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Decarbonization and the Evolution to Net Zero Carbon (NZC) Real Estate

LaSalle Research and Strategy

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LaSalle's DTU+E framework and decarbonization

Decarbonization and the evolution towards NZC is a secular trend impacting real estate markets

In 2016 LaSalle added "E" or Environmental factors to the demographics, technology and urbanization (DTU) set of secular forces real estate investors need to focus on for delivering positive long-term performance. As with other secular forces the "E-factors" are long-term in nature and live beyond the cyclical market shifts that drive near-term performance.

De-carbonizing real estate is becoming one of the leading E-factors, along with, sustainability reporting, green building certifications and climate change (see Climate Risk Insight Report) .

De-carbonizing real estate and the path toward net zero carbon (NZC) is a nascent secular change:

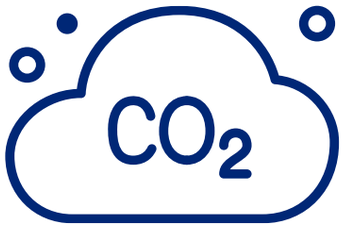
- Some tenants are making commitments, but action remains limited in many regions (see page 12). Tenant demand has become strongest where energy expenses are a major issue and wherever larger firms have committed to "ESG" principles (environmental, social and governance)
- Local, national and regional regulations are developing rapidly. Some laws are designed to limit rather than eliminate carbon emissions (e.g. the phased implementation of New York's Local Law 97). Others focus on disclosure, such as the sweeping Sustainable Finance Disclosure Regulation (SFDR) framework across the EU, which imposes mandatory ESG reporting for asset managers of certain products.
- Some institutional investors have mandated NZC targets with demonstrable pathways. Others have given pushback to the ESG movement, as potentially hurting returns (August 2022 BlackRock letter). And some environmental organizations report that pledges are frequently "ambitious promises" but without clear pathways to achieve these pledges (UN Climate Action).

The early nature of the decarbonization process—both pledges and regulation—creates risks and opportunities. Catching a secular trend too early or too late in its trajectory are both risky. Our view is to move carefully and deliberately to mitigate portfolio risk and maximize returns. The NZC movement will impact different markets and segments at different points in time. The most important lesson is to pay close attention to how the trend affects specific projects and investment decisions.

Executive summary

Macroeconomic forces are driving demand for less carbon intensive real estate – understanding those forces is key to developing a market appropriate decarbonization strategy

Global situation



Public sector regulations, private sector commitments and investors are demanding carbon emission reductions to limit global warming.

The challenge for real estate

Real estate is a major source of carbon emissions, through construction, maintenance and operation of buildings

Virtually all real estate today does not meet NZC requirements. Yet, de-carbonization is the first step in any NZC strategy.

Investment opportunities

Core - Take first steps in carbon reduction to help future proof assets.

Value-add – Create NZC assets to meet growing demand.

A net zero carbon future must follow a de-carbonization path with interim steps and milestones. The pace of transition will vary across markets, sectors and assets because local market forces and regulatory regimes vary.

Some steps are economically justified today; others depend on evolution of market demand and technology. Despite the uncertainty, investment managers need to focus first on the carbon-reduction steps that make financial sense today and plan for those likely to be economically justified in the future.

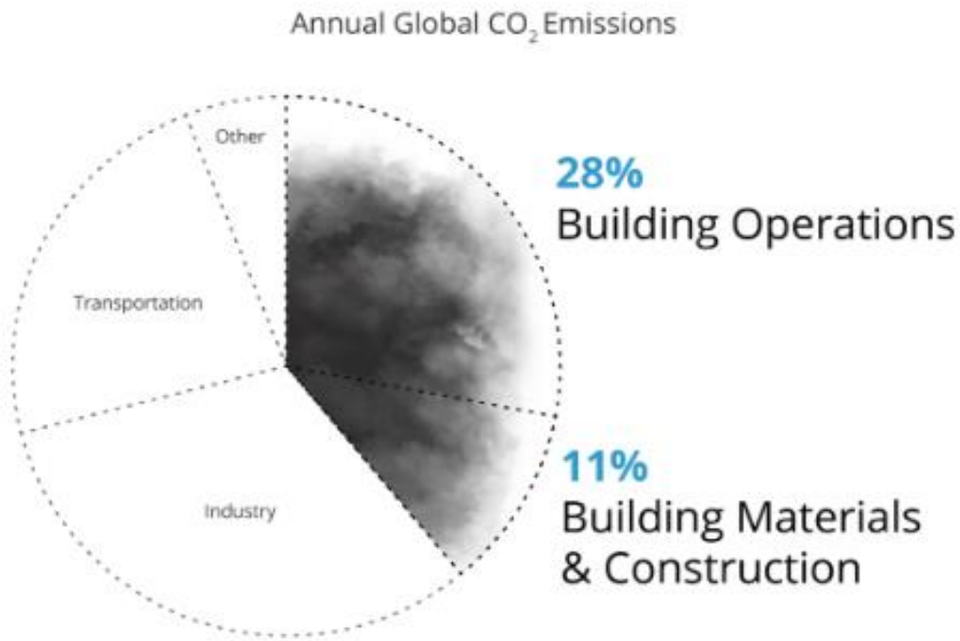
Why net zero carbon?

Real estate plays a significant role in carbon emissions and limiting climate change

In 2015, 195 countries adopted the Paris Agreement, aimed at limiting global warming to well below 2 degrees Celsius.

Public attention to climate change has increased as climate change impacts lives. Volatile weather and rising temperatures are leading to societal and economic costs.

The real estate sector needs to play a part, because building construction is 11% of global emissions and 28% of emissions is tied to activities that take place in buildings*. Reduction in carbon emissions from both are needed to help limit global climate change.



Drivers of real estate decarbonization

Greater public regulation of carbon emissions

Corporations pledging NZC operations.

Investors demanding NZC portfolios

Real estate investors are recognizing a fiduciary duty to develop sustainability programs that ensure portfolios meet current regulatory, tenant and investor requirements and have the potential to continue to meet them in the future.

By ignoring these issues real estate investors could incur financial losses from carbon taxes, loss of tenants, declining rents, limited investor interest, diminished asset value and loss of clients.

Source: Architecture 2030 https://architecture2030.org/why-the-building-sector/ (accessed 11/8/2022), Principles for Responsible Investment (PRI)

What is net zero carbon?

Different definitions (or “scopes”) of NZC lead to different approaches

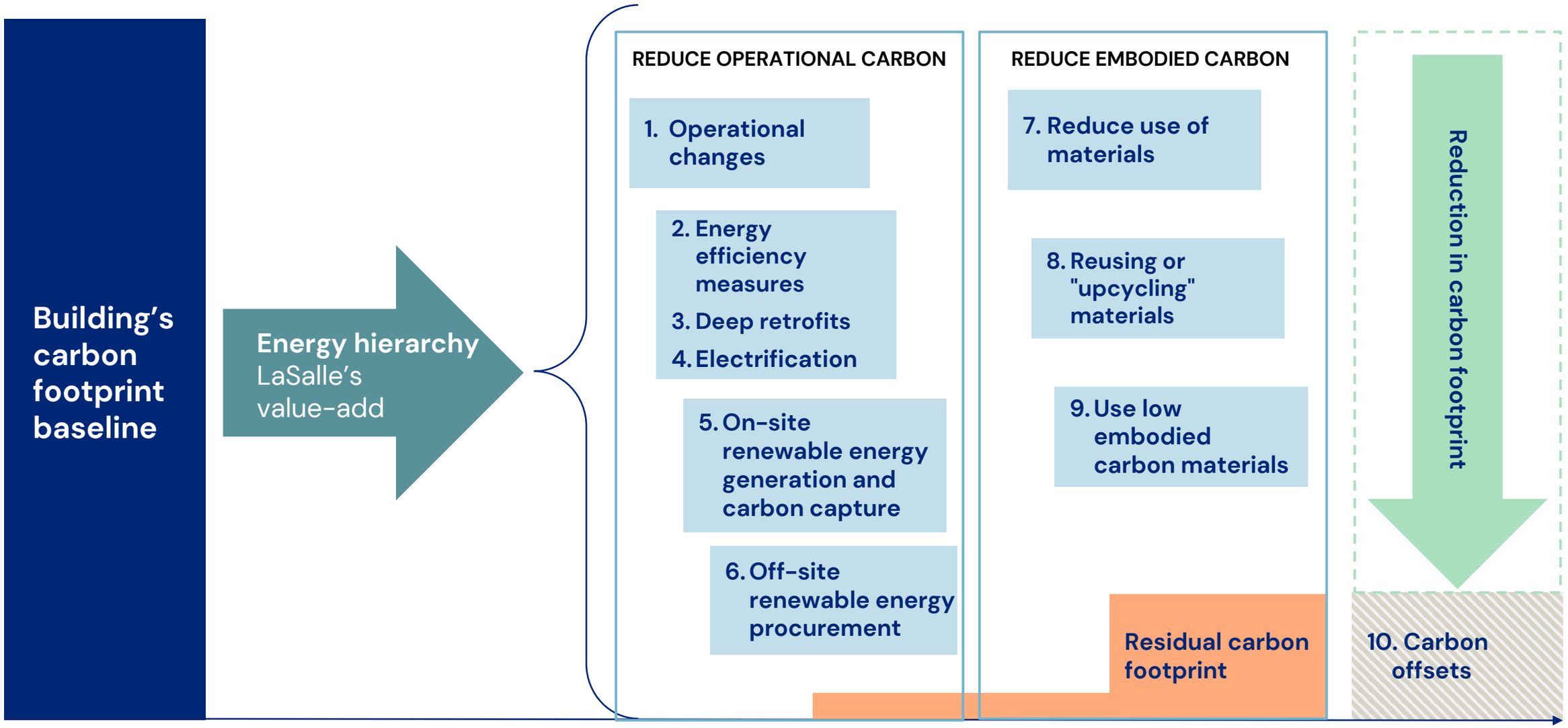
	Definition	How to address
Scope 1 **What you burn**	Direct emissions from sources controlled or owned by an organization.	• Make operations more energy efficient • Eliminate systems that emit carbon on-site • Fully replace purchasing of fossil fuel-based energy with on-site and off-site renewables
Scope 2 **What you buy**	Indirect emissions associated with the purchase of electricity, steam, heat or cooling.	
Scope 3* **Everything else**	Emissions not controlled by the reporting organization, but the organization indirectly impacts in its value chain.	**Operational carbon (tenants)**: use green lease clauses, tenant engagement and operational practices to manage tenants’ energy consumption. **Embodied carbon**: recycle/upcycle existing building materials. Use low-carbon construction materials.

Regulations, tenant commitments and investor requirements vary in targeting of Scope 1, 2 or 3. Variation is greatest by region with broader definitions more common in Europe.

*For real estate, scope 3 emissions include energy consumption of tenants (operational carbon) and carbon released during construction (embodied carbon).

How to achieve net zero carbon

LaSalle's 10-step approach on a net zero carbon pathway



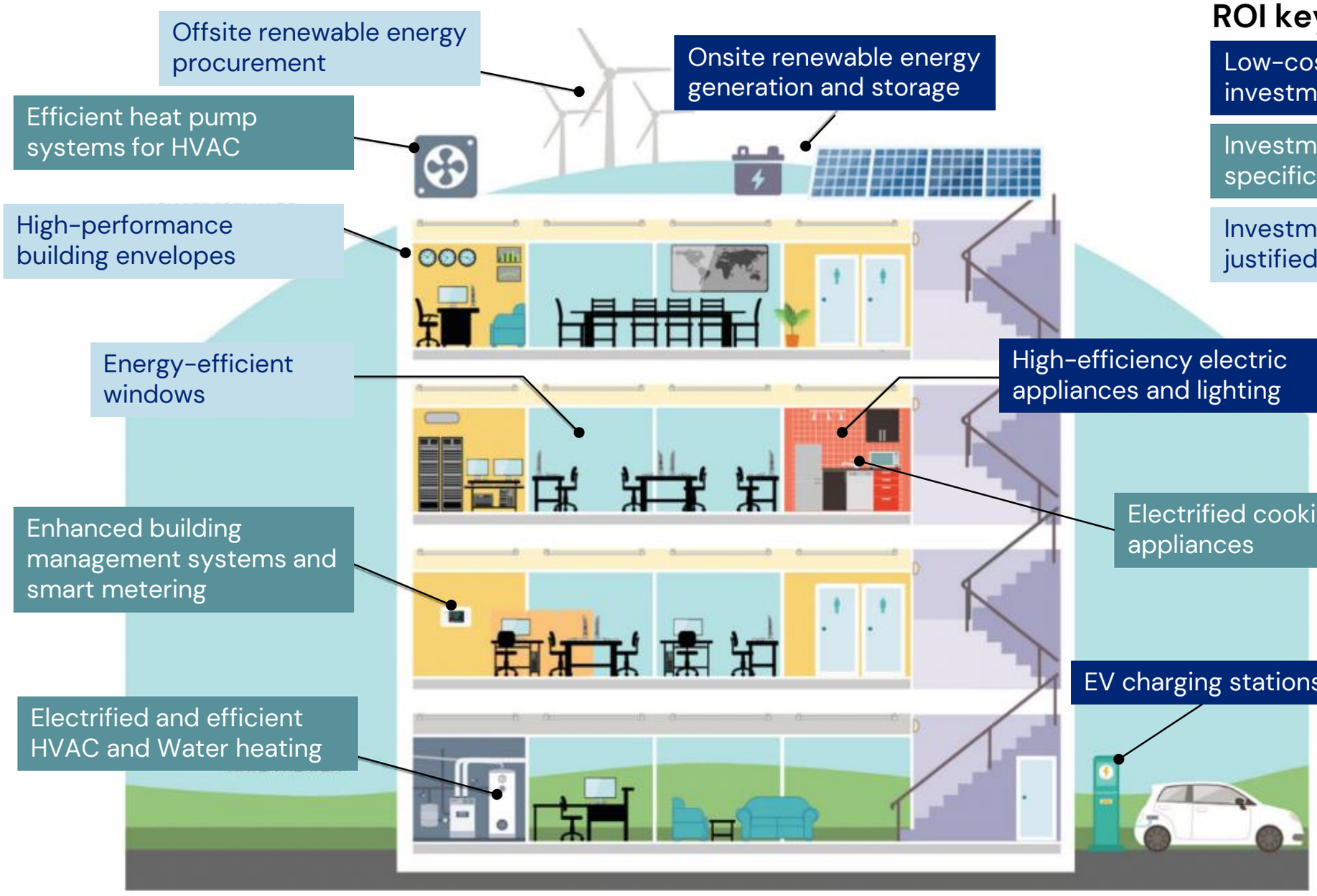
Current technologies make full NZC challenging. Residual emissions would be addressed with high-quality carbon offsets.

NZC investments typically underwrite higher rents, stronger tenant demand or higher investor valuations to justify the payback in an ROI analysis. These assumptions must be fine-tuned for each market and property type. Evidence of NZC market demand is limited but could emerge quickly.

For illustrative purposes only

NZC interventions at the asset level

Taking an existing building from “brown” to “green” needs to be tailored to each asset situation



ROI key

- Low-cost/high-return investments
- Investments justified at specific lifecycle stages
- Investments not always justified on financial basis

The path to net zero for each asset follows a series of individual investments that fit into different categories based on their return on investment (ROI), while also taking into account the regulatory environment.

For illustrative purposes only. Source: NYSERDA

Market and asset factors impact NZC path

Factors weighed in determining the optimal path for each asset's transition towards NZC

Market factors

Regulations
Rules imposed that require buildings to achieve defined carbon targets; through financial penalties, incentives or leasing/sale restrictions

Tenant demand
Requirements from tenants to help them achieve their own NZC objectives

Investor demand
Requirements from capital sources to manage investment portfolios to their own NZC goals

Decisions on specific investments on path to NZC status

Each asset's decarbonization path to NZC should follow a series of project specific investments with their own cost/benefit analysis.
Market context and asset situation should guide when to make each investment.

Useful life
Assets already in need of new HVAC and other systems have less incremental cost to achieve NZC

Current efficiency
Payback on capital invested in more efficient systems is greater when current efficiency is low

Cost of retrofit
Cost associated with reducing carbon will vary and has a direct impact on the payback of initiatives

Leasing status
Easier to manage disruption and have tenants pay for NZC status when occupancy or weighted average lease term (WALT) is low

Asset factors

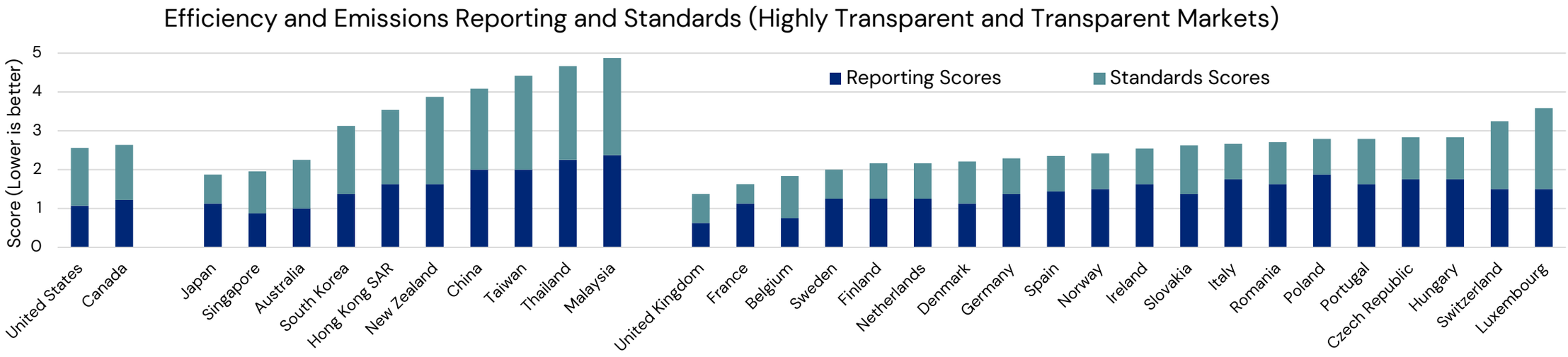
Dimensions of differentiation on timing of decarbonization

	Adoption pacing:	Early Stage	Later Stage
Market factors	Property type (Tenant demand)	Office, industrial (broadly more engaged tenants)	Residential (broadly less engaged tenants)
	Regulations	More advanced regulatory environments (will push broad adoption faster than market demand)	Limited regulations (no push beyond market forces)
	Markets	Locations with "green grids" (easier to decarbonize with carbon-free electricity available)	More carbon-intensive grids (limited gains from electrification if electricity is associated with carbon emissions)
	Parcel/land	Sites with high energy generation potential	Sites with limited energy-generation potential
Asset factors	Tenants	Large, corporate tenants with NZC commitments (more likely to be willing to pay a rent premium for NZC assets)	Smaller, local, price sensitive tenants (unlikely to be willing to pay a rent premium for NZC assets)
	Leasing status	Vacant or with near-term roll (Less tenant disruption and ability to raise rents after improvements	Leased long-term (Tenant disruption for building improvements and inability to raise rent)
	Building useful life	Assets requiring systems upgrades (capital investment is paid for by efficiency gains)	Assets with efficient but high carbon emitting systems (capital investment more for carbon reduction, not efficiency)
	Construction materials	Brick/stone construction (greater insulation means shorter path to NZC)	Glass façade buildings (poor energy efficiency make NZC very challenging)
	Energy data	Energy usage and emission data collected for landlord and tenant controlled spaces (easier to demonstrate relative efficiency)	Limited energy usage and emission data usage collection (makes it hard to make relative case)

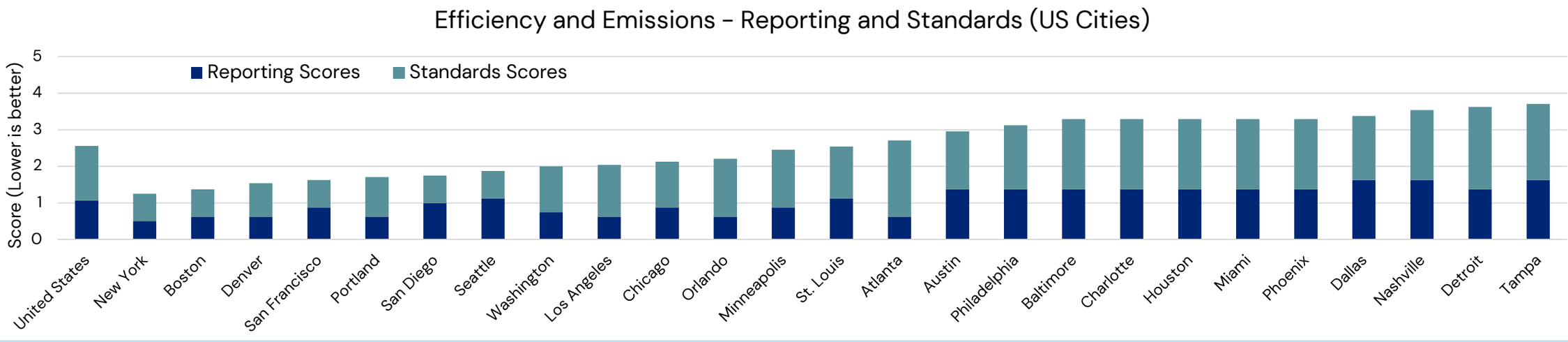
Source: LaSalle Investment Management

Decarbonization drivers by region

Europe leads, but diversity within regions and markets is wide



The survey of real estate markets for the JLL Global Transparency Index shows more focus on standards in Europe. North America performs well on reporting measures. Asia-Pacific is country/city specific; many markets have long-term NZC goals; there are limited asset-level regulations to implement long term goals.



In the US there is a wide-spread between cities with the most aggressive climate policies (like New York, which is among the highest scoring cities in the world) and other markets, particularly high-growth, sunbelt markets.

Source: LaSalle Investment Management analysis of data from 2022 JLL Global Real Estate Transparency Index (https://www.us.jll.com/en/trends-and-insights/research/global-real-estate-transparency-index),

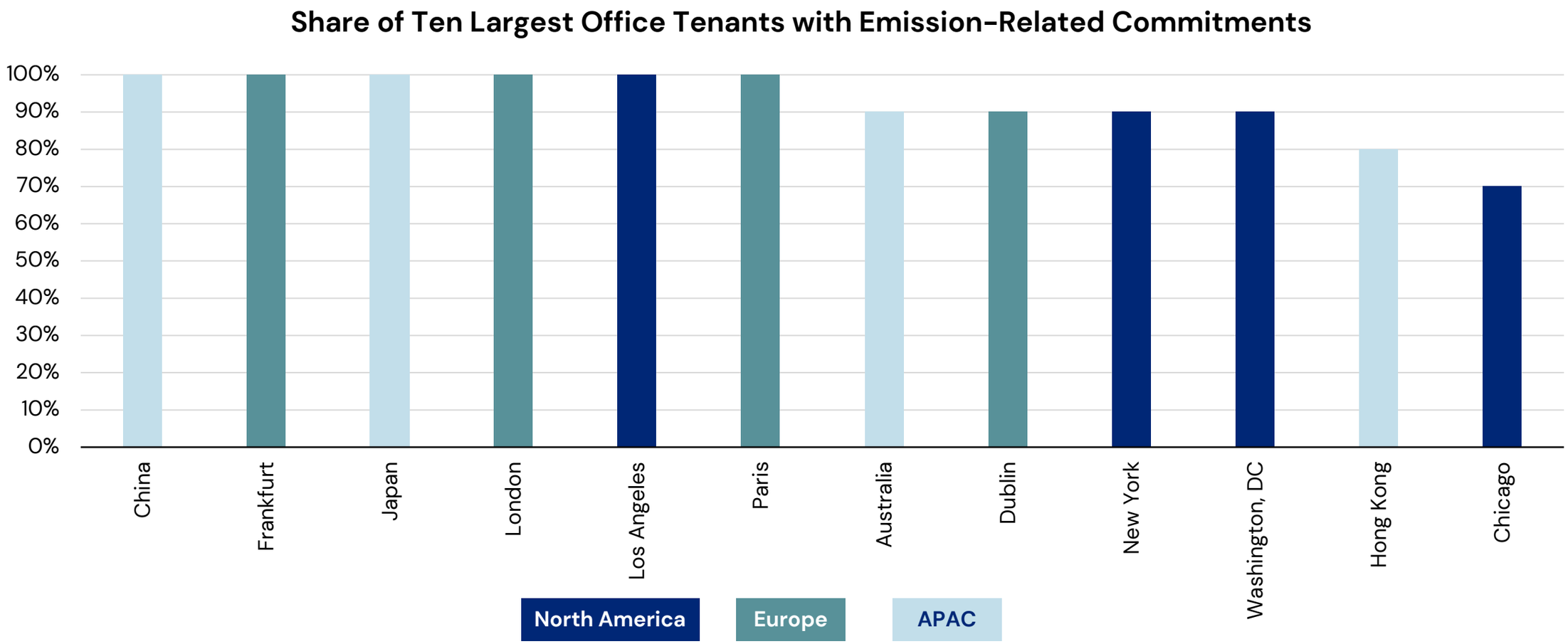
Opportunities for creating NZC portfolios

Retro-fitting and building new are two primary pathways; each with pros and cons

"Renovate from brown to green" Target under-performing and low-value properties for investment.	• Mitigates embodied carbon challenges (re-use of existing structure limits carbon emissions). • Work often requires vacant buildings and post-renovation leasing. • Building attributes determine feasibility (e.g., glass curtain walls less energy efficient, gas heating systems would need replacement)
"Build to green" Newly built net zero carbon properties.	• New buildings designed for operational net zero demand while meeting tenant needs. • New development leads to more embodied carbon emissions than renovation. Significant challenge when embodied carbon is part of NZC commitment. • Involves standard development risks (permitting, construction costs and leasing) along with additional risks around new technologies and techniques to limit carbon emissions.

Growth in tenant demand for NZC real estate

Corporate commitments point to exponential growth in demand



Most of the largest tenants in major office markets have commitments to reduce or eliminate carbon emissions. Achieving this goal will require decarbonizing real estate operations.

Large corporations occupying retail and warehouse space often share carbon reduction goals.

The demand outlook for residential real estate is less certain as individuals making rental decisions are likely to view carbon emission reduction as more a nice-to-have than a must-have.

Source: LaSalle Investment Management analysis using data from JLL, Science Based Targets initiative, and company websites to verify emissions related commitments.

Investor appetite for NZC real estate

Commitments point to a growing investor interest in owning decarbonized assets

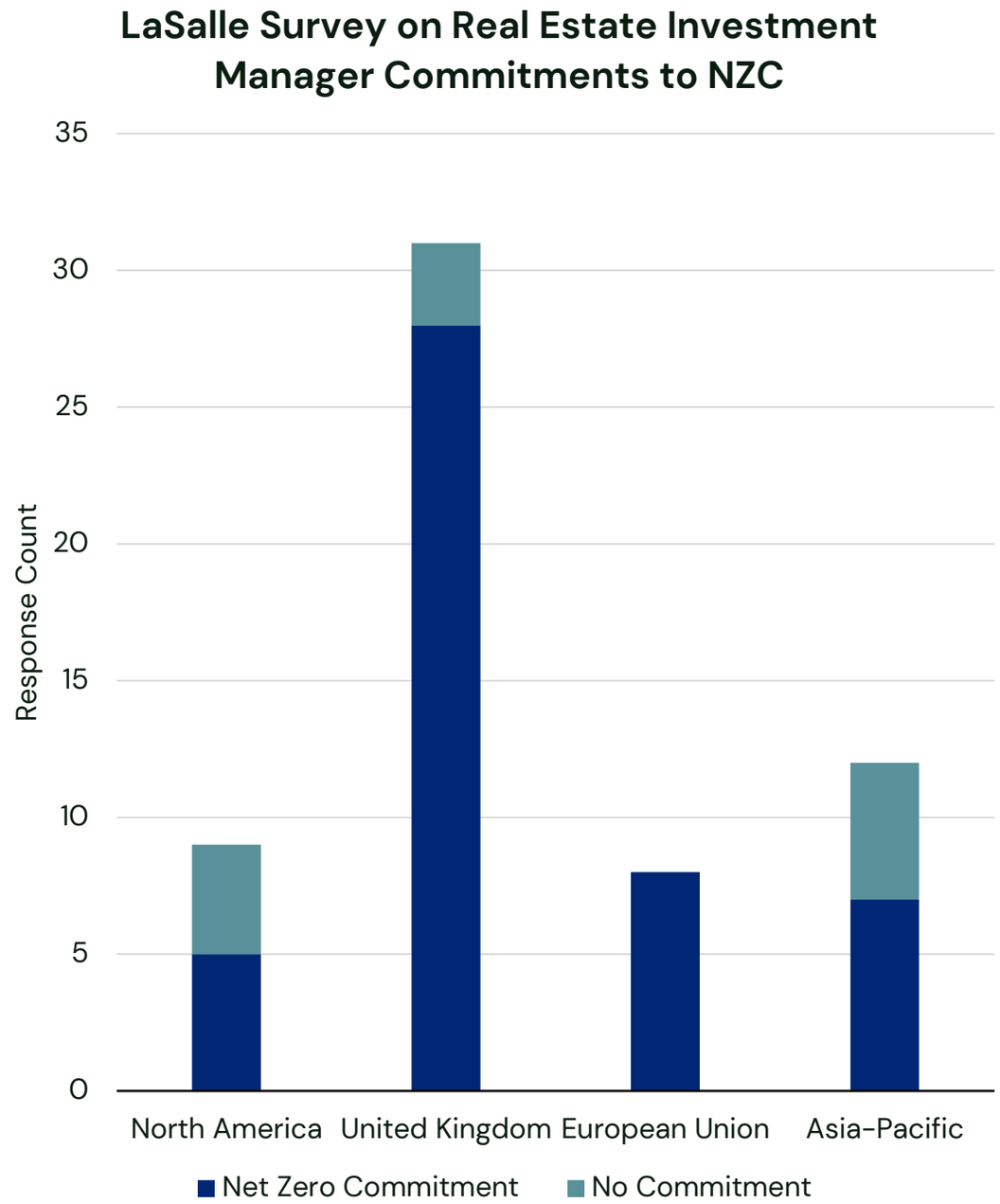
NZC commitments globally –

- A survey by LaSalle's Global Partner Solutions team indicates real estate investment managers in different locations are making NZC commitments at different rates. They are most common in the UK and European Union. In North America and Asia-Pacific, it is still the majority of investors, but this is based on a more limited sample of firms.

- The Net Zero Asset Managers (NZAM) initiative has 293 signatories who represent more than US$67.8 trillion in AUM. This includes many leading real estate investment managers and limited partners.

Future growth in buyer pool for NZC assets –

If investors are going to live up to their commitments, they will need to acquire NZC assets (or those that can become NZC). This will increase the buyer pool and lower the required return for NZC assets.



Source: Data reported in LaSalle Global Partner Solutions Survey of Investment Managers 2021, Net Zero Asset Managers Initiative as of May 2022

Very limited supply of NZC real estate

Mismatch between current supply and potential future demand is extreme

Certification scheme	Definition	Adoption
International Living Future Zero Carbon Certification	All operational energy use must be offset by new on- or off-site renewable energy. All embodied carbon emissions impacts associated with project must be disclosed and offset.	• Globally 83 registered projects; 4 certified zero carbon. 129 registered and 85 certified zero energy. • Across certification programs 27% are commercial real estate
New Buildings Institute - Getting to Zero	Ultra-low energy buildings that consume only as much energy as can be met with clean, renewable energy generation. Performance is verified with measured energy use data.	• US and Canada only • 587 “emerging projects”, 159 “verified projects." • 22% are office, only 18 privately owned, office buildings larger than 50,000 square feet. • Two major warehouse-distribution facilities.
USGBC – LEED Zero Carbon	Net zero carbon emissions from energy consumption through carbon emissions avoided or offset over a period of 12 months	• Eight certifications across seven countries.

The small number of net zero certifications is in dramatic contrast to potential demand as tenants require real estate to achieve net zero commitments.

However … the buildings achieving NZC status show it is an attainable goal.

Sources: International Living Future institute (https://living-future.org/zero-carbon/zero-carbon-certification/), New Buildings Institute (https://newbuildings.org/resource/getting-to-zero-database/), USGBC (https://www.usgbc.org/programs/leed-zero)

Pace of regulations vary across markets

Regulations tied to tenant and investor concern, but have additional impacts on investments

Cities at different points in decarbonization journey

Starting out

Recently released first climate action plans and NZC targets.

More limited action.

Tend to have higher climate vulnerabilities.

Dubai, Mumbai, Shanghai

Climate aware

Climate action plans are aspirational, but lack specifics.

Comparatively limited action to date.

Chicago, Düsseldorf, Hong Kong, Mexico City, Miami, Seoul

Climate progressive

Catching up fast with the Trailblazers.

Mapping out comprehensive pathways to NZC.

Leading on initiatives to decarbonize buildings.

Berlin, Boston, Frankfurt, Hamburg, London, Los Angeles, Manchester, Melbourne, Montréal, Munich, New York, Paris, San Francisco, Singapore, Sydney, Tokyo, Toronto, Washington DC

The trailblazers

Solid track record of planning for a sustainable future.

Considerable momentum, experience and accumulated knowledge.

Hitting the ground running in this important decade of action.

Amsterdam, Copenhagen, Helsinki, Stockholm, Vancouver

Source: JLL: Decarbonizing Cities and Real Estate; May 2022

Investment outlook

Signals point to rising demand for NZC real estate – the timing will vary by market segment. Meeting this supply will be a market challenge. Moreover, each assets' ability to decarbonize is different, and the costs to achieve full decarbonization will vary.

- The expected supply and demand mismatch should create an attractive investment opportunity in net zero carbon real estate. Meeting this demand could enable real estate investors to earn an out-sized return. Major parts of the European market are reaching this point today.

- Capital investment required to meet this need, and timing these investments is critical to maximizing returns while not over-investing today. This requires assets move on the path towards decarbonization without knowing when or precisely how they will reach that end point.

- Targeting tenants with strong ESG commitments and the ability/willingness to pay higher rents will help justify additional capital investment.

Risks	Mitigants
Uncertain timing on the emergence of NZC demand.	• Focus where tenants and investors are leading on transition to NZC. • Take cost-effective steps to move towards de-carbonization before making every investment to reach NZC.
Future technology innovation	• Find state-of-the-art providers who are experts in decarbonization. • Make investments today with a view on how future technology might create better options in the future.
Portfolios slow to transition could be stuck with stranded assets	• Identify the conversion potential of assets and timing of impact. • Prune portfolios in advance of market valuation of transition risk. • Evaluate capital investment plans through a decarbonization lens.

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