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A short guide

Race to net zero: Decarbonising a direct real estate portfolio

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Less carbon. More resilience

The gap is widening between the decarbonisation pathway needed and the current efforts to mitigate the climate crisis, while the time available to act is shrinking. Transitioning to a net zero economy will require decarbonising global real estate at a faster rate and scale. According to the UN Environment Programme, emissions from building operations and materials should halve by 2030. And all new buildings should be net-zero by 2050 to align with the Paris Agreement.[1]

Yet carbon dioxide (CO2) emissions in the industry are rising instead of falling. In 2021 following the COVID-19 crisis, construction resumed and reopening stimulated energy demand. Carbon emissions for the sector swelled by 4% relative to the previous year, representing the largest increase in a decade.[2] Pressure is building to reduce the carbon footprint of real estate portfolios, though so is the complexity in doing so. Success relies on collaboration between multiple stakeholders - including asset owners, asset managers, policymakers, tenants and suppliers.

For asset owners, assessing each of the properties in their portfolio will help them decide how to progress in the decarbonisation journey - sell high-emitters, buy new green buildings, or refurbish the existing stock of buildings. Doing nothing is also a choice, though not one we believe investors can afford in the long term. Suppose an investor's real estate exposure is through a pooled fund or real estate investment trust (REIT). In that case, the decarbonisation pathway will largely depend on their asset managers. As investors adopt decarbonisation targets for their investment portfolios, more are encouraging managers to help them meet those environmental goals. Clarity on the decarbonisation pathway is an important consideration, as is how much of the reduction in the portfolio carbon footprint results in a real-world emission reduction.

In this paper, we will focus on direct real estate strategies; we believe this is where investors can have a disproportionately sizeable impact in reducing real-world emissions while adding portfolio resilience. We will focus on why direct real estate is a lynchpin in the decarbonisation pathway, how refurbishing existing properties may have a more significant impact on real-world emissions relative to new green buildings, and what are the potential risks of decarbonising a real estate portfolio as part of our 'Race to net zero' series.

Key takeaways

1. Climate risks can influence real estate asset value directly and indirectly through the following channels: revenue; operating costs; capital costs; and capitalisation rate.
2. There are several potential advantages when decarbonising a real estate strategy, among them a more stable income stream, higher potential to protect value especially in a market downturn, reduced risk of stranded assets and lower vacancy rates. Landlords and tenants also benefit from the potentially lower operating and maintenance costs.
3. Priority should be placed on reducing operational emissions, which account for the bulk of the carbon emissions of the real estate sector. This can be managed through improvements in operating efficiencies such as implementing ways to save energy when heating, cooling and lighting buildings.
4. However, the role of embodied carbon is an increasingly critical consideration when considering real estate's whole life cycle, which comprises both operational and embodied emissions.
5. Opting to renovate existing buildings rather than constructing new green buildings should help accelerate real estate's decarbonisation pathway when considering whole life-cycle carbon emissions. This is due to the substantial reduction in 'upfront' emissions, referring to the embodied carbon emitted in construction.

Incentives for greener buildings

The impact of the climate crisis on investment portfolios is increasingly evident. And perhaps more than other asset classes, real estate is at the crossroads between physical and transition risks. Its share of the global energy-related carbon emissions is about 37% (see Figure 1), which is among the highest of any sector. In Europe, fossil fuels supply about 80% of the energy demand from buildings.[3]

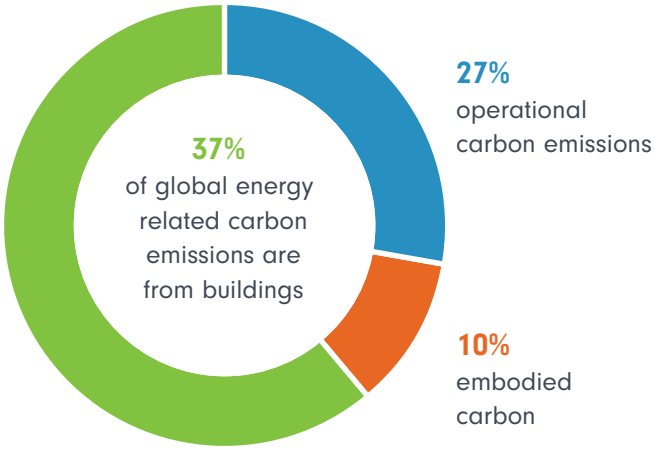
The climate risk of holding real estate assets unfolds over the long term, so many investors may not see it as a priority when they face other more pressing threats such as interest rates. However, in an environment in which the climate crisis increasingly intersects other aspects of the global economic and geopolitical spheres, investors should pay attention. For example, following Russia's invasion of Ukraine, energy costs spiked worldwide, especially in Europe. As a result, some tenants in UK green buildings spent less than half of the energy bill of those occupying unrenovated, energy-inefficient equivalents. Reducing a building's fossil fuel dependency, therefore, can add value through cost savings.

Other evidence that ignoring climate change can impact returns is in the case of Calgary, where commercial real estate is heavily dependent on the fossil fuel sector. In 2021, about a third of its downtown office was vacant due to a lack of new oil and gas projects, sector consolidation and hybrid working trends following the Covid-19 pandemic. Even as oil prices recovered, Calgary's real estate did not recover as expected because capital expenditure remained below 2019 levels.[4] According to McKinsey & Co., asset values dropped precipitously, leaving investors facing significant losses.[5] Certain commercial assets will suffer higher financial losses than expected because of a transitioning economy.

The regulatory environment also necessitates decarbonising real estate portfolios. Policymakers are responding with a raft of national, regional and local requirements for reducing and disclosing emissions in buildings. About 40% of the 196 countries that signed the Paris Agreement now have either mandatory or voluntary building energy codes in place, according to data from the UN Environment Programme. Energy performance certificates (EPCs) are an example of stricter regulation over time, and buildings with lower-rated EPCs may have an increased risk of stranded assets. Albeit, a building can have both a high-grade EPC and a high risk of obsolescence if, for example, it is in an undesirable location. Therefore, due diligence that integrates financial and non-financial parameters is increasingly critical in real estate investing.

In the UK, the government intends to raise the required minimum energy efficiency standard for commercial buildings to an EPC 'C' rating from April 2027 and again to an EPC 'B' rating in April 2030. According to Baker McKenzie, the requirement will affect about a million commercial rented properties, or 85% of the stock in the sector.[6] Similar developments are happening across Europe and beyond. We believe such obligations to tackle building emissions will need to advance faster and further to strengthen nationally determined contributions (NDCs), which are the action plans from each of the signatories to the Paris Agreement.

Figure 1: Buildings and construction sector's share of global energy-related carbon emissions



Source: International Energy Agency, 2022.

To measure, standardise and verify the decarbonisation efforts, a vast array of disclosure-related regulations such as the EU Taxonomy, TCFD, the Sustainable Finance Disclosure Regulation (SFDR) and the UK's Sustainability Disclosure Requirements (SDR) have emerged. These are supported by initiatives such as the Net Zero Asset Owners Alliance and sector-specific frameworks such as the Science Based Targets Initiative (SBTi) and the Carbon Risk Real Estate Monitor (CRREM), a decarbonisation pathway assessment tool. Green building certification programmes covering new and existing buildings such as the BREEAM and LEED technical standards also help chart the decarbonisation pathway in a transparent manner.

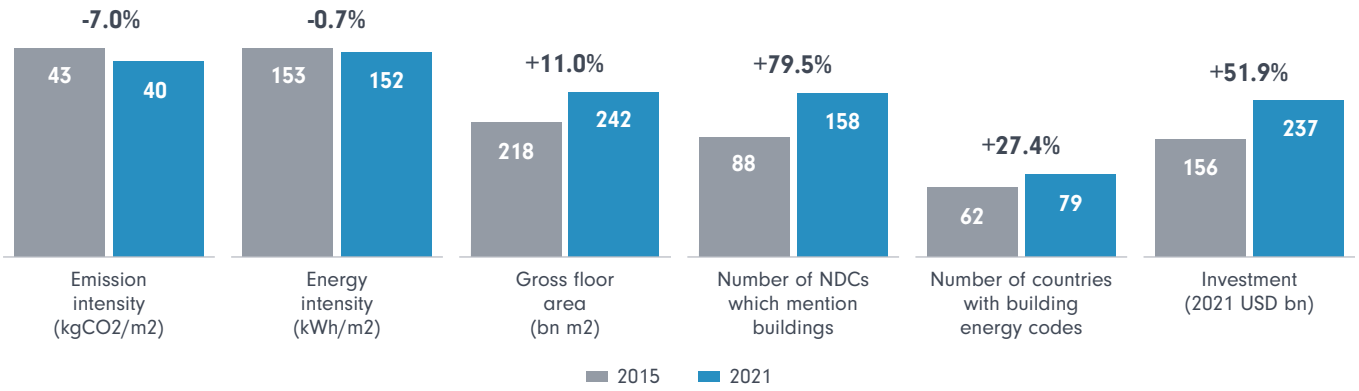
‘Refurbish and reuse’ instead of ‘demolish and rebuild’

To be clear, the buildings and construction industry has made significant headway in reducing its carbon footprint. (See Figure 2) However, the emissions savings from these advances have fallen short of what is needed, especially as commercial floor space expands to support economic growth globally. The imbalance could benefit investors in greener buildings, either through new builds or refurbishments.

All buildings are subject to transition risks, including changes in environmental laws and regulations. For example, if a new build or refurbishment does not meet new regulations, then asset owners may incur additional costs to bring it up to standard. Another consideration are physical risks, which directly link to climate change. Flooding, for instance, may cause physical damages to buildings.

Depending on the unique risk-return characteristics of each asset, investors should benefit from a “green premium” through the prospect of higher and more stable rents, lower vacancy rates, and increased asset valuations, among other advantages. (See Figure 3) They also may be rewarded with higher capital appreciation when selling buildings with green credentials than those without.[7]

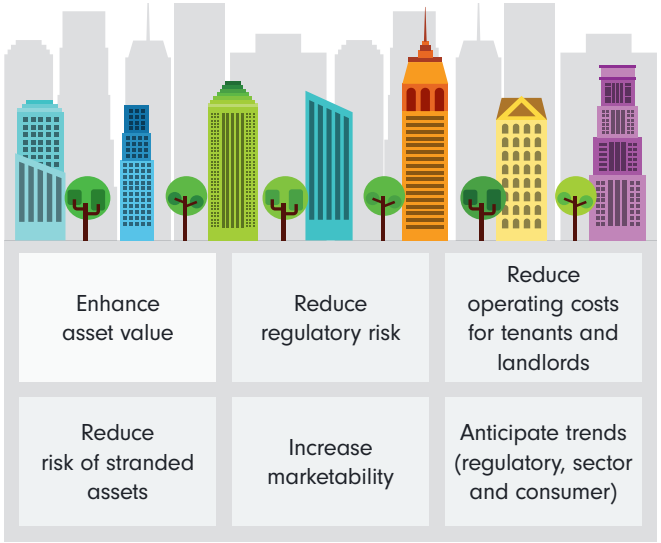
Figure 2: Decarbonisation evolution of the buildings and construction sector, 2015 vs. 2021



Source: International Energy Agency (IEA), United Nations Framework Convention on Climate Change (UNFCCC), 2022. Notes: Emissions intensity is total buildings construction and operations emissions over total floor area, energy intensity is total building operational energy over total floor area. NDC refers to nationally determined contribution to mitigating climate change. Values included for the baselines have been updated from previous versions of the Buildings-GSR due to both historic input data updates for emissions and floorspace, and deflation factors for USD.

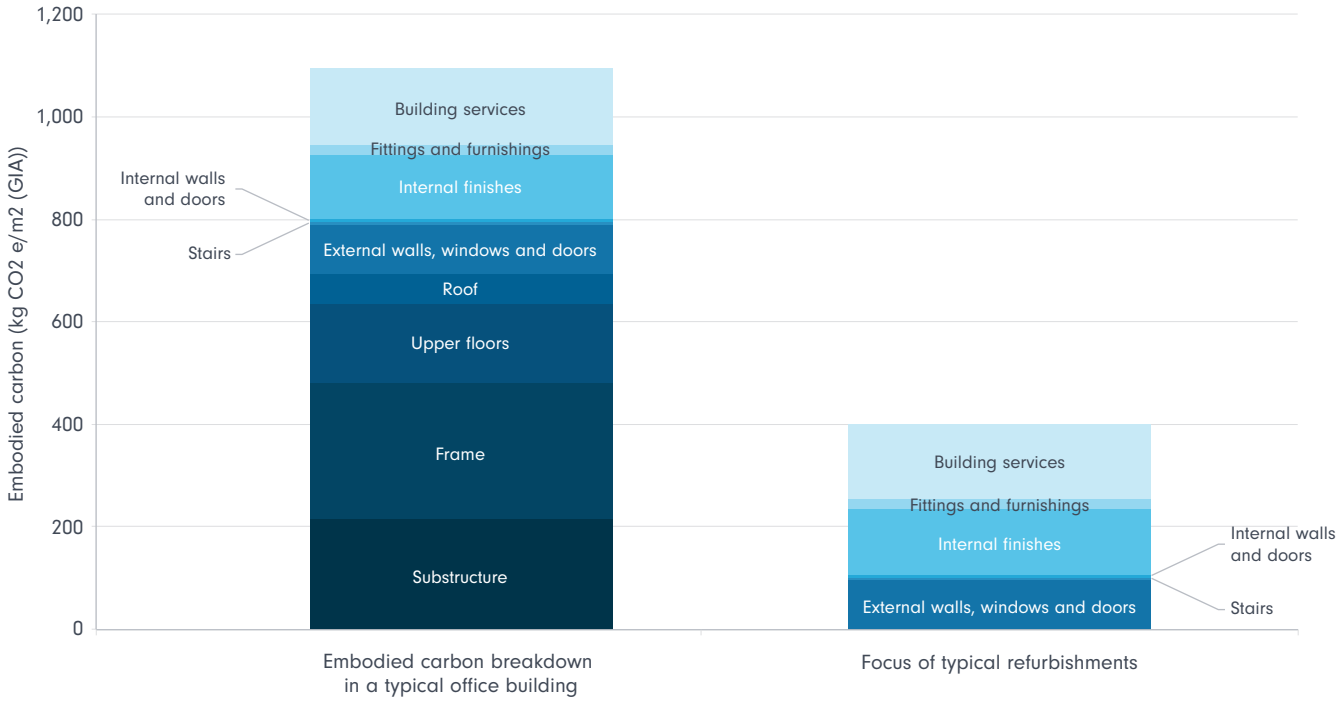
We believe refurbishing existing buildings to become greener offers a more scalable way of lowering emissions across the sector when urgency is needed in managing the climate crisis. On average, the reduction in embodied carbon for a refurbished building is about 60% less than that of a new green building. (See Figure 4) And compared to the capital expenditure required for new green buildings, refurbishments are on average less costly with lower construction risks.

Figure 3: Potential advantages of a green building



Source: Fidelity International, January 2023.

Figure 4: Embodied carbon breakdown in a typical office building



Source: Fidelity International, 2022.

Considering whole life-cycle carbon emissions

Whether decarbonising a building through retrofits or a new build, asset owners should follow a whole life cycle approach to decarbonising assets. According to the Investment Property Forum, this process covers five key ownership stages: acquisition, development, operation, refurbishment and disposal. (See Figure 5) Central to all five stages is a net zero carbon (NZC) plan, priorities to decarbonise on a science-based pathway and engagement with key stakeholders to meet emissions reduction goals.

Certain activities to decarbonise may yield more impact than others (see Figure 6), so focusing on those may result in higher emissions reductions. However, investors also must adjust for cost and other relevant factors such as the carbon emission profile, regulation, location, sector and tenant composition.

The range of decarbonising activities mainly falls under three categories - operational, embodied and residual. The latter accounts for the remaining carbon emissions after steps have been taken to eliminate, reduce or substitute emissions. In the following section, we will discuss operational and embodied carbon since those are the two categories in which investors have the most control.

To reduce operational emission, investors can improve energy efficiency and replace fossil fuel energy sources with renewables. According to data from the World Green Building Council, implementing existing energy efficiency measures could reduce global emissions by 48% by 2030, 43% of which are linked to the operation of buildings. The following are some examples:

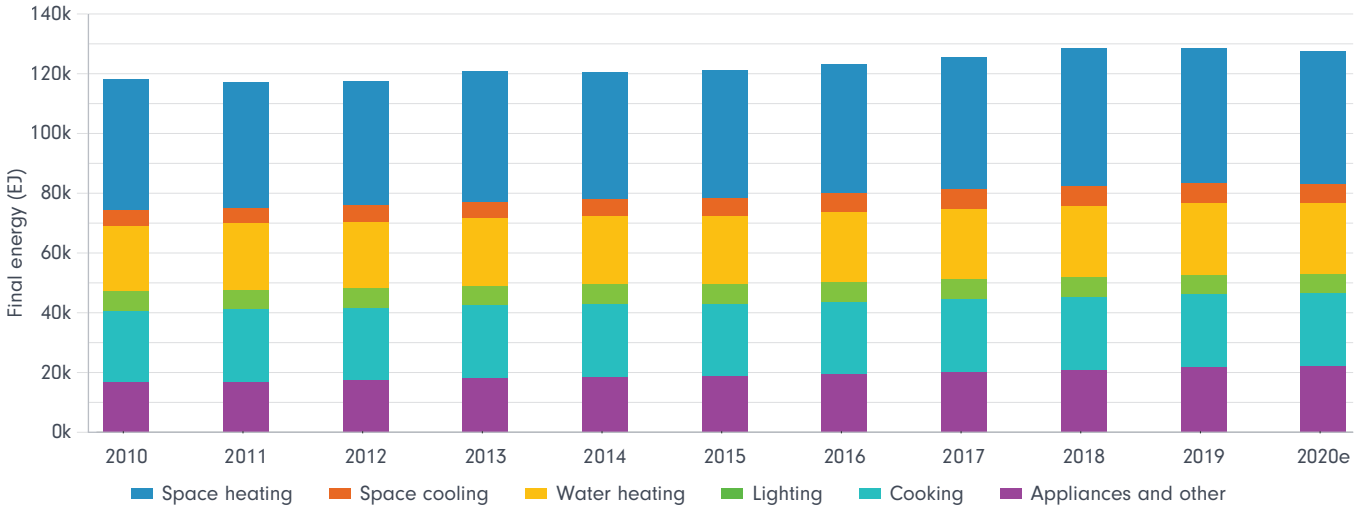
- Retrofitting heating, cooling and lighting systems to be more energy efficient
- Switching energy sources to renewables from those generated by fossil fuels
- Automating energy efficiency technology, including monitoring systems
- Optimising energy use with building management systems

Furthermore, addressing embodied carbon can also help improve a building's green credentials. Estimates show that more than half of the total construction-related emissions between 2020 and 2050 will be from embodied carbon emissions linked to the extraction, manufacturing, transporting, installing, maintaining and disposing of construction materials.[8] Cement and steel are often responsible for the largest proportion of the embodied carbon in new construction, so one of the first steps is retaining and reusing as much of the existing building as possible. This approach also reduces waste in landfills.

Figure 5: Reducing emissions through the asset lifecycle

Source: Investment Property Forum, Fidelity International, January 2022.

Figure 6: Buildings and construction sector share of energy consumption, by end-use



Source: International Energy Agency, 2021.

To address the whole life cycle of real estate portfolios, investors should consider setting operational and embodied emissions reduction targets. For example, they could aim to reuse, recycle and apply other recovery methods for at least 70 % of the non-hazardous construction and demolition waste generated onsite. In addition, new construction materials and products used can be low-carbon alternatives and comply with the criteria set out by the EU Taxonomy.

Steps to map a pathway

Each decarbonisation pathway will depend on the climate commitments at the organisational level and how they are prioritised relative to other financial and non-financial goals. This section discusses six general steps to decarbonise a direct real estate portfolio.

1. Measure the carbon emissions baseline for each underlying asset in the portfolio. Best practices for calculating emissions in the built environment are constantly evolving. Technological advances coupled with the increasing use of green leases and other climate-related clauses have improved the ability to calculate building emissions, particularly when gauging Scopes 1 and 2 emissions.[9] These cover onsite direct emissions such as the carbon emitted from a building's heating unit and indirect emissions from activities such as energy purchases.

However, there remain many gaps in the methodologies. Among them is Scope 3 emissions, which account for activities along the value chain, and therefore the most difficult to control - and measure. Additionally, embodied carbon accounts for a significant proportion of Scope 3 emissions. Correctly labelling the types of emissions, how the data was collected and maintaining transparency in the process is central to gauging a decarbonisation journey with transparency. This will also allow asset owners to compare progress against peers.

2. Assess climate-related transition and physical risks. Any climate-aware real estate investment strategy must address physical and transition risks, which can impact potential returns through revenue, operational costs, capital costs and the capitalisation rate. (See Figure 7) For example, climate change is likely to cause more frequent extreme weather events such as heatwaves. Therefore, asset owners may face higher annual energy bills to cool a building while producing more carbon emissions. If a building is in an area more prone to flooding, the cost of capital or insurance coverage may rise to account for the higher risk. As the number of natural disasters increases, so too are the potential for lives lost and physical damage to occur, again impacting asset owners. As per TCFD recommendations, integrating climate-related risks into the investment decision process can help provide a more accurate and forward-looking risk-return profile of underlying properties.

3. Carry out carbon pathway analysis. Various frameworks assist investors in meeting climate commitments for a particular building or portfolio. One of the most widely used is the CRREM analysis tool, which helps manage transition risk while aligning with the Paris Agreement according to various specifications such as building use, location and type. Stakeholders can then apply the pathway assessments to monitor emissions in addition to other analyses such as the impact of regulatory trends, energy efficiency calculations and obsolescence risk. This can help them determine the budget, timing and extent of the refurbishment needed. The CRREM tool also can help monitor and report progress, especially if asset owners intend to follow frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) and the EU Taxonomy.

4. Assess cost versus reward of decarbonising assets, including regulations. Cost was cited as the biggest barrier against a faster uptake of green retrofits in real estate, according to a 2021 global survey conducted by CRREM and the UN Environment Programme.[10] Capital expenditure will vary widely depending on the risk-return characteristics of each underlying asset and therefore difficult to address in detail for this paper. However, it may become more expensive for real estate investors to do nothing. The geopolitical events over the past year that increased energy prices worldwide, particularly in Europe, have motivated many governments to manage price levels while improving energy security and meeting long-term climate commitments. Examples include the European Commission's RePowerEU plan,[11] the UK's British Energy Security Strategy[12] and the US Inflation Reduction Act. In our view, a faster transition offers attractive opportunities in real estate.

Figure 7: Implications of transition and physical risks, by direct and indirect effects

	Transition risks Include changes in the economy, regulation, consumer behaviour, technology, and other human responses to climate change		**Physical risks** Hazards caused by changing climate, from floods, fires, and storms to rising sea levels and changing average temperatures	
	Direct effect	**Indirect effect**	**Direct effect**	**Indirect effect**
Revenue	Unattractiveness of a carbon-intensive asset to an occupier that has made a climate commitment	Decline in a sector or local economy resulting in lower local real-estate demand/occupancy	Disruption to an asset's operations from severe or repeated physical-hazard events (e.g. major floods)	Reduced real-estate demand in a local market given disruptions to surrounding transportation or other infrastructure
Operating costs	Increased utility costs given carbon-intensive building systems	Carbon charges on an asset given local regulations	Increased maintenance costs as physical risks increase	Increased insurance costs as insurers recognise physical risks and adjust underwriting models
Capital costs	Significant capital investment required to meet local energy efficiency/emissions standards or tenant demands (e.g. early retrofit of heating/cooling systems), increased need to purchase lower-emissions building materials (e.g. steel, cement, timber)	Increased financing costs as investors and lenders price in market-level transition risks (e.g. in economies dependent upon carbon-intensive industries)	Investment required to improve the resilience of building to increasing physical risks (e.g. elevating lobby, green roofs, protecting electric and mechanical systems)	Increased capital investment (e.g. development fees (required to protect broader communities from climate risks (e.g. floodwalls, green infrastructure for heat migration)
Capitalisation rate	Changes in capitalisation rate due to perceptions of both physical and transition risks by market participants			

Source: McKinsey & Co., February 2022.

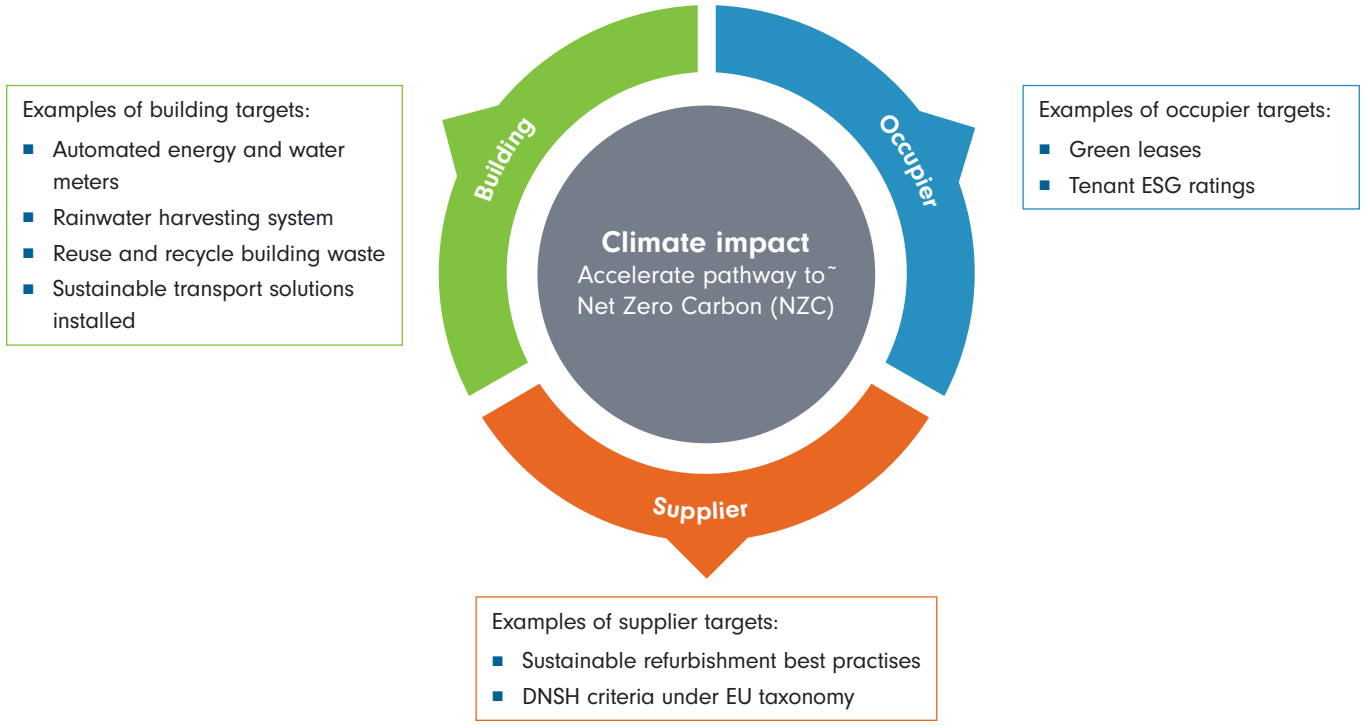
5. Determine priorities. Understanding the business plans for each property, the different lease lengths and occupier requirements, and the logistics of refurbishing the properties can help investors prioritise. Non-financial impacts such as reputational risk also should be considered, along with other organisational goals.
For example, suppose the financial goal of the strategy is to deliver a stable income stream. In that case, it will be challenging to implement a refurbishment project for a fully occupied building with multiple tenants with varying lease terms of between five to 10 years. However, if the asset owner does nothing, the building may become stranded sooner than expected, making it more difficult to find new tenants to agree to attractive lease agreements from a risk-return perspective. Prioritising which assets will need to be refurbished, how they can be retrofitted to the required standards and the capital expenditure needed are all crucial questions to address.

6. Implement a decarbonisation plan. In our view, how investors implement a decarbonisation strategy will ultimately determine their contribution towards reducing real-world emissions. Therefore, carefully weighing the options will help them take a more strategic approach to meeting their climate commitments. For example, as in equities, it is entirely possible to sell older, less energy-efficient buildings and buy a portfolio of new green buildings to decrease the carbon footprint of a real estate portfolio. However, this is unlikely to reduce real-world emissions, especially if assessing from a whole life cycle perspective. The older, less energy-efficient buildings will remain so, and the new green buildings also will have embodied carbon emitted as previously mentioned.

In the implementation stage, engagement is crucial for investors to influence outcomes. And there are significant differences when reducing emissions in direct real estate relative to other asset classes. In the former, asset owners have more direct control over the pace and extent of decarbonising. But unlike a stockholder, a property owner is not invested in their tenants' companies in the same way and cannot easily terminate a lease if tenants choose not to cooperate.

The nature of engagement must be more collaborative, working with like-minded tenants and suppliers to make positive changes. For example, green leases can help strengthen the ability for asset owners to obtain more accurate data from tenants. (Carbon emissions data are generally split between landlords and occupants, with the latter more difficult to track.) Such monitoring improves energy efficiency, for example, by optimising monitoring systems and upgrading to a smart climate control system. Relationships between asset owners, tenants and suppliers are essential for success. (See Figure 8)

Figure 8: A three-pronged approach to decarbonising real estate assets



Source: Fidelity International, January 2023. Note: DNSH refers to the EU taxonomy's 'Do No Significant Harm' criteria.

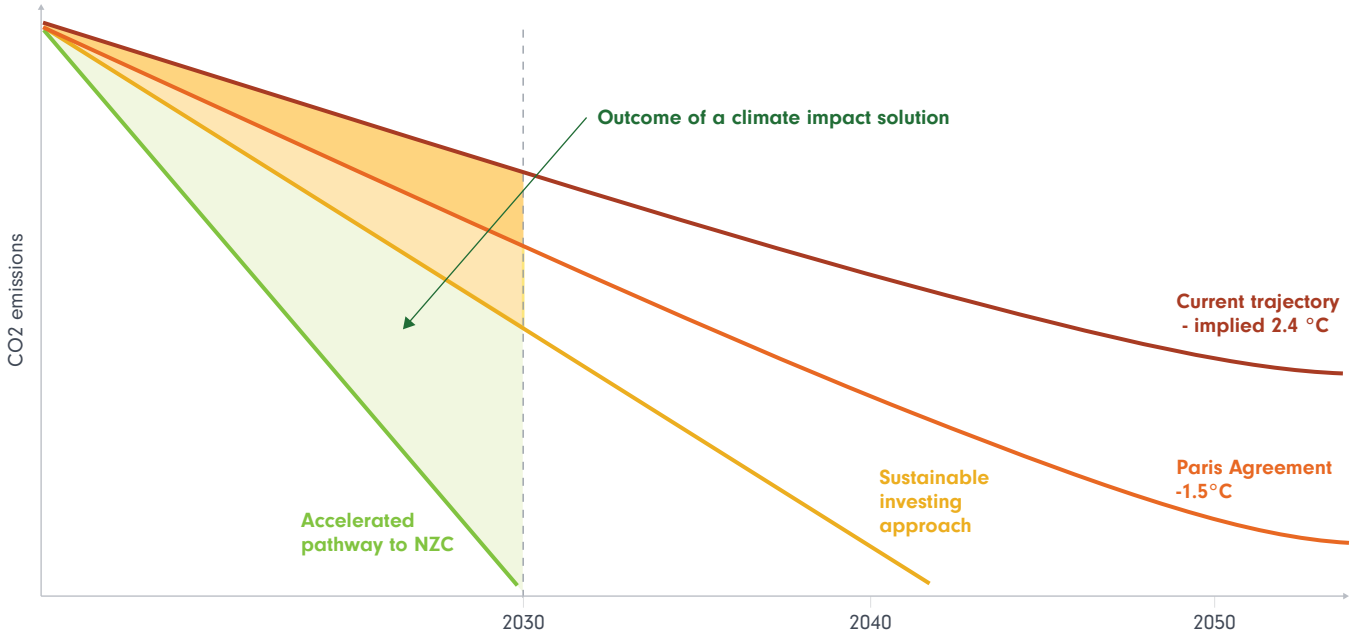
Redefining a building footprint

While it is necessary to decarbonise a real estate portfolio, many barriers remain. For investors in a core real estate portfolio delivering a regular stream of cash flow, for example, it is challenging to reduce carbon emissions through retrofits around tenants' leases as they expire. This is due to void periods, which disrupt income streams. Moreover, such projects can take several years or more because leases often expire at different times, adding project risk, complexity and costs.

In our view, a quicker, cost-efficient and lower-risk way of decarbonising existing buildings is by targeting short-leased or vacant buildings through a value-add strategy. (See Figure 9) Second, once the project is completed as part of an NZC building plan, new tenants can be vetted based on their ESG credentials, climate commitments and contract obligations towards meeting the property's decarbonisation targets. Third, lease agreements can be agreed with decarbonisation as part of the negotiation, strengthening collaboration between stakeholders.

However, these advantages also must be considered alongside other typical investment risks in direct real estate. For example, capital expenditure could unexpectedly rise due to cost over-runs or delays. Taking steps such as conducting thorough due diligence in the contractor selection process, committing to fixed-price contracts and avoiding contentious planning consent can help reduce such risks. Another is the threat of rising interest rates - a risk that can be mitigated through several means, including the use of fixed-rate loans.

Figure 9: Example of an accelerated decarbonisation pathway in direct real estate



Source: Fidelity International, January 2023. **For illustration purposes only.**

A direct real estate strategy will not solve all the challenges facing investors in decarbonising a real estate portfolio. However, it can help bridge data gaps, align regulatory and industry best practices, and integrate climate transition and physical risks into the investment process. Investors cannot wait for perfection when pace is what is necessary. The ability to mitigate the severity of the climate crisis is firmly grounded in their real estate portfolios.

[1] "2022 Global Status Report for Buildings and Construction", UN Environment Programme and the Global Alliance for Buildings and Construction, November 2022.

[2] Ibid, "2022 Global Status Report for Buildings and Construction".

[3] Ibid, "2022 Global Status Report for Buildings and Construction".

[4] Nick Ferris, "Big oil's big recovery", Energy Monitor, Aug. 2022.

[5] "Climate risk and the opportunity for real estate", McKinsey & Company, Feb. 4, 2022.

[6] "United Kingdom: It's all about MEES", Baker McKenzie, Jan. 4, 2023.

[7] "ESG and real estate: The top 10 things investors need to know", CBRE, 2022

[8] "2022 Advancing Net Zero Status Report", World Green Building Council, 2022.

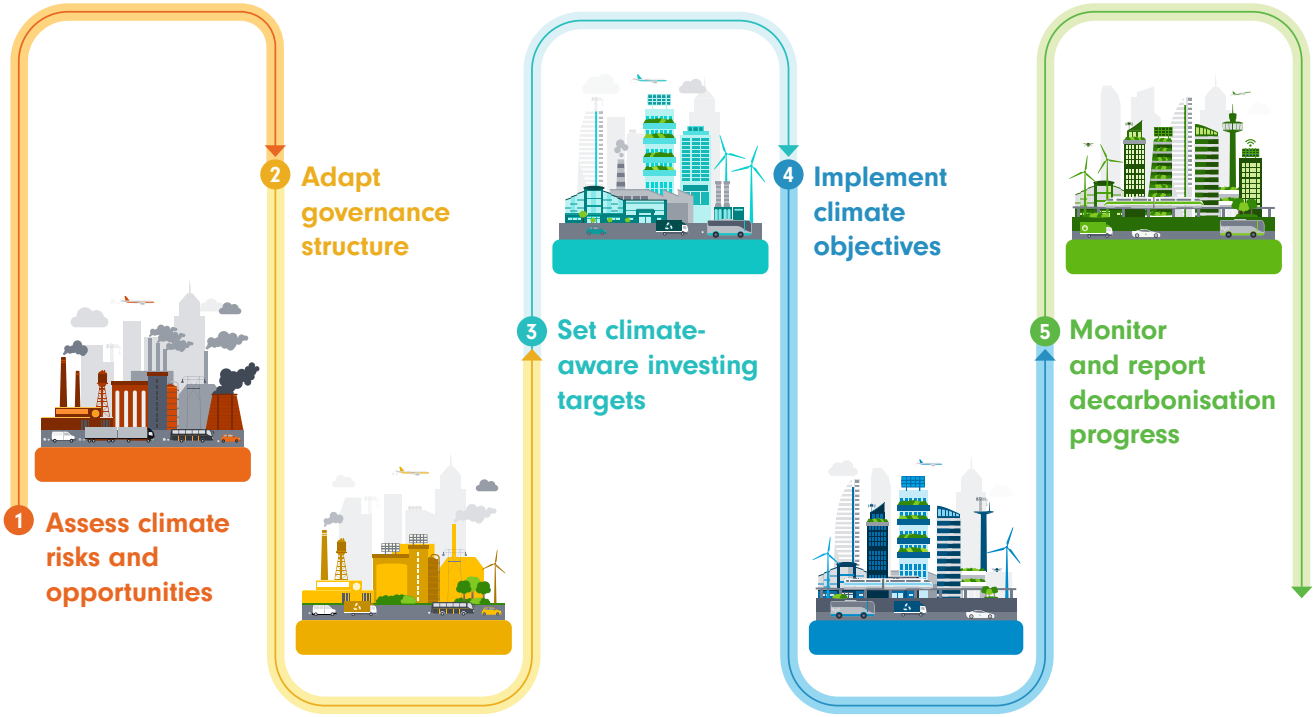
[9] Global GHG Accounting and Reporting Standard for the Financial Industry, Greenhouse Gas Protocol, March 2021.

[10] "Managing Transition Risk in Real Estate: Aligning to the Paris Climate Accord", CRREM and UN Environment Programme, March 2022.

[11] "REPowerEU: affordable, secure and sustainable energy for Europe", European Commission, 2019.

[12] "British Energy Security Strategy", HM Government, April 2022.

This guide is part of our "Race to net zero" series. In the coming months, we will be adding other modules on the implications by asset class when implementing climate objectives.



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