

**nuveen**  
REAL ESTATE

# Net zero carbon pathway





## WHY IT MATTERS

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- Governance

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- 44 Farnsworth Street, Boston
- Prinses Irenestraat 159, Amsterdam
- CityPark, Vienna
- cube, Berlin
- 183-185 Clarence Street, Sydney
- Sustainable Living, Copenhagen

## APPENDIX

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- Industry standards and benchmarks
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# Why it matters: Real estate for tomorrow's world



The net zero carbon pathway is just one element of creating real estate that will allow people to thrive in tomorrow's world. This tomorrow's world approach sits at the core of Nuveen Real Estate's investment process and business operations.

Our investment, asset management and corporate strategies grow from a deep understanding of the structural trends of demographics, sustainability and technology that we believe will shape the future of real estate and responsible investing beyond market cycles.

These megatrends, such as the transition to the low carbon economy, will have a significant effect on real estate value in the years ahead. It is essential that our investment decision making is informed by an in-depth knowledge of these issues so that we can protect value for our clients. The best way to achieve this is for different disciplines to work together in a single, coordinated team. As such, we have created our Strategic Insights team which combines all of Nuveen Real Estate's thought leadership resources from traditional research to sustainability, innovation, proptech and community impact.

Managing a suite of funds and mandates, across both public and private investments, and spanning both debt and equity across diverse geographies and investment styles, we provide access to every aspect of real estate investing.



# Net zero carbon by 2040

In order to support the objectives of the Paris Accord, governments in major countries across the world have committed to reach net zero by target dates between 2030 and 2060.<sup>1</sup> In anticipation of a severely carbon constrained future, global investors are assessing their portfolios to identify underlying climate risks<sup>2</sup> and a large number of real estate investors have committed to reduce emissions from their portfolios to net zero by 2050.<sup>3</sup> At Nuveen Real Estate, however, we are aiming to achieve net zero carbon in our real estate portfolio no later than 2040.

**Our net zero carbon pathway explains why we think it is prudent to achieve net zero carbon earlier than the broader market, and how we will aim to do this. We encourage real estate investors globally to adopt a similar goal and we welcome discussions about sharing best practices.**

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Policies and regulations continue to be introduced across the globe that mandate meeting carbon reductions that align with a 1.5 degree global warming scenario. Already, we see evidence of market expectations changing as environmental issues move up the political agenda. As momentum grows, we plan to be net zero carbon for the portfolio of real estate that we manage by 2040.

This recognises that we work with a broad range of institutional clients and blue-chip occupiers who expect their buildings to meet market standards well ahead of regulatory requirements. It also allows us to move ahead of the market in the locations and sectors where we expect to see a value uplift for net zero carbon buildings, effectively as a function of occupier demand for low carbon buildings outpacing supply. This target timeframe also takes into account the fact that we manage a global and diversified portfolio, with exposure to a highly varied set of policy and local market conditions.

Nuveen Real Estate's 2040 global deadline allows portfolios to move much more quickly. We are monitoring indicators across the globe that show the transition is picking up pace.<sup>4</sup> We intend to accelerate our net zero carbon pathway as necessary if specific regions or sectors expect us to do so. A benefit of our global footprint is that we are able to draw on our knowledge and expertise from locations that are transitioning swiftly to a low carbon economy and apply it in other markets.

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1 <https://eciu.net/netzerotracker>

2 [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_gl/topics/banking-and-capital-markets/ey-climate-change-and-investment.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-climate-change-and-investment.pdf)

3 <https://www.betterbuildingspartnership.co.uk/member-climate-commitment>  
<https://americas.uli.org/research/centers-initiatives/uligreenprint/membership/uli-greenprint-goals/>

4 See page 8 for more detail on the indicators that we are monitoring.



# Milestones

on the pathway to net zero carbon by 2040

Nuveen Real Estate sets 30% energy intensity reduction target by 2030

We sign Better Building Partnership (BBP) Climate Change Commitment in 2019

Our target of 30% reduction in energy intensity by 2030 brought forward to 2025 due to successful energy efficiency strategies

Reduction of portfolio's carbon intensity by 50%

All buildings are operationally net zero carbon

2015

2020

2025

2030

2040

Key actions

- Commits Nuveen Real Estate to setting a pathway by 2020 and achieving net zero carbon (NZC) by 2050 at the latest

- Develop costed business plans for NZC for all relevant buildings
- Achieve 50% whole building energy data coverage
- Assessment of NZC potential for debt portfolio

- Portfolio average carbon efficiency in Europe meet or exceed local industry standards for the path to net zero carbon
- Mass removal of fuels underway
- Renewable energy power purchase agreements (PPAs) in place where feasible

- Global portfolio average carbon performance tracking below local market net zero carbon operational pathways
- Significant reductions in embodied carbon and tenant emissions

>>>> completed

>>>> Public annual disclosures in line with industry standards

More detailed milestones are set out on page 6. Note that these milestones have been developed in accordance with the assumptions set out on page 8. We will undertake regular reviews of the relevance of these milestones based on market conditions and will update them accordingly if necessary.



# Nuveen Real Estate's net zero carbon pathway

	2020–2025	2025–2030	2030–2035	2035–2040
<b>Operational efficiency and tenant engagement</b>	<ul style="list-style-type: none"> <li>• Achieve 30% energy intensity reduction</li> <li>• Capture 50% whole building data</li> <li>• Establish carbon footprint</li> <li>• Establish which standards to use for NZC energy use intensities (e.g. CREEM, GBCs)</li> <li>• Develop costed business plans for NZC for all relevant buildings*</li> <li>• NZC potential assessed in buy/hold/sell decisions</li> </ul>	<ul style="list-style-type: none"> <li>• Europe portfolio average carbon performance tracking below local market net zero carbon operational pathways</li> <li>• NZC potential is informing allocation strategy</li> <li>• Mass removal of fuels underway</li> <li>• Capture 80% whole building data</li> <li>• Aiming for reduction of portfolio's operational carbon intensity by 50%, based on 2019 baseline</li> </ul>	<ul style="list-style-type: none"> <li>• Global portfolio average carbon performance tracking below local market net zero carbon operational pathways</li> <li>• Target set and on track for reduction in tenant emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Global portfolio average continues to track below strengthening local market NZC pathways</li> <li>• Removal of fuels complete</li> <li>• Significant reduction in tenant emissions</li> </ul>
<b>Renewables</b>	<ul style="list-style-type: none"> <li>• Onsite renewable assessments for all buildings</li> <li>• Analysis of the potential for PPAs in our different global regions</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable energy PPAs in place globally where feasible</li> </ul>		
<b>Debt portfolio</b>	<ul style="list-style-type: none"> <li>• Assessment of NZC potential for debt portfolio completed</li> </ul>	<ul style="list-style-type: none"> <li>• NZC-related clauses become standard for new loans</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon footprint for the debt portfolio</li> <li>• All loans have NZC clauses</li> </ul>	
<b>Development and embodied carbon</b>	<ul style="list-style-type: none"> <li>• Sustainable development framework rolled out globally</li> <li>• Design for performance process with target operational EUIs established in Europe</li> <li>• Establish targets for embodied carbon using standards such as RIBA and LETI</li> </ul>	<ul style="list-style-type: none"> <li>• Embodied carbon is tracked and reducing, an internal cost of carbon is established and applied fund by fund</li> <li>• Design for performance process with target operational EUIs established globally</li> </ul>	<ul style="list-style-type: none"> <li>• Whole life carbon approach now well established and embodied carbon reducing significantly</li> </ul>	<ul style="list-style-type: none"> <li>• Significant reduction in embodied carbon</li> </ul>
<b>Offsetting**</b>			<ul style="list-style-type: none"> <li>• Carbon emissions catalogued and carbon offsets purchased for funds wishing to claim NZC status</li> </ul>	
<b>Verification***</b>	<ul style="list-style-type: none"> <li>• Annual verification</li> </ul>	<ul style="list-style-type: none"> <li>• Annual verification</li> </ul>	<ul style="list-style-type: none"> <li>• Annual verification</li> </ul>	<ul style="list-style-type: none"> <li>• Annual verification</li> </ul>

Note: These milestones have been developed in accordance with the assumptions set out on page 8. We will undertake regular reviews of the relevance of these milestones based on market conditions and will update them accordingly if necessary.

\*This will be undertaken through a combination of onsite assessments and the utilisation of a desktop tool. Cost information will be an input into asset strategy and business planning.

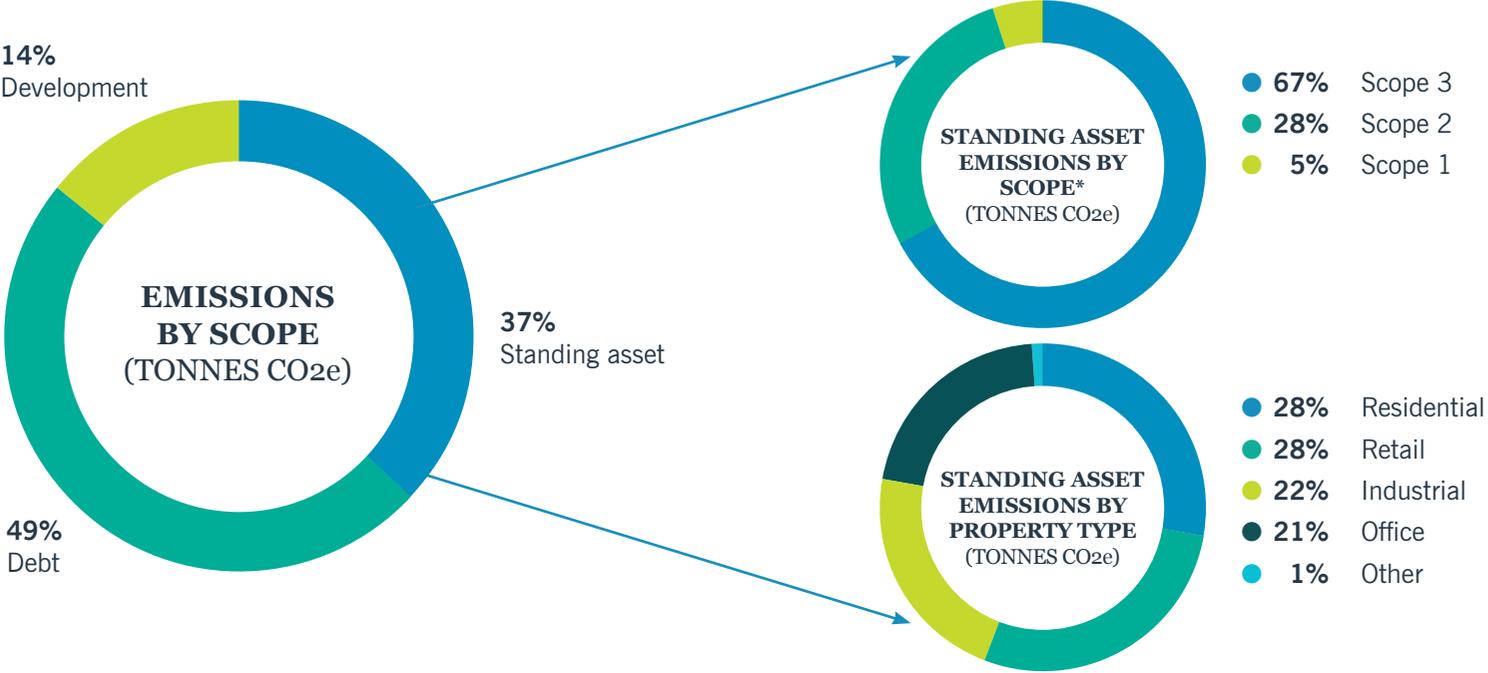
\*\*See further notes on page 9.

\*\*\*Environmental performance data and carbon metrics are published in our annual ESG report along with a verification statement. At the end of each five year milestone period, the progress narrative against milestones will also be externally verified.



# Our 2019 baseline global carbon footprint

The path to net zero carbon must start with an understanding of the current carbon footprint. This involves identifying the sources of carbon emissions and collecting the appropriate data. We have undertaken an exercise to establish our 2019 carbon footprint. This involved a high degree of estimation — particularly for the debt portfolio and development activity. Wherever possible, actual energy consumption data has been used with regional and asset-class-specific benchmarks used to estimate consumption where no data was available. Regional emissions factors have been applied to convert consumption into carbon emissions equivalent (CO<sub>2</sub>e). Despite the reliance on estimation, the exercise has enabled us to understand how our carbon footprint breaks down across different business activities and which are most material. We will continue to refine the estimation methodology and replace estimated data with actual data wherever possible. By the end of our initial milestone period (2025) we will republish our baseline with tonnes of carbon alongside the percentage breakdown. Annual environmental performance data and carbon metrics are published in the Nuveen Real Estate ESG report, which is available on our website.



Since originally publishing the breakdown of our carbon footprint, we have improved the data inputs to give a more accurate reflection of the number of developments that were completed in the baseline year and we have also replaced some of the estimated data for the standing assets with actual data. This has resulted in a reduction in the proportion of these two segments. We have removed the corporate emissions altogether as these are now covered by TIAA's corporate NZC pathway.

We have a higher degree of certainty in the carbon footprint of our standing asset investment portfolio, than in our debt and development portfolios, which are entirely estimated. We will continue to refine the estimation methodology and replace estimated data with actual data wherever possible. By the end of our initial milestone period (2025) we will provide a more comprehensive output which will also include tonnes of carbon alongside the percentage breakdown.

\*SCOPE 1 covers direct emissions from landlord controlled sources. SCOPE 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling controlled by the landlord. SCOPE 3 includes all other indirect emissions that occur in a company's value chain, including emissions from energy procured by tenants directly from utility. BEES Energy consumption benchmarks. CBECs Energy consumption benchmarks. IEA Emissions factors. DEFRA Emissions factors. EPA Emissions factors. Circular Economy Embodied Carbon Footprint Database. UKGBC Guide to scope 3 reporting for development. Non-US assets/utilities that were not whole building were estimated using the BEES intensities by fuel. US assets/utilities that were not whole building were estimated using the CBECs intensities by fuel. IEA emissions factors were used to convert electricity consumption into carbon emissions. DEFRA emissions factors were used to convert other energy sources into carbon emissions. EPA emissions factors were used to convert US electricity consumption into carbon emissions. Circular Economy embodied carbon intensities and UKGBC guidance for reporting on expected operational carbon for the lifetime of developments were both used to estimate the carbon footprint for development. The carbon footprint is formulated using energy data that is independently verified per the Verification Statement in the Appendix. The carbon footprint once calculated using the energy data and emissions factors is not independently verified.



# Assumptions that our goal is predicated on



**Electricity grids in the regions that we invest** will continue to decarbonise and the availability of renewable energy projects for PPAs will increase

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**Technology to make buildings more energy efficient** will continue to improve and reduce in cost

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**Building regulation** around energy and carbon efficiency will continue to strengthen

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**Investors will make allocation decisions** based on meeting decarbonisation goals

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**Occupiers' net zero carbon goals** will inform their space requirements

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**The skills and knowledge on net zero carbon in our supply chain** will continue to increase

# Definitions

While there is an accepted framework and energy hierarchy for net zero carbon buildings, there is still a lack of clarity about the actual energy use per square meter that constitutes a net zero carbon building and the level of embodied carbon that is permissible. The definition below is what we have adopted but we continually review this as industry consensus emerges.



## **Carbon offsetting**

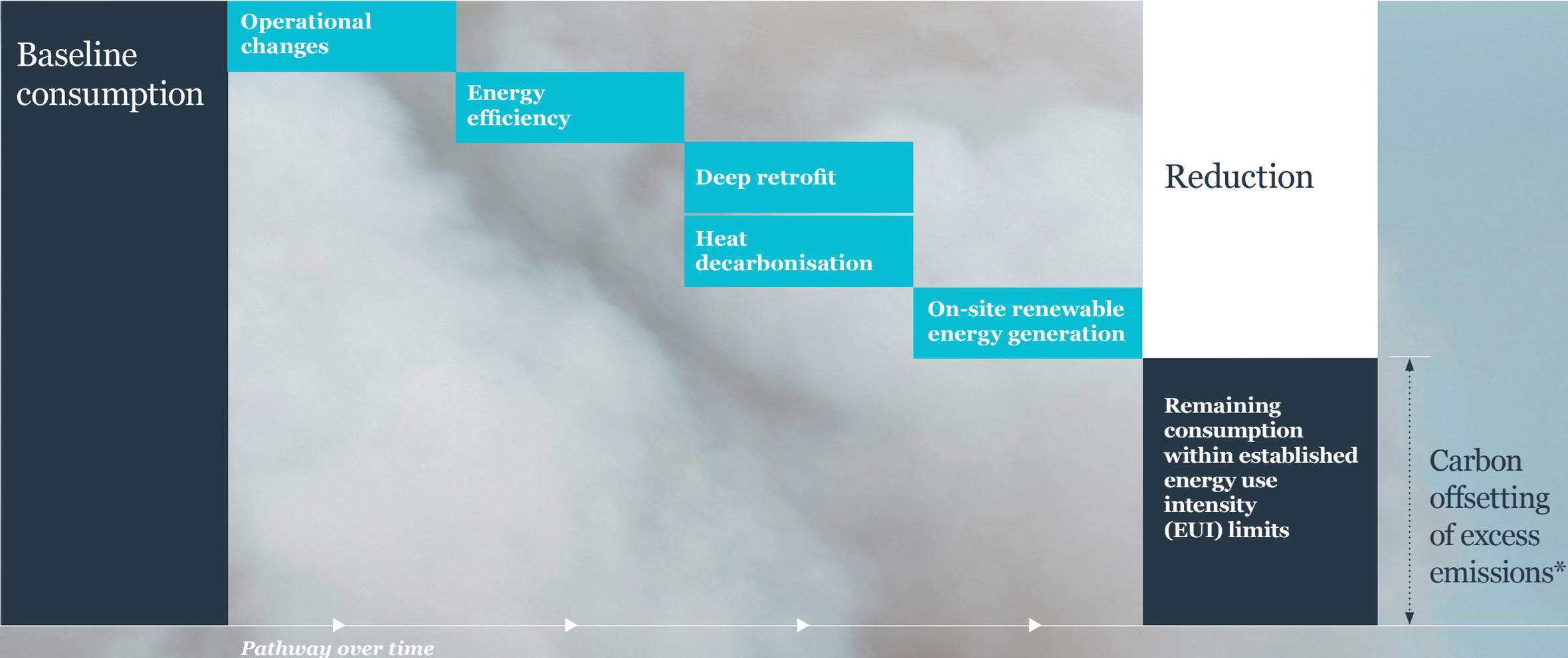
Nuveen Real Estate follows the energy hierarchy as set out above. As the owner, developer or financier of buildings, our primary role in the transition to a low carbon economy is to make the buildings in our portfolio more energy efficient and maximise access to renewable energy. We believe this enhances and protects value. Once operational energy use has been reduced as far as possible there may be some excess carbon emissions remaining. Development and refurbishment activity is also always likely to result in some embodied carbon emissions – even when this has been reduced significantly. In order for the individual vehicles that we manage be classified as net zero carbon, this remaining excess carbon would need to be offset and it may be in the commercial interests of the vehicles for this to take place as buildings may be more attractive to occupiers and buyers if excess carbon emissions have been offset. The decision of whether it is appropriate to offset emissions will be taken on a vehicle-by-vehicle basis and some investors may prefer to directly offset their own emissions rather than have the vehicle undertake this activity. We anticipate that it would be much more unusual to offset emissions associated with debt as the borrower would typically be the most appropriate party to undertake that activity, if it was deemed to be accretive to investment performance.

\*Excess emissions are defined as: embodied carbon from development and refurbishment and carbon emissions associated with operational energy use that is in excess of the market EUI standard.



# Decarbonising real estate investments

Intervention packages to reduce a building's operational energy



\*Excess emissions are defined as: embodied carbon from development and refurbishment and carbon emissions associated with operational energy use that is in excess of the market EUI standard.



# Our target to reduce energy intensity by 30% brought forward to 2025

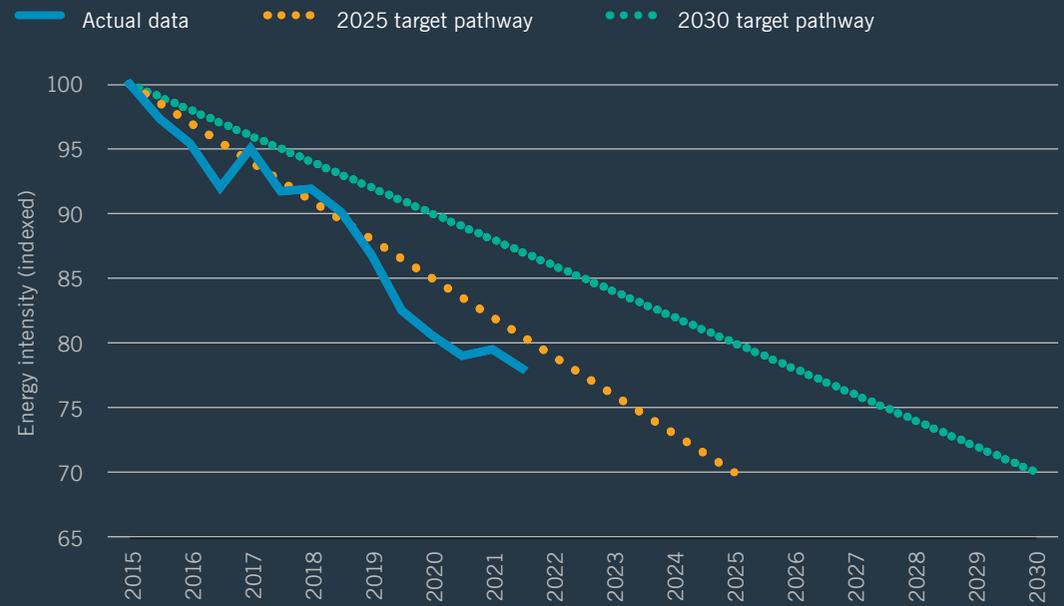
In 2015, Nuveen Real Estate set a target to reduce the energy intensity of its global real estate equity portfolio by 30% by 2030.<sup>1</sup> As part of our net zero carbon pathway we have brought this 30% energy efficiency target forward to 2025.

We are tracking well ahead of our 2030 target pathway which can be attributed to improving the efficiency of our existing buildings portfolio, while also developing and acquiring buildings that are performing ahead of industry benchmarks on energy efficiency. We expect to continue to see some normalisation in energy use as some of our buildings resume a normal occupancy and operations post-COVID. Meeting this target is our first step toward future-proofing the Nuveen Real Estate portfolio against transition risk and aligning our portfolio with the global movement to limit global warming as agreed in the Paris Agreement.

<sup>1</sup> This target applies to those assets in our portfolio where Nuveen has asset management control. It excludes assets where our role is purely advisory and also those assets in our Debt portfolios. For office buildings, whole building energy use is included, regardless of whether the cost for this energy is recovered directly from tenants. For retail and industrial properties, only common parts energy use is used. For multifamily properties, whole building energy use is included where we have it. Target progress is calculated using a weighted indexed approach. This means that similar properties are grouped together and are allocated a proportion of the index 'points' available based on the total energy use of that group. Reductions in energy use then reduce the total points. For example, if 10 points were awarded to European Offices and there was a 10% energy reduction in that group, that would result in a 1-point decrease. It is very difficult to put some buildings into a benchmark group as they do not share enough energy use characteristics with other properties. In this instance, these properties enter the index on their own and are compared only against themselves. This enables us to exclude less properties. Other reasons to temporarily exclude properties are if they are undergoing major refurbishments or are less than 60% occupied. Energy use is measured by kWh of "electricity equivalent" (kWh<sub>eq</sub>) of whole building imported energy use per sq ft. The numerator is calculated by adding kWh of imported electricity to kWh of any imported fuel multiplied by 0.72 and kWh of imported hot or chilled water multiplied by 0.86 or 0.4 respectively. The 'kWh<sub>eq</sub>' energy metric enables direct aggregations of building energy use and comparisons of efficiency across international property portfolios. The denominator represents the gross internal floor area of space to which Nuveen Real Estate supplies energy.

## Progress against 2030 target

We have now brought our target achievement date forward to 2025 and made this goal one of the first milestones on our pathway to net zero carbon



Source: Nuveen Real Estate, June 2022

## Included in target scope

 	 	 	 	 
Workplace/ Office	Retail & Mixed-use	Industrial/ Logistics	Housing	Debt



# Applying our net zero carbon goal to our investment strategies

At Nuveen Real Estate, we believe that aiming to achieve net zero carbon by 2040 is a central tenet of enhancing and protecting the value of the investments that we manage and a key focus for our clients. Incorporating this goal into fund strategy and asset business planning enables us to take account of the evolving market demand and regulatory requirements related to net zero carbon buildings.

1

## VEHICLE-LEVEL CONSIDERATIONS

We manage a wide range of different strategies; some where we have full discretion and others where we act purely in an advisory capacity where final decision-making rests with the investors. In some instances, the strategies that we manage own buildings outright, in other instances they enter joint ventures or are providing loans. The lifespan of investment strategies also varies. We manage a series of open-ended investment vehicles with a long-term horizon but we also manage a range of closed-ended vehicles which are due to sell all buildings well in advance of 2040.

2

## ASSET-LEVEL CONSIDERATIONS

At the asset level, there are varying degrees of control and influence over energy consumption between Nuveen Real Estate and building occupants. For example, we have a greater ability to impact the energy efficiency of a multi tenanted building with landlord control of heating and cooling equipment than we do for an industrial warehouse building where the tenant owns and operates the central plant and machinery and procures the energy directly.

In recognition of these wide-ranging circumstances, we have developed three net zero carbon personas that can be applied to our different investment strategies and asset business planning activities, and which can aid portfolio managers in managing the transition to a low carbon economy.



# Our three net zero carbon personas

All of our investment strategies are categorised (or in the process of being categorised) into one of the below personas. This table sets out how that categorisation is determined.

	Description	Strategy	Timing and value impact	Key activities
<b>Net zero carbon priority</b> 	<ul style="list-style-type: none"> <li>Entities investing in assets where the achievement of net zero carbon is a core part of the strategy and/or NZC has been determined to be likely to have an impact on the investment performance over its lifetime</li> </ul>	<ul style="list-style-type: none"> <li>Open-ended/evergreen products</li> <li>Strategies where the investors have proactively requested Paris aligned transition pathway alignment</li> </ul>	<ul style="list-style-type: none"> <li>Strategy lifespan typically goes beyond 2040 (but strategies with lifespans ending prior to 2040 can be in this category if market evidence supports)</li> <li>Buildings are in sectors and/or regions where there are current market NZC expectations or demand</li> </ul>	<ul style="list-style-type: none"> <li>Developing NZC business plans, and incorporating NZC costs and feasibility into buy/hold/sell decisions</li> <li>Accelerate 'no regret' energy efficiency upgrades</li> <li>Develop clear NZC milestones to report fund specific progress to investors</li> </ul>
<b>Net zero carbon aligned</b> 	<ul style="list-style-type: none"> <li>Entities investing in assets where Nuveen may not be the manager to deliver the entire transformation to NZC and/or where the ability to achieve NZC is a contributing factor but not a key driver of the asset's value</li> </ul>	<ul style="list-style-type: none"> <li>Open-ended strategies where investors have deferred a commitment to NZC whilst market evidence builds</li> <li>Strategies that are closed-ended with an end date prior to 2040</li> </ul>	<ul style="list-style-type: none"> <li>Strategy lifespan typically ends prior to 2040</li> <li>Buildings are in sectors and/or regions where NZC is unlikely to be a market requirement but will be an underwriting factor considered by future buyer</li> </ul>	<ul style="list-style-type: none"> <li>Assess the practical and economic feasibility of achieving NZC in order to maximise value</li> <li>Consider as part of annual business planning recategorisation to NZC priority</li> </ul>
<b>Out of scope</b> 	<ul style="list-style-type: none"> <li>Entities investing in assets for which the achievement of NZC is not a core part of the strategy nor is it expected to impact asset value</li> </ul>	<ul style="list-style-type: none"> <li>Investors have explicitly opted out of net zero carbon goals</li> </ul>	<ul style="list-style-type: none"> <li>Strategy lifespan ends prior to 2040</li> <li>Buildings are in sectors and/or regions where there is no market expectation for NZC buildings anticipated in the lifetime of the investment</li> </ul>	<ul style="list-style-type: none"> <li>Meet regulatory requirements for energy and carbon disclosure</li> <li>Monitor for shifts in investor and market expectations</li> <li>Consider as part of annual business planning recategorization to NZC aligned</li> </ul>



# Regional net zero carbon insights

**Top 5** real estate manager globally<sup>1</sup>

**\$155B** AUM<sup>2</sup>

**775+** people<sup>3</sup>

**30+** cities<sup>4</sup>



## USA: \$120B AUM

- Building energy/carbon regulation is inconsistent but continues to grow in scope and reach across the nation.
- Biden Administration rejoins U.S. to Paris Accord, signs Federal Sustainability Plan, and sets net zero goals for the country.
- Securities Exchange Commission proposes rules on climate-related disclosures.
- According to SBTi, 400 large U.S.-based companies have set net-zero targets.

## Europe: \$29B AUM

- Regulations in force or coming into force covering building standards and transparency. Many individual countries showing leadership with NZC targets.
- Ambitious climate action is mainstream for institutional investors.
- Many real estate leaders in Europe expect to be NZC by 2030–2035.

## Asia Pacific: \$6B AUM

- Clear leadership in some locations but others further behind.
- Australian investors among the most ambitious globally. NZC expected by 2030–2035 for many Australian real estate leaders.
- Japan, South Korea and Australia have committed to NZC by 2050. China committed to NZC by 2060.
- Physical impacts could drive change.

Source: Nuveen Real Estate, 31 Dec 2022. Staff numbers are calculated on a pro-rata basis.

1 AANREV/INREV/NCREIF Fund Manager Survey 2022. Survey illustrated rankings of 143 fund managers globally by AUM as at 31 Dec 2021. 2 AUM includes multi-asset properties totaling \$2B. 3 Includes 385+ real estate investment professionals, supported by a further 390+ Nuveen employees. 4 Operations in Seoul through an investment partnership.



Climate change represents investment

**risk and**

**opportunity**





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The physical impacts of climate change and the transition to the low carbon economy of the future will affect real estate values in the years ahead. This poses a complex set of investment risks and opportunities for real estate portfolios, which need to be anticipated, evaluated and addressed before negative value corrections erode financial performance. This has to be done in good time to ensure that the accretive benefits of early mover advantage are captured.

Developing an understanding of how, where and when the physical effects of climate change will become financially material to an individual investment's financial performance is critical to protecting asset value and portfolio performance. At Nuveen Real Estate, we have developed a robust methodology for assessment of our assets under management globally, taking due account of local, asset-specific circumstances.

However, the transition to the low carbon economy has just as much — if not more — potential to impact investment performance. It is essential to our clients' investments and our fiduciary duty that we develop an ambitious yet realistic pathway for our real estate assets to achieve net zero carbon. This will not only mean that we are able to manage transition risks more effectively, but it will also position us to unlock the short-term value arbitrage that we expect to realise from net zero carbon buildings.



# Transition risks and opportunities

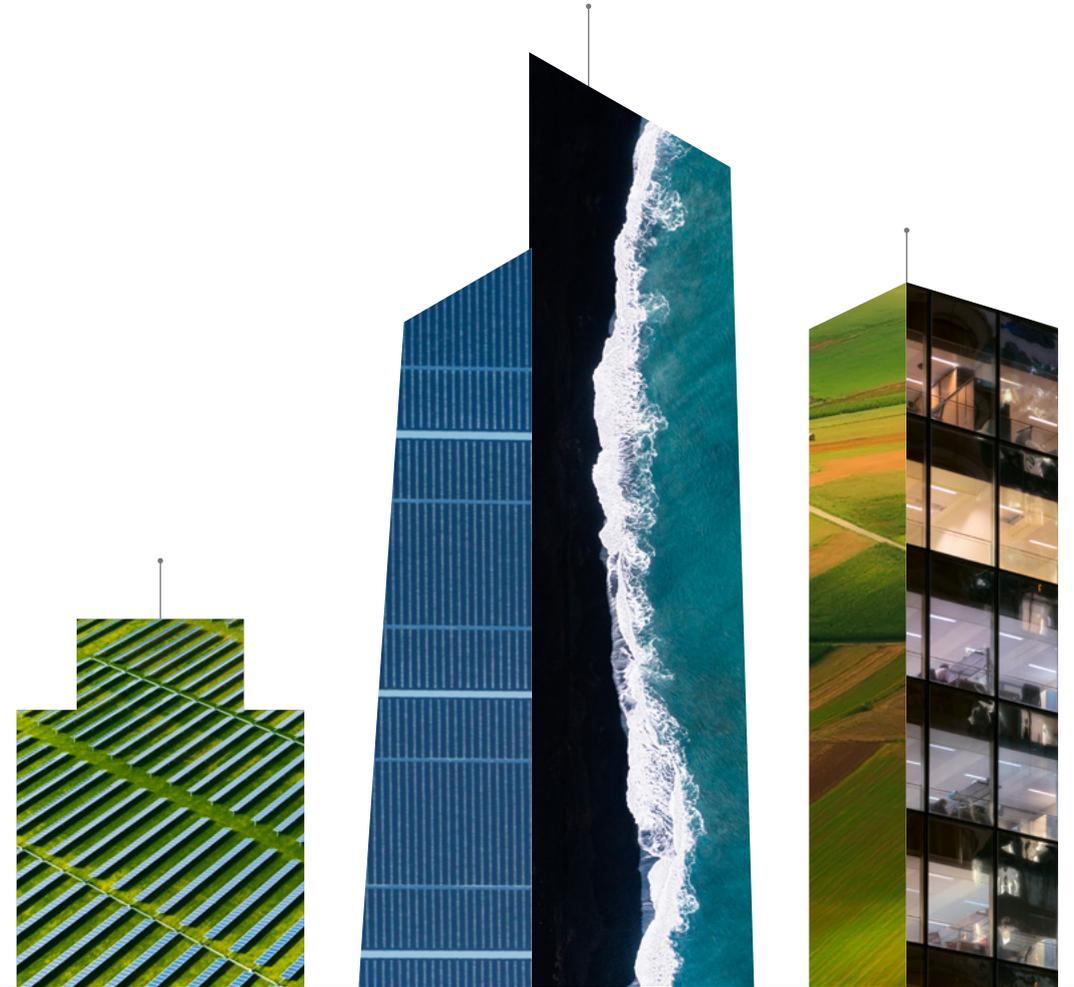
**The transition to the low carbon economy will have a transformative impact on many industries over the next few decades.**

In the short to medium term, our view is that transition risk and opportunity will have a more significant impact on real estate markets than physical climate change risk in the majority of the locations in which we invest.

Transition risk and opportunity will be particularly significant in Europe. European cities will not be as exposed to physical impacts as some other global locations but there is strong engagement from governments, investors and business on this issue — meaning that policy risk, market shifts and technological innovation are all likely to move swiftly.

In the U.S., this transition is also expected to take place more rapidly in coastal-urban markets where there is a strong demand for climate action among residents, local government and the global corporate occupiers that take space in these locations.

Our net zero carbon goal is predicated on our conviction that buildings in 2040 that do not meet a net zero carbon standard will become obsolescent and that it will be possible to decarbonise real estate whilst delivering a healthy return. This is based on a number of trends that we observe in the markets in which we invest. If the assumptions set out within this paper (see page 8) materialise as we expect, the strategy that we have in place to decarbonise our real estate portfolio will enhance and protect returns for investors. We therefore monitor these trends and will adjust our pathway and make changes to our milestones accordingly if they progress more quickly or more slowly than we anticipate.



# Risks and opportunities

## Market demand

We expect to see increased preference for sustainable and low carbon buildings from occupiers and investors in the coming years.

As these market shifts continue, low carbon buildings have the potential to command lower void rates, higher rents and improved operating profit, with capital values and liquidity being enhanced as a result. Conversely, inefficient buildings will depreciate and become obsolete more quickly, with a number of investors already determining and acting upon stranded asset criteria.

Various studies by JLL,<sup>1</sup> MSCI,<sup>2</sup> Knight Frank<sup>3</sup> and others have been conducted in 2021, 2022 and 2023 to examine the market impact of the transition to a low carbon economy. These studies have shown that for office buildings in London and some other European cities, an environmental certification may lead to a rental increase in the region of 10%, a yield premium in excess of 20 basis points and a capital value premium of up to 20%.

## Legislative change

The Paris Accord, committing the world to limiting average warming to well below 2 degrees Celsius above pre-industrial levels, was ratified globally in 2016. We have already seen legislation introduced to accelerate the transition to a low carbon economy and expect this to continue to build.

For real estate, this means a ramping up of building codes and regulations, and the introduction of further market-based instruments. Minimum Energy Efficiency Standards in the U.K. and The Netherlands, the Nearly Zero Energy Buildings requirements across Europe and Local Law 97 in New York are just a few current examples. Ultimately, we expect to see legislation pushing all buildings — both new and existing — to become net zero carbon. The World Green Building Council states that this must happen by 2050<sup>4</sup> if the goals of the Paris Accord are to be achieved. Progress from governments so far has been slow, which means that an orderly transition is now less likely. A disruptive approach with an abrupt and forceful policy response becomes more inevitable as governments take longer to act. Taking pre-emptive action to decarbonise our portfolios becomes an important risk management measure.

## Technological innovation and obsolescence

The rate of technological change over the last decade has been rapid in the area of building efficiency and clean energy production. Advances in renewable technology mean that this has now reached price parity with fossil fuels in many regions, and the cost of renewables is predicted to continue to decline.

Advances in technologies such as LED lighting, sensors, energy monitoring and efficient heating, ventilation and cooling make it increasingly cost effective to deliver low carbon buildings. However, these rapid advances also bring with them the risk of obsolescence for buildings where the transition to net zero carbon is not economically feasible.

1 Sustainability and Value Capital Markets: Central London Offices 2022, Green Leasing 2.0 March 2023

2 <https://www.msci.com/www/quick-take/london-and-paris-offices-green/03510893060>

3 The Sustainability Series September 2021: How BREEAM certifications impact prime central London office rents

4 [https://worldgbc.org/wp-content/uploads/2022/03/From-Thousands-To-Billions-WorldGBC-report\\_FINAL-issue-310517.compressed.pdf](https://worldgbc.org/wp-content/uploads/2022/03/From-Thousands-To-Billions-WorldGBC-report_FINAL-issue-310517.compressed.pdf)



# The hallmarks of Nuveen Real Estate's approach to achieving net zero carbon

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***Client needs*** — Focusing on the outperformance that net zero carbon can deliver while influencing and responding to investors' decarbonisation targets and meeting occupier requirements

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2

***Transparency*** — Providing clear and comparable information to investors on our progress towards net zero carbon

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3

***Global scalability*** — An approach that allows us to set on the pathway to net zero carbon across all global regions in which we invest

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4

***Local relevance*** — Allowing the flexibility to adapt to different market conditions and preferences

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5

***Partnerships with trusted experts*** — Working with leading operating partners, developers and consultants to achieve our ambition

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6

***Integration*** — Ensuring that our investment professionals receive ongoing training to incorporate the knowledge of climate risk into investment decision making

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7

***Industry engagement*** — Supporting the adoption of reporting and certification standards for achieving net zero carbon in the real estate sector



# Governance

Good governance is critical for the success of any organisation-wide initiative.

At Nuveen Real Estate we have established the following governance structure to ensure our net zero carbon pathway is on track and any divergence can be addressed and corrected.

## Nuveen level

Progress towards net zero carbon will be monitored and reported to the following internal committees:

- Investment Committees for Europe, U.S. and Asia Pacific
- Global Executive Leadership Team
- Nuveen Real Estate Risk Management Committee
- Nuveen Net Zero Carbon Steering Committee

## Fund level

Individual funds are establishing their own net zero carbon pathways with market-appropriate timeframes. Progress against these pathways will be monitored and reported to fund boards and updates included at investor days. Progress will also be reported to the relevant regulated boards.

## External reporting

Transparency is critical. Our Nuveen-level progress will be reported annually in our ESG report and in the TIAA climate report. We will report fund-level progress to investors at least annually.



# Case studies

The following case studies are examples of how Nuveen Real Estate is reducing carbon emissions in some of our assets.



Edge Olympic AMSTERDAM >>



44 Farnsworth Street BOSTON >>



Prinses Irenestraat 159 AMSTERDAM >>



CityPark VIENNA >>



cube Berlin BERLIN >>



183-185 Clarence Street SYDNEY >>



Sustainable Living COPENHAGEN >>





# Edge Olympic

## AMSTERDAM

### A new generation of smart buildings

- Awarded as net zero carbon by the Dutch Green Building Council
- Saving significant amounts of embodied carbon by building on the structure of an existing post office
- Providing access to a smartphone app, which enables users to personalise their workplace; with the possibility to customise the lighting and temperature, continuously measuring noise levels and air quality to inform choices
- Integrating healthy working with ergonomic workspaces, comprised of sit-stand tables and adjustable chairs and screens
- Promoting clean transportation by installing charging posts for electric vehicles

### Awards & certifications

- Edge is the first in The Netherlands to receive a WELL Core and Shell 'Platinum' certification and is now also the first in the world to be awarded with a Platinum WELL certification through the WELL V2 pilot for Edge's headquarters
- In addition, Edge has an energy label 'A' and a BREEAM 'Excellent' certification demonstrating its exemplary environmental performance

Nuveen Real Estate, 2023.





Workplace/  
Office

## 44 Farnsworth Street

### BOSTON

- Automatic meter readings (AMR) that collect energy consumption and diagnostic data from energy meters
- Replaced end-of-life HVAC equipment with a Variable Refrigerant Flow (VRF) split HVAC system providing 100% electric-powered cooling and heating to the building. Effort resulted in ENERGY STAR score rising from 37 to 91
- HVAC preventative maintenance program in place to optimise the efficiency of rooftop HVAC units such as biannual HVAC filter replacement
- Connectivity assessment completed by Airwavz

### Awards & certifications

- 2022 ENERGY STAR Certified
- Earned the Fitwel Viral Response Asset Approval, indicating the property aligns with the industry standard for optimising buildings in response to the broad health impacts of infectious respiratory diseases in light of the COVID-19 pandemic





# Prinses Irenestraat 159 (P159)

## AMSTERDAM

- In line with the Dutch Green Building Council's requirements for net zero carbon by minimising whole building energy demand
- Transforming an existing 1970s building into an outstanding 21<sup>st</sup> century office whilst having minimum environmental impact
- Retaining majority of the existing structure to save significant amounts of embodied carbon
- Designing flexible floorplates by providing open plan and cellular layouts to enable the building to accommodate requirements of new uses and future changes
- Designing partly underground car parks and EV charging stations that are blended with the landscape to promote biodiversity In line with the Dutch Green Building Council's requirements for net zero carbon by minimising whole building energy demand

## Awards & certifications

- P159 is expected to achieve an 'Excellent' BREEAM certification through incorporating sustainable materials, district heating, smart sensors, rainwater harvesting system, high efficiency cooling systems as well as ecological enhancement features such as bird nests and plants
- The asset is also expected to also achieve a 'Platinum' WiredScore certification as a result of establishing a strong technology infrastructure for all office spaces





Industrial/  
Logistics

# CityPark

VIENNA

## 100% energy self sufficient

- Providing a site-wide district heating network for delivering sustainable energy supply and eliminating the need for consuming fossil fuels
- Installing a green roof and roof-integrated solar photovoltaic panels to further complement the energy and water efficiency measures in place
- Installing low-energy LED lighting and rainwater harvesting systems to achieve savings in energy and water consumption
- Using environmentally friendly materials and low emission products
- Life cycle planning, optimisation, climate protection goals and eliminating the use of halogenated hydrocarbon refrigerants
- Promoting clean transportation by installing charging posts for electric vehicles

## Awards & certifications

- Phase 1 and Phase 2 of CityPark hold a DGNB 'Gold' certification. Phases 3 to 5 are also en-route to obtain similar certification upon completion.
- The DGNB certification is the outcome of the asset's outstanding performance in multiple criteria such as: 'Building lifecycle assessment', 'Local environmental impact', 'Lifecycle cost', 'Flexibility and adaptability', 'Safety and security' and 'Indoor air quality'





# cube Berlin

## BERLIN

- cube Berlin is a 17,500 sq m customised smart office building on Washingtonplatz at Berlin's central railroad station and part of the area's long-term regeneration
- 100% pre-let, this fully digitalised smart building includes intelligent heating, cooling and lighting systems, and offers a tenant app for room bookings and internal communications
- Using artificial intelligence, the building recognises user requirements and flexibly meets their needs
- It has a WiredScore 'Platinum' certification, one of the first assets in Germany to attain this, and is in line for Gold certification by the German Sustainable Building Council (Deutsche Gesellschaft für Nachhaltiges Bauen, DGNB) due to its ecological, social and economic sustainability criteria





# 183-185 Clarence Street

## SYDNEY

- 183-185 Clarence Street is a recently redeveloped heritage office property providing c.7,900 sq m (c.85,000 sq ft) of commercial space across 12 floors
- Its high-quality, sustainable fit-out spec is well aligned with our objective to create assets for tomorrow's world, aiming to generate durable income and return for our clients
- The building has achieved 6 Star Green Star and WELL Health and Safety (HSR) ratings and is targeting 5 Star NABERS
- 183-185 Clarence Street maximises the use of renewable energy with rooftop solar PV panels and a renewable Power Purchase Agreement (PPA) in place for 100% of landlord consumption





Housing

## Sustainable Living

### COPENHAGEN

- A portfolio of four standing single family housing estates in Greater Copenhagen with a total of 84 units, as well as developing a 16,000 sq m, 143 unit estate, to be completed in 2023/2024
- Standing assets with EPC A rating
- Ambition to have properties DGNB certified within the calendar year
- 143 unit development being delivered with DGNB Gold certification
- Central district heating across all properties, low energy LED lighting and energy efficient triple layer windows across all properties to minimise energy consumption
- Solar panels to be installed on new development and ambition to have 50% of all parking spaces with EV charging solution in place by year end
- Working with property manager to establish an operational net zero carbon strategy alongside real estate net zero carbon ambitions



# Further details on the scope of Nuveen Real Estate's net zero carbon pathway

Business area	GHG protocol reporting category <sup>1</sup>	Carbon scope <sup>1</sup>	Included in Better Buildings Partnership commitment?	Included in Nuveen Real Estate commitment
<b>Direct real estate holdings (including joint ventures with management control)</b>				
Landlord purchased energy (electricity & fuels)	Purchased electricity, heat and steam	1, 2 & 3	Yes	Yes
Tenant purchased energy (electricity & fuels)	Downstream leased assets	3	Yes	Yes
Landlord refrigerants	Purchased goods and services	1	Yes	Yes
Tenant refrigerants	Tenant Scope 3	3	No	No
Landlord purchased water	Purchased goods & services	3	Yes	No
Tenant purchased water	Tenant Scope 3	3	No	No
Landlord managed operational waste	Waste generated in operations	3	Yes	No
Tenant managed operational waste	Downstream leased assets	3	No	No
Visitors transport emissions	Tenant Scope 3	3	No	No
Tenant transport emissions	Tenant Scope 3	3	No	No
Tenant supply chain emissions	Tenant Scope 3	3	No	No
Landlord purchased capital goods & services (M&E & property management services)**	Purchased goods and services	3	Yes	No

1. Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company. Scope 3 includes all other indirect emissions that occur in a company's value chain.

\*\* This relates to services procured by the landlord to service and maintain the space e.g. property management, service charge recoverable items and minor CapEx items e.g. minor replacements.



# Scope — further detail

Business area	GHG protocol reporting category	Carbon scope	Included in Better Buildings Partnership commitment?	Included in Nuveen Real Estate commitment
<b>Investments (indirect real estate holdings, e.g., where investments are managed by a third party such as JVs with no management control or investments in other real estate investment vehicles)*</b>				
Investment that are managed by a third party such as joint ventures with no management control		3	Yes	Partial Inclusion will be determined on a case-by-case basis, dependant on the level of insight and control that Nuveen has. Over time, a greater proportion of indirect investments will be included as this will be established at set up point.
Debt investments		3	Yes	Partial For existing debt mandates, inclusion will be dependent on borrower engagement. Over time, all debt investments will be in scope as NZC clauses and disclosure of carbon emissions will be integrated as requirements.
Investments where Nuveen Real Estate has acted purely in an advisory capacity and maintains no management control		3	Yes	No

\* For indirect investments BBP recommends that carbon emissions should be attributed as a % ownership of the investment.



# Scope — further detail

Business area	GHG protocol reporting category	Carbon scope	Included in BBP commitment?	Included in real estate holdings commitment
<b>Development</b>				
New development (including those where funding is being provided)	Purchased goods & services	3	Yes	Yes
Refurbishments	Purchased goods & services	3	Yes	Yes
Fit-out (landlord controlled)	Purchased goods & services	3	Yes	Yes
Fit-out (tenant controlled)	Tenant Scope 3	3	Yes	Yes
End of life	End of life treatment of sold products	3	No	No
<b>Corporate</b>				
Head office energy use	Company facilities	1 & 2	No	N/A – included in TIAA corporate commitment
Company vehicles	Company vehicles	1	No	N/A
Business travel (excluding commuting)	Business travel	3	No	N/A – included in TIAA corporate commitment
Purchased goods & services	Purchased goods & services	3	No	No
Operational waste generated	Waste generated in operations	3	No	No
Operational water use	Purchased goods & services	3	No	No
Employee commuting	Employee commuting	3	No	No

Source: Nuveen Real Estate, 2023



# Industry standards and benchmarks

Developing a common lexicon and means of measurement is crucial for achieving climate change and net zero carbon goals. Below is a list of some of the current industry commitments, standards and benchmarks that are supported by Nuveen Real Estate.

## Climate commitments



### The Better Buildings Partnership Climate Change Commitment

The U.K.'s Better Building Partnership has worked with its members to develop its Climate Change Commitment. Together they hope that their leadership will provide an important catalyst for change within the real estate sector and encourage others in the industry to work towards this commitment. It includes publishing a net zero carbon pathway framework, annual disclosure of progress and portfolio energy performance and developing climate change resilience strategies.

**Nuveen Real Estate is a signatory.**



### The Urban Land Institute's (ULI) Greenprint Net Zero Goal

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

**Nuveen Real Estate is a ULI Greenprint member and committed to the net zero by 2050 goal.**

## Standards and benchmarks



### Global Real Estate Sustainability Benchmark (GRESB)

GRESB's mission is to assess and benchmark the Environmental, Social and Governance (ESG) and other related performance of real assets, providing standardised and validated data to the capital markets.

**Nuveen Real Estate participates in GRESB annually and a number of our strategies have been recognised as regional leaders.**



### Principles for Responsible Investment

The Principles for Responsible Investment is the world's leading proponent of responsible investment and is supported by the United Nations. The initiative is a premier global benchmark which assesses asset managers' integration of ESG factors into decision making and ownership practices.

**Nuveen is a UN PRI signatory and Nuveen Real Estate participates in the UNPRI assessment annually.**



### The ENERGY STAR program

The ENERGY STAR program was established by the U.S. Environmental Protection Agency in 1992 to provide trusted information critical to an efficient private market. Its ENERGY STAR Awards recognise businesses and organisations that have made outstanding contributions to protecting the environment through superior energy efficiency achievements.

**In 2022, Nuveen Real Estate achieved ENERGY STAR Partner of the Year for the 16<sup>th</sup> year in a row and 14<sup>th</sup> year at the Sustained Excellence Level.**



# Change log

June 2023

This is the first update of the net zero carbon pathway since it was originally published in early 2021. Since then, the industry understanding of the definition of net zero carbon and the actions required to achieve net zero carbon have evolved. We have made minor modifications throughout the document to improve readability and comprehension. We have added in new content in response to stakeholder feedback. We have also updated references to Nuveen's portfolio and to regulatory and legislative developments. More notable changes are listed below:

## Pages 5 and 6: Milestones

- Changed the wording of milestones related to 'tenant data' to 'whole building data' to make progress more measurable.
- Added 'relevant' to the milestone 'Develop costed business plans for NZC for all relevant buildings'. This is to clarify that this will only be undertaken for those buildings that are in scope and not identified for imminent disposal.
- Replaced references to all buildings tracking below local market pathways to 'portfolio average' tracking below pathways. As pathways have been released and adopted, it has become clear that portfolio average is the industry approach.
- Removed the milestone: 'Renewable energy PPAs in place for 50% equity AUM' and replaced with 'Analysis of the potential for PPAs in our different global regions'. Initial analysis has indicated that there is not sufficient global market maturity for 50% of our portfolio to be services by renewable PPAs by 2025.

## Page 7: Baseline

Undertook further analysis and restated baseline percentage breakdown as a result.

## Page 8: Assumptions

This is new content which has been included to provide more information on the external factors that are key components of the net zero carbon trajectory.

## Page 9: Definitions

- Replaced 'Uses 100% renewable energy from on- and off-site sources' with 'Maximises renewable energy from on- and off-site sources'. This was updated to be more aligned with evolving industry consensus: As pathways such as CRREM have become industry standard, it has become clear that the industry accepted definition of an operationally net zero carbon building is one that has an EUI beneath the energy pathway. In those instances, additional renewable energy would not be required to meet the definition as the grid is determined to have reached a level of decarbonisation necessary to support those buildings. However, Nuveen may still seek to add on-site renewable energy or to utilise PPAs where it delivers positive performance outcomes.
- Removed information on industry collaboration and occupier engagement that is repeated elsewhere.
- Added more information on the role of carbon offsetting.

## Page 11: Our target to reduce energy intensity by 30% brought forward to 2025

Updated target progress chart.

## Pages 12 and 13: Applying our net zero carbon goal to our investment strategies

This is new content that has been provided in response to stakeholder feedback to provide clarity on how the NRE goal is applied to the wide range of investment strategies that we manage.

## Page 14: Regional net zero carbon insights

Updated with current information.

## Pages 21 – 28: Case studies

Case studies updated and refreshed with new examples.

## Pages 29 – 31: Scope

Removed references to corporate emissions as these are now covered by TIAA's corporate commitment.

In line with industry practice, less material sources of carbon emissions (such as carbon associated with operational waste and water) have been removed. We still monitor, manage and reduce these other environmental impacts and report on this in our annual ESG report.



# Important information

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