbFix that turns CO_2 into stone, or carbon utilisation technologies such as Interface's world's first carbon negative carpet tile and Aether, that creates carbon negative diamonds from CO_2 in the air. On a legislative level the US has recently introduced the SCALE Act that is expected to enable carbon capture infrastructure needed to meet net zero goals.

Concrete is the most used building material in the world, with around 25 billion tonnes produced per year, leaving a significant carbon footprint. However, industry pioneers and partners of WorldGBC, such as HeidelbergCement are joining the pledge to offer carbon neutral concrete by 2050 at the latest. Many measures are being implemented, such as use of alternative manufacturing materials and fuels, carbon capture, usage and storage techniques, as part of their clear and ambitious strategy to achieve their science based targets. Read more here about HeidelbergCement and here about LafargeHolcim's Net Zero Climate Pledge.

SCALING UP RETROFIT & RENOVATION

EmiratesGBC launched the Advancing Deep Retrofit report in October 2020 to support industry transformation by making the case for deep retrofits. It assesses the associated market expectations, readiness, challenges, and opportunities, and showcases the viewpoints of the key stakeholders in the UAE retrofit market to support in the development of national and Emirates level roadmaps to deep retrofits and decarbonisation of the existing building stock. Find out more here

Alliance HQE-GBC France launched a study to find levers to reduce carbon emissions in existing buildings, therefore also reducing bills and energy consumption in buildings while meeting the social challenge of combating fuel poverty. The report identifies a coherent method to assess the performance of existing buildings over the entire life cycle, focusing on representative case studies to highlight effective levers for reducing carbon emissions in the French market, and outlines the potential for existing buildings to be energy positive. Find out more here

Funded by EU Horizon 2020, and in partnership with Climate Alliance and Buildings Performance Institute Europe (BPIE), a group of GBCs in WorldGBC's Europe Regional Network (ERN), are leading the BUILD UPON2 project. The project is giving cities across Europe the tools to lead the change towards net zero carbon by 2050, by unlocking the huge potential of decarbonising their existing buildings, and delivering the European Commission's Renovation Wave.

The project is finalising the development of an Impact Framework which will be ready in July 2021. The Framework enables cities to measure the diverse benefits of renovation projects across environmental, social and economic factors, and to identify which of these can be scaled up to the regional and national level. The project began with the involvement of eight pilot cities, and a further 24 'follower cities' have now joined BUILD UPON2 from across Europe. The findings of the project on data availability and its focus on the importance of holistic data on building renovation are also feeding into WorldGBC's responses on the reviews of the Energy Performance of Buildings Directive (EPBD) and Energy Efficiency Directive (EED). Find out more here

NOTABLE NATIONAL LEGISLATION DEVELOPMENTS

The CLEAN Future Act (CFA) was introduced to the US Congress on March 2 2021, setting a national goal to achieve a 100% clean economy by 2050, with an interim goal to reduce GHG emissions by at least 50% by 2030 from 2005 levels. The act includes requiring all new buildings built by 2029 to use 50% less energy compared to current codes, and all new buildings built in 2030 and after to be "zero energy ready". Also included, are targets to retrofit nearly 140 million existing residential buildings to improve their energy performance. Find out more here

In its efforts to meet the country's 70% emissions reduction target by 2030, Denmark has set embodied carbon targets into building regulations with a cross parliamentary supported policy. The new policy covers both operational and embodied CO_2 emissions for buildings in a phased manner that tightens CO_2 requirements for large and small buildings. Find out more here

NET ZERO MYTHS

BUSTED!

MYTH 1

NET ZERO BUILDINGS HAVE NO WINDOWS!

Reality: Windows are an essential feature of sustainable buildings, and net zero buildings are no exception.

With captivating views through its window walls, the Adam Joseph Lewis Center for Environmental Studies at Oberlin College, Ohio, USA was the first commercial building to be Verified Zero Energy by the New Buildings Institute. Operating on three fundamental principles of nature: eliminate the concept of waste, rely on natural energy flows and respect diversity. It is a net energy exporter, producing 30 percent more renewable energy on site than it needs to operate. The building also incorporates many sustainable principles, such as passive solar design, natural lighting, high-efficiency electrical lighting, natural ventilation, ground source heat pump system, and many others. Find out more

MYTH 2

NET ZERO OPERATIONAL CARBON CAN'T BE ACHIEVED WITHOUT OFFSETS

Reality: Net zero operational carbon is achievable by optimising energy efficiency and using renewable energy sources.

ArthaLand Century Pacific Tower (ACPT) is a great example of a building that achieved net zero operational carbon without any offsets in Metro Manila, Philippines. The tower was built in 2017, with an area of 38,714 sqm. The building reduces energy use by 45%, water use by 64% and embodied energy in materials by 34%, with 100% hydroelectric energy supplied by the Pantabangan Masiway Hydroelectric Plant. It is uniquely triple-certified as EDGE Zero Carbon, LEED Platinum and BERDE 5-star building. Find out more

MYTH 3

NET ZERO BUILDINGS ARE MORE EXPENSIVE

Reality: Building to net zero standards is not only environmentally friendly but can also be budget smart, especially when the whole life cycle of the building is considered.

The Elithis Danube Tower built in 2018 in Strasbourg, France, proves that you can make both an environmentally and financially conscious choice by building to net zero standard. This residential housing tower was the first of its kind, built at standard construction costs but resulting in no energy bills for residents. It consists of 67 housing units with a total area of 5,059sqm and is BEPOS EFFINERGIE 2013, Alliance-HQE E+C- certified. Find out more

MYTH 4

EXISTING BUILDINGS ARE TOO DIFFICULT TO MAKE NET ZERO

Reality: 'The greenest building is the one that is already built' (Elefante, 2007). Half the buildings built by 2050 already exist and retrofitting them is key to achieve decarbonisation targets. Whilst technically challenging, renovating existing buildings to net zero standards brings many co-benefits, including better internal comfort levels and extending the building's useful life.

The Phenix building by Lemay in Montreal, Canada, features the deep retrofit of a three-storey, 9,264 sqm industrial structure that was originally built in 1950. The building is CaGBC Zero Carbon Standard compliant and LEED Platinum certified, and is now a low-carbon, net zero energy workspace for 350 employees. The retrofit resulted in a reduction in carbon footprint of more than 86% compared to new construction, and diverted 93% of the construction and demolition waste from landfill. The Phenix features energy efficiency measures and onsite renewable energy production. Find out more

MYTH 5

NET ZERO BUILDINGS ARE ONLY POSSIBLE IN WARM CLIMATES

Reality: Regardless of climate zone, solutions exist that mean buildings can achieve net zero operational emissions in any location!

The Rocky Mountain Institute Innovation Center is a 1,450sqm commercial office building located in Colorado, USA, with certifications including LEED Platinum and ILFI Zero Energy. Using whole system design and an innovative approach to achieving thermal comfort, it is 74% more efficient than the average office in the same climate. It uses its location in the coldest climate zone in the U.S. to its advantage, with solar heat gain in winter and natural ventilation, and is entirely lit by daylight. It produces more renewable energy on-site than it uses on an annual basis, plus enough to power six electric vehicles. Find out more

MYTH 6

TALL BUILDINGS CAN'T BE NET ZERO

Reality: Net zero buildings come in all shapes and sizes, ranging from skyscrapers to small town houses.

Lendlease's development, International Towers, Tower Two and Three at Barangaroo in Sydney, Australia, achieved GBCA's 6 Star Green Star rating. Tower Two is a 178m high-rise comprising 43 floors and Tower Three is a 168m tall building comprising 39 floors. These towers have on-site renewable generation from 6,000sqm of solar PV on rooftops, with remaining demand met by off-site renewable generation and offsets. The towers are oriented to reduce heat gain on the western façade and they include vertical shading panels aligned to the sun's path, this provides shading and reduces cooling needs. Find out more

ANZ in Numbers

28

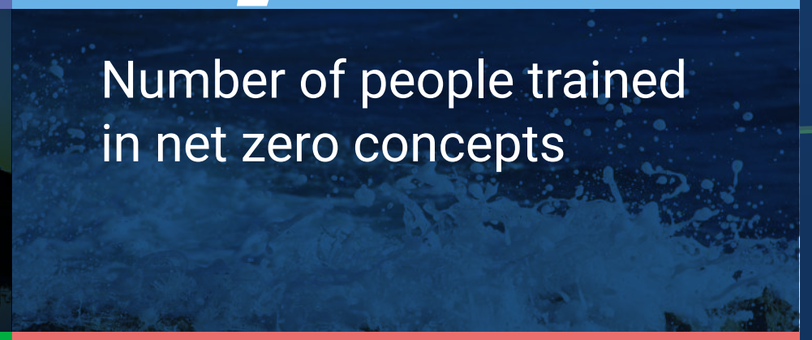
Number of GBCs participating in the project

2,075

Number of ANZ Accredited Professionals

7,753

Number of people trained in net zero concepts

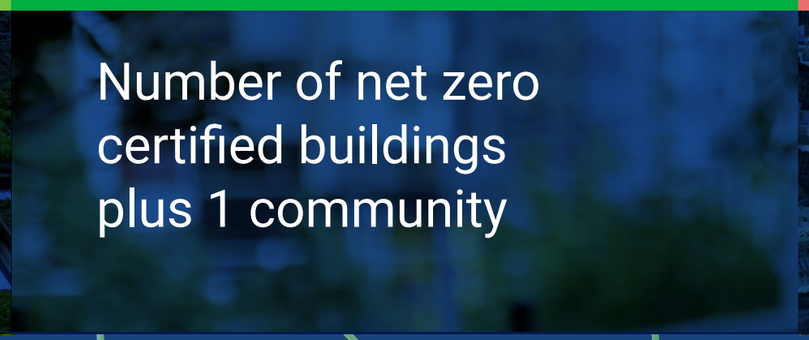


14

Number of GBC net zero certification schemes & programmes

804

Number of net zero certified buildings plus 1 community



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Commitment Signatories

1 Advancing Net Zero Building Operations

Signatories to the Net Zero Carbon Buildings Commitment are leaders within the global movement to decarbonise our built environment. They are taking action further and faster, to achieve net zero operational or whole life emissions for assets under their direct control by 2030, and advocate for all buildings to be net zero carbon by 2050. The Commitment is an example of the Ambition Loop in action, with businesses, organisations, cities and subnational governments all highlighting that they are ready for further net zero regulation from national governments.

Each signatory is implementing crucial actions and policies to achieve their Commitment.

Over the next few pages we highlight the progress and success stories from our signatories so far.

GOVERNMENT CLIMATE POLICY

Clear, ambitious targets and policy

Predictable regulatory environment

Incentives and infrastructure

Long-term market signals

Clear plans and timelines for full transition to a zero-carbon economy

BUSINESS CLIMATE ACTION

Ambitious, science-based targets

Public updates on progress

Commercial demand for zero-carbon energy, zero carbon transportation and zero-carbon land use

Responsible policy engagement

THE AMBITION LOOP

CITIES CLIMATE POLICY & ACTION

Clear, ambitious targets and local policy

Net zero plans for own municipal buildings and infrastructure

Public procurement policies

REAL ESTATE INVESTOR CLIMATE ACTION

Investments and growth strategies aligned with a zero-carbon future

Public updates on progress

One Decade to Act

STEPHEN SMITH, EXECUTIVE DIRECTOR - SHEQ EUROPE, MIDDLE EAST & CANADA, MULTIPLEX

Multiplex delivers some of the most complex, challenging and iconic buildings in the world. Working in close collaboration with a multitude of stakeholders, we are building the places we work, live, play and learn.

We are committed to taking bold action to eliminate carbon emissions from our projects. We are taking a leadership position and promoting cultural and behavioural change beyond our business, working closely with our clients, supply chain and consultants, to champion action on climate.

> ***Success will come through actions, not words, and taking action on climate now is of fundamental importance not just to our business and our people, but to our planet and the generations to come.***
>
> **CALLUM TUCKETT, MANAGING DIRECTOR, EUROPE**

We signed the WorldGBC Net Zero Carbon Buildings Commitment. We set science-based targets for our operations in Europe, the Middle East and Canada. We are also a founding member of the Cooperative Research Centre in Australia for Low Carbon Living – a research and collaboration hub for low carbon building solutions.

'One decade to act' is our pathway to net zero carbon for our European operations. It brings together all the climate commitments we have made to date and it is based on taking practical, evidence-based action founded on climate science, research and collaboration. 'One decade to act' lays out five key goals for our European operations:

- Zero onsite emissions by 2025
- 50% reduction in embodied carbon intensity by 2030
- Net zero carbon building operations by 2030
- Zero transport carbon emissions by 2030
- Zero avoidable waste by 2030

To maximise our positive impact, we must inspire and collaborate with our people and our sphere of influence. Therefore we have developed a culture change programme founded on three principles for action: Educate, Engage and Empower. This involves informing and upskilling our people and stakeholders, bringing them into the conversation on tackling the climate emergency, and equipping them with the knowledge, tools and resources they require to take climate action.

Monash University, Melbourne, Australia
Find out more.

Leading By Example

STEVE FORD, HEAD OF SUSTAINABILITY & ENERGY, THE GPT GROUP

In December 2020, the GPT Wholesale Office Fund (GWOF) delivered on its commitment made as a signatory to the World Green Building Council's Net Zero Carbon Buildings Commitment in September 2018.

Each GWOF asset has been certified carbon neutral using the NABERS verification pathway of the Australian Government's Climate Active program, in alignment with the International Greenhouse Gas Protocol. This process independently validates the carbon neutral performance of each of the Fund's buildings for tenants, investors, and other stakeholders as their interest in energy efficiency and environmental sustainability continues to grow.

> ***Investing in building efficiency improvement has been central to GWOF's carbon neutral achievements.***

Since 2005, the Fund has halved the energy intensity of its portfolio through equipment upgrades and the continued optimisation of existing buildings, and by developing new buildings that meet best practice standards like Green Star.

A range of projects and improvements have contributed to this achievement. At 530 Collins Street in Melbourne, major lighting upgrades have saved more than 250 MWh of electricity consumption each year, in turn reducing utility bills and maintenance costs.

Workplace6 was Sydney's first 6 Star Green Star building, and the building's credentials were further enhanced with the installation of a 100kW solar photovoltaic array that generates renewable electricity onsite.

A growing number of our buildings participate in a real-time demand response programs that optimise each building's electricity load in response to peak demand events, reducing demand charges and the building's impact on the wider electricity network.

GWOF sources 100% of its electricity needs from renewables through on-site generation and off-site procurement. For those emissions that cannot be readily eliminated, such as from gas and waste, GWOF invests in carbon offset projects including energy transition projects and removing carbon through investment in Australian reforestation projects.

GPT's approach of developing and actively managing energy efficient buildings with renewable power, then offsetting residual emissions through high integrity carbon removal projects is key to delivering on our commitment of carbon neutral operations for all managed assets by the end of 2024. We are proud of GWOF's achievement in delivering one of the first carbon neutral portfolios amongst the WorldGBC Net Zero Building Commitment signatories, and GPT is applying what we have learned to our other portfolios.

Delivering Net Zero, Safely

NATALIE TEEAR, SENIOR VICE PRESIDENT - INNOVATION, SUSTAINABILITY AND SOCIAL IMPACT, HUDSON PACIFIC PROPERTIES

As a leading owner, operator and developer we have always been committed to sustainability. It is the right thing to do, and as an issue that is critically important to the cities in which we operate and to the tenants we aim to attract, it is also good business. In 2020, we launched our Better Blueprint™ corporate responsibility platform and with it our goal to reach net zero carbon across all operations by 2025.

When COVID hit and we began to understand the impact that operational changes made to keep our buildings safe and healthy, such as increased ventilation and air filtration, would have on our energy needs, we decided to expedite our carbon neutrality efforts. By September 2020, we achieved 100% net zero carbon across all operations, making us one of the first major landlords in North America to achieve this important milestone.

We achieved this through a multifaceted strategy that included a longstanding commitment to energy efficiency and strategic use of on-site and off-site renewables, including direct procurement of green power and renewable energy certificates (RECs). We also purchased verified emissions reduction credits to offset the emissions caused by the natural gas used to heat our buildings.

> ***By decoupling our carbon and energy use, we ensured that we would not have to choose between our commitment to sustainability and the health and safety of our properties.***

One example of our innovative approach to on-site renewables was at EPIC, a 13-story, Class A creative office tower in the heart of Hollywood. EPIC was the first large commercial building in the city of Los Angeles to implement building integrated photovoltaics (BIPV).

Responsible corporate citizenship and sustainable development are vital to ensuring the success of our company and the vibrancy of our communities. We hope our shared vision with other Commitment signatories will continue to expand the green economy and will propel innovation in this space.

EPIC, Hollywood, USA
Find out more.

Net Zero by Design

PAUL TOYNE, PRACTICE SUSTAINABILITY LEADER, GRIMSHAW

Grimshaw is a global architecture practice that offers design services in master planning, buildings, infrastructure and industrial design. The practice has a history of considering ecology and the environment in its designs. In December 2019 we signed the Net Zero Carbon Buildings Commitment as part of our overall strategy to design exclusively Net Zero Carbon (NZC) ready projects by 2025 and regenerative designs by 2030, while simultaneously achieving carbon neutral operations now. In all our studios where we have direct control of energy supplies, we have in the last year switched to procuring 100% certified renewable energy.

> ***Through our design services, deploying a whole life carbon approach, we can make the biggest difference in tackling the climate emergency.***

To better support our goal of NZC ready designs all new business opportunities are assessed for the client's ambitions and leadership on sustainability and climate action. Grimshaw's Climate Emergency Task Force was established to integrate NZC design into our existing project delivery workflow by the end of 2020 and to support our clients in expanding and achieving their NZC goals.

A number of our building designs have achieved NZC status. Of note is the Woodside Building at Monash University, a first-class teaching facility that has achieved Passivhaus certification. Elsewhere, our Sustainability Pavilion at the Dubai Expo achieves NZC operational energy, as well net zero water use. In the UK, the University of Cambridge's Civil Engineering building is achieving energy use intensity performance in-line with RIBA's 2025 targets, despite being designed in 2017.

Finally, as part of our commitment, we are active in promoting the need for a NZC built environment, sharing our approach and highlighting the need for collaborative, integrated working with intelligent enabling policy. Our activities include policy development in establishing zero carbon building codes, sharing experiences and supporting like-minded organisations to create a NZC movement, promoting the solutions for NZC at conferences and re-enforcing this messaging through social media.

Monash University, Melbourne, Australia
Find out more.

List of Commitment signatories

May 2021

Businesses / Organisations

Adventist Education Southern Brazilian Union — Curitiba, Brazil

AECOM (UK & Ireland) — London, UK

AESG — Dubai, UAE

AMP Capital Wholesale Office Fund — Sydney, Australia

Antilooppi — Helsinki, Finland

ARA Asset Management Limited — Singapore, Singapore

Argent Services LLP — London, UK

Armstrong Fluid Technology — Toronto, Canada

Arthaland — Manila, Philippines

Arup — London, UK

Assura — Warrington, UK

Atelier Ten — Sydney, Australia

Avison Young UK — Birmingham, UK

B+H Architect — Toronto, Canada

BAM Construct — Hemel Hempstead, UK

Bennetts Associates — London, UK

Berkeley Group — London, UK

Bioconstrucción y Energía Alternativa — San Pedro Garza García, Mexico

Bionova — Helsinki, Finland

Bioregional — London, UK

Brandix — Colombo, Sri Lanka

Brunswick Property Partners — Leeds, UK

Bruntwood — Manchester, UK

Built — Sydney, Australia

BuroHappold Engineering — Bath, UK

Carbon Intelligence — London, UK

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

Deerns — The Hague, Netherlands

Deloitte — Toronto, Canada

Dexus — Sydney, Australia

EcoReal — Helsinki, Finland

Evora Global — London, UK

ExCool — Bromsgrove, UK

FORE Partnership — London, UK

Foster + Partners — London, UK

Frasers Property Australia — Sydney, Australia

Goldman Sachs — New York, New York, USA

GPT Wholesale Office Fund — Sydney, Australia

Grainger Plc — Newcastle upon Tyne, UK

Granlund Group — Helsinki, Finland

Greengage Environmental — London, UK

Grimshaw — London, UK

Grosvenor — London, UK

Hibernia REIT plc — Dublin, Ireland

Hoare Lea LLP — Bristol, UK

Hudson Pacific Properties — Los Angeles, California, USA

Integral Group — Oakland, California, USA

IPUT Property Fund — Dublin, Ireland

ISPT — Melbourne, Australia

JLL Global — Chicago, Illinois, USA

JLL UK — London, UK

Joseph Homes — London, UK

Keva — Helsinki, Finland

Kilroy Realty Corporation — Los Angeles, California, USA

Kingspan — Dublin, Ireland

Kojamo — Helsinki, Finland

Lemay — 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 — Sydney, Australia

Lendlease One International Towers Sydney Trust — Sydney, Australia

Lloyds Banking Group — London, UK

Local Government Super — Sydney, Australia

MACE — London, UK

Majid Al Futtaim — Dubai, UAE

Max Fordham — 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

Nightingale Housing — Melbourne, Australia

OP Real Estate Asset Management — Helsinki, Finland

Petinelli — Curitiba, Brazil

QIC — Brisbane, Australia

Salesforce — San Francisco, California, USA

Savills (UK) Limited — London, UK

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

The Crown Estate — London, UK

THREE Consultoría Medioambiental — Monterrey, Mexico

Trevian Funds AIFM — Helsinki, Finland

Tritax Big Box — London, UK

Troup Bywaters + Anders — London, UK

UMC — Dubai, UAE

Varma — Helsinki, Finland

Varming Consulting Engineers Ltd — Dublin, Ireland

Watkins Payne Partnership — London, UK

Wereldhave — Haarlemmermeer, The Netherlands

Willmott Dixon — Letchworth Garden City, UK

WSP UK Limited — London, UK

YLVA — Helsinki, Finland

Cities

Copenhagen, Denmark

Cape Town, 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, United States of America

Medellín, 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

2 Road to COP26

In 2021, COP26 presents a crucial opportunity to catalyse the transformation we need to see throughout the building and construction sector to achieve our decarbonisation goals, in line with the Paris Agreement 1.5°C scenario. We must collaborate together as an industry to galvanise action and advocate for bolder and more ambitious national government level regulation.

The WorldGBC network is leading global advocacy efforts, elevating the importance of the built environment in relation to the COP26 climate action agenda. In collaboration with the High-Level Climate Champions Team, the UK COP26 Presidency and the other Cities and Built Environment core coalition partners: GlobalABC, WBCSD, C40 & Resilience Shift, we are supporting the delivery of an impactful and inspiring programme of content across an official Cities, Regions and Built Environment Day and the entire COP26 programme. UKGBC and Italy GBC, as country co-hosts of this year's UN climate conference are working to showcase the leadership action of their members.

United towards a net zero, resilient built environment and cities for everyone, everywhere

The Cities, Regions and Built Environment Day will allow us to put the spotlight on the sector, to highlight and celebrate our progress but also to make clear the huge changes that still need to occur. Our vision is to establish the built environment's critical and transformational role for climate mitigation and resilience, promote the role of the private sector and cities to enact transformative change, and the role of government to mainstream action and solutions via regulation.

WorldGBC will maximise this opportunity at COP to highlight the progressive work of our network, GBCs and their members, our partners, Commitment signatories and beyond.

#BUILDING TO COP26

WORLD GREEN BUILDING COUNCIL

To build momentum to COP26, we have launched a campaign called ***#BuildingToCOP26***.

The campaign creates a unified voice between business and government, demonstrating industry readiness for more ambitious policy to achieve a net zero, resilient, built environment.

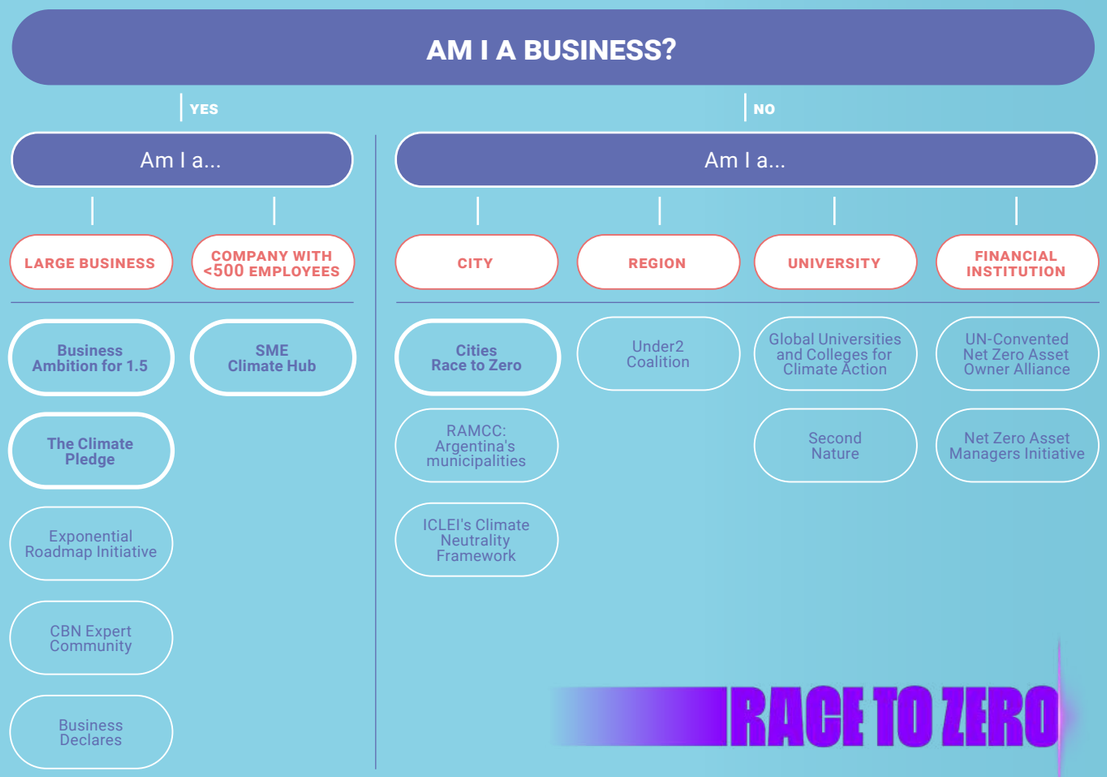
As ***#BuildingToCOP26*** gains momentum, by November our movement will be geared up to give the built environment the global platform it deserves as a solution to climate change.

The Race to Zero

The Race To Zero is the global campaign, organised by the High-Level Climate Champions for Climate Action to rally leadership and support from businesses, cities, regions, investors for a healthy, resilient, zero carbon recovery. The objective is to build momentum around the shift to a decarbonised economy ahead of COP26, where governments must strengthen their contributions to the Paris Agreement. This will send governments a resounding signal that business, cities, regions and investors are united in meeting the Paris goals and creating a more inclusive and resilient economy.

In the lead up to COP26, WorldGBC is supporting the Race to Zero campaign, and calling on all organisations from across the building and construction value chain to join this critical initiative. This presents an unprecedented opportunity to champion the leadership of GBC members to drive down emissions, and industry preparedness for regulation.

WE NEED YOU!



For the full list of ways to join the Race to Zero see here

This is a vital year for climate action. In November, the countries of the world will meet in Glasgow for the next United Nations Climate Conference COP26. Our ambition is that it will be a watershed moment when the world gets on track to avert the worst effects of climate change, to limit global temperature rises and to make the goals of the Paris Agreement, a reality. We're urging all companies and all investors to join the Race to Zero campaign ahead of COP26.

THE RT HON ALOK SHARMA MP, PRESIDENT FOR COP26

THE RACE TO RESILIENCE

The Race to Resilience is the sister campaign to the Race to Zero, catalysing a step-change in global ambition for climate resilience, putting people and nature first in pursuit of a resilient world where we don't just survive climate shocks and stresses but thrive in spite of them. The campaign will mobilise businesses, investors, cities and civil society to strengthen the resilience of 4 billion people in vulnerable communities by 2030.

This is important for the built environment, the changes we make and actions we take to achieve net zero should also contribute to a more resilient, healthy and equal society. Our interventions have the power to bolster resilience at all scales.

Find out more

We can't win the Race to Zero without winning the Race to Resilience as well. Climate breakdown and the pandemic multiply inequalities — social, environmental and economic gaps are widening across nations and across the Global North and South. By 2030, we can catalyse action by non-state actors that builds the resilience of four billion people from groups and communities who are vulnerable to climate risks.

NIGEL TOPPING, HIGH LEVEL CHAMPION FOR CLIMATE ACTION COP26

Delivering a Net Zero Carbon Buildings Commitment in Scotland

In 2021, Glasgow will welcome the world to the United Nations Framework Convention on Climate Change 26th Conference of Parties (COP26). COP26 promises to be the most significant climate change summit since the Paris conference, six years ago.

Scotland's ambitions for the conference extend well beyond simply welcoming a global community of leaders, partners and civil society organisations to Glasgow: we are determined, as a country, to play a full part – along with other cities, regions and states – in delivering a successful and ambitious outcome. As we now emerge from the grip of the pandemic, we have a chance to build a greener, fairer and more equal society and economy. It is clear that delivering a just and fair transition to zero emissions buildings will play an important role in our progress to net zero, and is a key component of the green recovery.

Already, Scotland has a reputation as a world leader in tackling climate change – and this was further demonstrated in 2018, when Scotland signed up to the WorldGBC's Net Zero Carbon Buildings Commitment.

While the Commitment sets out ambitious aims to be achieved (by requiring all new buildings to operate at net zero carbon by 2030, and all buildings by 2050), Scotland's own climate change targets push us even further: with a legally-binding target to reduce Scotland's greenhouse gas emissions to net zero by 2045 and an interim target for a reduction in emissions of 75% by 2030.

Since signing up to the Commitment in 2018, the Scottish Government has taken strides to ensure that these ambitions become a reality.

For example, we recently consulted on our draft Heat in Buildings Strategy, which sets out the significant challenge we face in decarbonising heat across Scotland's new and existing building stock. To illustrate the scale of the action required in Scotland alone: by 2030, around 1 million homes will need to transition to zero emissions heating systems, alongside 50,000 non-domestic buildings.

It is our intention to develop a new regulatory framework (where possible within our legal powers) for zero emissions heating and energy efficiency. This will ensure that, from 2024, all new buildings must use zero emissions heating systems, and from 2025, all existing buildings will be required by law to be energy efficient by 2035 and use zero emissions heating and cooling systems by 2045. Regulating is not an easy step, but it is an essential one. By committing to legislation, building owners, energy utilities and the supply chain will have the certainty they need to make new investments.

Our Heat Networks (Scotland) Act is paving the way: creating the regulatory stability needed to unlock the full potential of heat networks. This means that, as well as being the first country to sign up to the WorldGBC's NZCB Commitment, we are also the first country in the UK to legislate to support the growth of heat networks.

The Act was passed unanimously by the Scottish Parliament and lays a strong regulatory framework to facilitate meeting ambitious heat network supply targets included in the Act – targeting the equivalent of 650,000 homes to be connected to heat networks by 2030. From the current number of 32,000, this will require a very significant expansion of the supply chain.

As we continue to grapple with the unprecedented challenges of the COVID-19 pandemic, we know that we urgently need to stimulate our economy. Heat networks fit the profile of the sort of project that can make a significant, near-term contribution to our green recovery while providing long-term employment in local communities. The development of this sector will, crucially, provide ongoing support to achieve our target to reach net zero greenhouse gas emissions by 2045.

Furthermore, realising the aspirations set out above will require an enormous acceleration in deployment rates of other types of low and zero emissions heating technologies too. As an example of the action we have taken to support this, we have established an expert advisory group to make recommendations on the scope of a potential heat pump sector deal – which we envisage will help create a strong heat pump supply chain in Scotland to support our ambitious deployment plans. This work will forge an important partnership between the Scottish Government and industry on sector-specific issues, creating opportunities to boost deployment, employment, innovation and skills.

The heat in buildings decarbonisation challenge is central to our net zero efforts and COP26 will provide a unique opportunity to raise the profile of Scotland's international leadership on zero emissions heating in buildings, and strengthen relationships in this area.

Our response to COP26 will focus on a faster global transition to net zero in a way that is just and fair, demonstrated by tangible climate actions. Our conference themes, Just Transition and People, reflect this focus.

COP26 will be the driver for Scotland to go further faster as we transition to net zero. Every year, from now until 2045, we should see Scotland's emissions reduce until we reach net zero - and we will see further transformation in our buildings as we make changes to ensure emissions from heating our homes and businesses are eliminated.

A SPECIAL THANK YOU TO THE SCOTTISH GOVERNMENT FOR THEIR VALUABLE INSIGHTS AND CONTRIBUTION

FEATURE

GBC Leadership Action

WORLD GREEN BUILDING COUNCIL

ADVANCING NET ZERO IN HONG KONG: KICKSTARTING THE SOLUTIONS

Combating climate change has become a vitally important mission for the entire global community. Yet in Hong Kong's subtropical, high-rise, high-density urban context, decarbonisation is a particularly complex challenge for the building sector.

In addressing this critical issue and supporting the WorldGBC's global Advancing Net Zero project, the Hong Kong Green Building Council (HKGBC) has committed to drive Hong Kong's building sector towards net zero.

In 2021, the HKGBC initiated the following initiatives to kick start the ANZ journey. A target setting and certification system, developed by the Council encourages and enables building owners to set targets for carbon emission reductions and the energy intensity of their buildings in alignment with the below 2°C goal by taking reference from the Science Based Targets Initiative (SBTi). The development of this new system is of great importance as most building owners are not aware of the specific reductions they need to achieve in order to meet these targets. To recognise and reward the efforts that building owners are dedicating to reducing their buildings' energy intensity, everyone who sets and fulfils such targets will be awarded with a certificate.

In March 2021, the HKGBC proudly launched Hong Kong's first "Advancing Net Zero Ideas Competition", inviting international industry stakeholders, designers, academia, and technology experts to contribute innovative and valuable ideas on how to move Hong Kong's building sector towards carbon neutrality for a sustainable future. The competition also aims to raise public awareness, enhance learning and facilitate knowledge sharing regarding ANZ, while also pushing the boundaries to design future-ready buildings and retrofit existing building stock to advance a net zero emissions economy by 2050. This high-profile competition is expected to accelerate the building industry's adoption and development of low/zero carbon design and technologies, and to stimulate a review of current regulations and codes of practice to facilitate the development of eco-technology where appropriate.

The competition consists of two categories: (i) Future Building and (ii) Existing Building. Under the umbrella theme of ANZ, the HKGBC is seeking to stimulate ideas, concepts and solutions that can push boundaries in designing net-zero buildings in three sub-themes: (i) Zero Carbon and Ultra-Energy Efficient, (ii) Embodied Carbon, and (iii) Healthy and Sustainable.

A number of world-renowned names are sitting on the influential Jury Panel, including Ms Tanya Cox, Chair of the World Green Building Council; Mr William McDonough, architect and globally recognised leader in sustainable development and design, and founding partner of William McDonough + Partners; and Ms Meaghan Lloyd, Partner at Gehry Partners, the acclaimed firm founded by Pritzker Prize Laureate Frank Gehry. The final results of the Competition will be announced in November 2021. Winners and shortlisted candidates will be eligible for a total of HK$1.2 million in prize money.

To further exchange knowledge on ANZ with multi-talented experts around the world, the Advancing Net Zero International Conference 2021 will also be organised at the end of the year. We are confident that these visionary concepts will not only help solve the challenges of achieving carbon neutrality in Hong Kong, but also benefit other similar contexts around the globe.

Ir Dr Cary CHAN,
EXECUTIVE DIRECTOR, HONG KONG GREEN BUILDING COUNCIL

ADVANCING NET ZERO IN NORWAY: ADDRESSING EMBODIED EMISSIONS

Norwegian Green Building Council's Roadmap to 2050, launched in June 2016, outlined a vision to help building owners to plan for the new reality of changing behaviours to deal with the risks of climate change.

The link between profit and sustainability was emphasised, and included 10 immediate recommended actions for small and large building owners. In cooperation with The Norwegian Property Federation, we assisted our members with knowledge about how to integrate the measures into their business strategies. We also highlighted their industry leadership so that they could be recognised as far-sighted early movers by taking this step to action. 56 of Norway's largest building owners have so far committed themselves to implement these 10 measures in all their new projects and existing buildings.

One of the 10 measures is "Request and prioritise building products that give low greenhouse gas emissions (documented through an Environmental Product Declaration)". In Norway most of the energy for building operation, also heating and cooling, comes from hydropower. Therefore, embodied energy in construction materials is responsible for more than 50% of the greenhouse gas emissions from the building sector. All building materials used in Norway are responsible for 70% of emissions related to the lifespan of our constructions. For this reason we have been working on addressing embodied carbon for over 10 years already in Norway.

We have a national standard for calculating carbon emissions including embodied energy, and several low emission pilot projects especially through the FutureBuilt program, (2010-2020), where Norwegian Green Building Council is a partner. In all FutureBuilt projects the carbon footprint must be reduced by at least 50 percent compared to current regulations and common practice. According to the mentioned standard, the projects must reduce greenhouse gas emissions from transport, energy and materials and be located near major transport hubs.

Based on experience from implementing the Roadmap and the FutureBuilt projects, Norwegian Green Building Council last year made a simple Climate Cure in 5 steps (Klimakur for bygg og eiendom – Grønn byggallianse); stating that the demand for low carbon products must increase, but also that we have to demolish less buildings and reuse more materials.

Because of this work, some of our largest and most ambitious members now integrate carbon reduction decisions as a key factor in new business strategies. Several make CO_2 calculations for all new buildings, including embodied energy and energy used at the building site. Some members also aim at a 40-50% reduction for all new projects by 2026.

In our Action Plan 2021: From words to actions, we advise all members to use our roadmap actively and follow up on daily operation so that they are ready to meet new expected external framework conditions, e.g. the Taxonomy criteria from EU and the new criteria in BREEAM-NOR. The largest bank in Norway, DnB, has recently informed that within a few months they will no longer finance any commercial building (<5000 m2) without a BREEAM-NOR score of "Very Good" or better. Our members are experiencing the reality we outlined in our roadmap six years ago, that it is unprofitable to possess an out-of-date building portfolio. The green transition has definitely arrived, and even faster than we expected.

KATHARINA TH. BRAMSLEV, CEO, NORWEGIAN GREEN BUILDING COUNCIL

ADVANCING NET ZERO IN AOTEAROA: FROM A STANDING START TO A ZERO CARBON ROADMAP

Three years ago, the New Zealand Government claimed that the construction industry in Aotearoa contributed a mere 3% to the country's carbon footprint. Today, leading politicians, commentators and official government documents recognise that buildings and construction make up an alarming 20% of our country's carbon pollution.

Right now the government is consulting on a once-in-a-generation range of building reforms which would slash the pollution from our industry. Here's the story of how we went from no talk or action, to significant, never-seen-before government intervention.

In 2018, troubled by the 3% figure and realising the significant and vital role that the building and construction sector must play in a cleaner, healthier, zero carbon Aotearoa, we launched a plan to link the built environment with climate change in a public way, put it on the political agenda, and to then show the leadership and solutions necessary to slash emissions.

We knew we needed a big bang to kick things off. Working with our mates at thinkstep, an international sustainability expert body, we unveiled a report that revealed the true consumption emissions of the building industry in Aotearoa across the entire life cycle of buildings.

The damning report was released in May 2018 and, for the very first time in New Zealand, exposed the fact that buildings amounted to 20% of our carbon footprint. Our media rollout plan saw this alarming figure hit top tier broadcast, print and digital headlines, and soon reach government circles, successfully linking the building and construction with climate change, and the need for collective action.

But we hadn't done enough. So when the government opened an important round of consultation on a key piece of climate change legislation, we knew we had to leverage the opportunity presented. Working with thinkstep again, we unveiled new evidence, based on data and information provided by construction material sectors, that the construction industry could slash emissions by around 1.2 million tonnes of carbon every year – the equivalent of taking almost 500,000 cars off the road.

With the support of our membership, we created our Zero Carbon Roadmap – a document illustrating the pathway and solutions to make all of Aotearoa's homes and buildings zero carbon, including suggested improvements to the Building Code, which lacked any recognition of climate change or of adequate energy and insulation standards.

We launched the roadmap in Parliament, at the invitation of the Green Party. Our call for change was heard, and government acted, releasing their own Building for Climate Change Program in July 2020, for the building industry to become zero carbon by 2050.

This exciting and inspiring move by the government is a game-changer and was almost inconceivable just a few years ago. In order to address the 20%, their plan will prioritise energy efficiency and carbon costs, placing collaboration and evidence-based tools at the forefront. New buildings are the priority, but we are working to ensure existing are included too in the coming years.

There is, however, much more work to do to ensure this government program delivers in a timely and ambitious manner. Working alongside our members, we're going to make sure it does.

JENNIFER WHITTLE, DIRECTOR OF COMMUNICATION AND ENGAGEMENT, NEW ZEALAND GREEN BUILDING COUNCIL

3 Value Proposition for net zero

As we progress in this crucial decade for climate action, the broader value proposition for net zero must be clear beyond the immediate reduction of emissions. To bring more and more people, companies and governments on board we must clearly outline the benefits that decarbonisation of the built environment can bring.

In order to strengthen the value proposition, developments are being evaluated on a whole lifecycle basis, and utilising the concepts of energy and carbon budgeting to inform design decisions, not just financial budgets. Coupled with a shift in increasing awareness and demand from investors on reporting of risk and associated actions against future climate scenarios, the anticipation to future regulatory shifts including carbon taxes, the growing market capacity to deliver high performance buildings, and the mounting pressure on supply chains to supply more low carbon options to market, is supporting greater uptake.

Action towards net zero buildings brings not only economical and environmental benefits, but is also aligned with a social and moral imperative for doing business. The leaders celebrated in this report are demonstrating crucial education and collaboration efforts to deal with existing market barriers, to advance mainstreaming towards a net zero carbon, healthy, equitable and resilient built environment.

Over the next few pages, read how our Advancing Net Zero partners and Net Zero Carbon Buildings Commitment signatories are driving the wider value proposition for net zero within their businesses.

COMING SOON: 'BEYOND THE BUSINESS CASE' REPORT

WorldGBC will publish the Beyond the Business Case Report in late 2021, setting out the holistic drivers for sustainability in the built environment, exploring the business case and broader value proposition for achieving sustainable buildings, including risk mitigation. It will demonstrate to the global property industry why you cannot afford not to invest in sustainable buildings, from a social, environmental and financial perspective.

WORLD GREEN BUILDING COUNCIL

Building the case for decarbonisation

BIANCA WONG, GLOBAL HEAD OF SUSTAINABILITY, KINGSPAN

The pandemic has taught us a greater awareness of the world around us, a fresh appreciation of the natural environment and the importance of wellbeing. Throughout this last year, businesses of all kinds have demonstrated how adaptable and agile they can be when faced with an emergency. The climate emergency is every bit as urgent, and we need to be just as agile and adaptable to deal with it. Carbon is the root of the planet's emergency and we must be prepared to take radical and swift action. The good news is that the kind of steps that are needed are as beneficial for people, and for the bottom line, as they are for the planet.

At Kingspan, we've experienced this in our own operations, with every step we have taken towards becoming a more sustainable business. Over the past nine years our global team have worked tirelessly to deliver our Net Zero Energy* goal across our entire global estate by 2020. In that time, we have also reduced the carbon intensity of our operations by 35% and we generate 29 GWh of renewable energy on our own sites, cutting our operational costs as well as carbon. But the benefits go much deeper than this.

> ***We know that our sustainability commitments are a source of great pride and motivation for employees and new candidates frequently cite our sustainability commitments as a key reason why they want to come and work with us.***

At the end of 2019 we launched our Planet Passionate 10-year sustainability programme, with twelve new challenging targets. We have just launched our first Planet Passionate annual report, outlining the extent of our decarbonisation programme, which targets a reduction in manufacturing carbon (CO_2e) emissions to as close to zero as technically possible, together with halving carbon intensity in our primary supply chain.

In the first year of Planet Passionate, we reduced emissions from operations by 5.2%, a significant first step towards our net zero carbon manufacturing goal. In turn this will lower the embodied carbon of our products, and therefore the whole life carbon of buildings they feature in. Insulation products sold by Kingspan in 2020 alone will save an estimated 164m tonne of CO_2e over their lifetime.

The commitment to net zero drives radical thinking around product innovation and business practices, which in turn creates value to the business. We firmly believe that decarbonisation is one of the biggest challenges of the next two decades, and that every business needs to put this front and centre. The industry has the technology to rise to this challenge and the business case to implement it is compelling. We can help the planet to survive, and we can thrive in the process, so why wait?

*Net Zero Energy definition - the non-renewable energy use associated with our manufacturing sites will be minimised through a combination of energy efficiency measures, on-site renewable energy generation and the purchase of certified renewable energy from the grid. Our remaining non-renewable energy use will be offset by the purchase of renewable energy certificates.

Instilling the value of net zero

MINA HASMAN, ASSOCIATE DIRECTOR, SKIDMORE, OWINGS & MERRILL

Net zero is becoming increasingly important in how a property is perceived and valued—from the perspective of future tenants/occupants, as well as buyers.

By closely working with our clients to deliver net zero built environments, we increase both the upfront value (due to the buildings' potential for attracting tenants/buyers before completion), and long-term value (due to their enhanced performance throughout their lifecycle). This offers a tremendous opportunity to deliver higher returns on investment, enhance project team reputation, and confer a sense of pride for those who can reside/work in buildings that demonstrate care for the future.

This ambition also applies to our own work at SOM: in addition to the offices we occupy, we are committed to having all of our projects reach net zero operational carbon by 2030. We are consistently striving to go beyond best practices of today, and leveraging every project as an opportunity to find innovative solutions for a net zero future—solutions that are scalable and transferable, and that establish new benchmarks for the wider building design and construction industry all around the world.

This commitment to net zero brings a significant value to our process: it ensures a consistent alignment within the wider stakeholder team, and defines a clear path for an outcome-based approach. This inherently opens up opportunities for tighter collaboration, as well as continuous research and science-based evaluation - which collectively enable the team to make informed decisions along the project's journey, and take collective accountability for that building's entire life.

As we consider a building's whole life, we acknowledge that operational carbon is only a part of the story, and to complete the picture of net zero, we must apply the same rigour and ambition to reducing embodied carbon emissions - and achieve this together with all the actors along the value chain. We embrace this as part of our mission at SOM.

Billie Jean King Main Library in Long Beach, California, is a testament to how the value of a highly sustainable building manifests itself in terms of reduced environmental impact, increased health, wellbeing and social benefits, as well as cost, construction time, and labor savings. By repurposing the concrete foundation of an existing garage, using a glulam heavy timber structure, and working closely with the manufacturers as well as the contractor, our design team not only reduced embodied carbon emissions by more than 60% (compared to a traditional concrete construction), extended the value of materials and products beyond their typical lifespan (by enabling efficient disassembly and upcycling at end-of-life), but also diverted more than 65% of demolition and construction waste from landfill. Since its construction completion in 2019, the building continues to showcase how low/zero carbon buildings can also become the pillars for long-term health, community cohesion, natural capital, and economic prosperity.

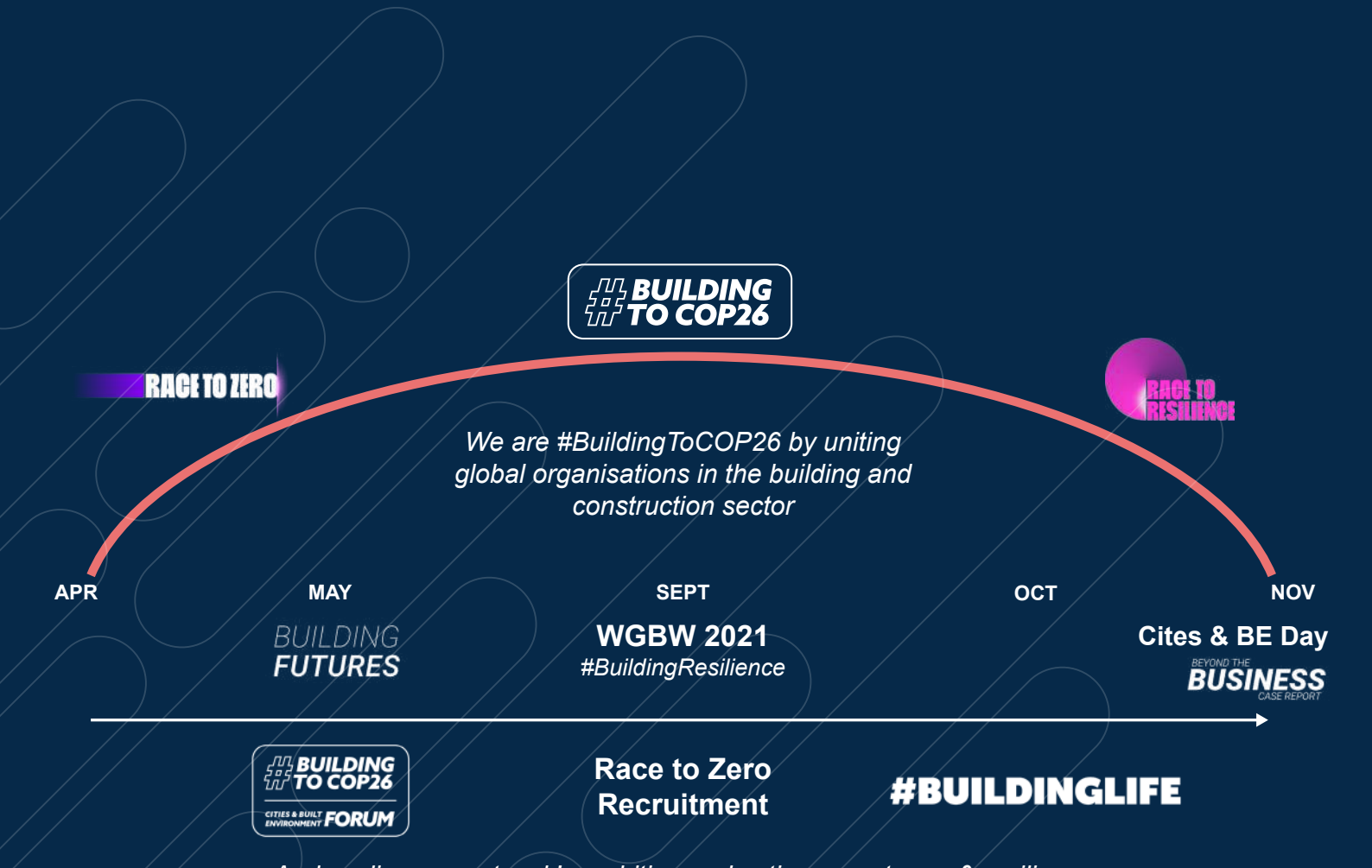
At SOM, we extend our concern for the environment beyond our scope of work as designers, planners, and engineers. For us, advancing net zero is about instilling a greater responsibility to reduce the consequences of human activity on ecological systems, and adding long-term value to people and the planet.

Billie Jean King Main Library, California, USA
Find out more.

We invite you to join us

2021 is a crucial year for climate action.

WorldGBC invites all stakeholders within the built environment, whether an investor, developer, owner, manufacturer, architect, designer or consultant, and representatives of national government, states and cities, to work with our global network, powered by our Green Building Councils, us and our partners to ensure that all our buildings, everywhere, are net zero carbon before 2050.

We encourage everyone to join the Race to Zero and become a frontrunner in the race by signing the Net Zero Carbon Building Commitment, to go further and faster in taking action to tackle the emissions from the built environment.

Join us and participate in our #BuildingToCOP26 campaign, running throughout the year in the lead up to the conference featuring several activities including Building Futures, the #BuildingToCOP26 Forums and World Green Building Week 2021 - #BuildingResilience.