

Collective insights from Singapore's Real Estate Sector:

Suggested actions for advancing decarbonisation practices in Singapore's built environment

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This paper was developed by the Singapore Sustainable Finance Association (SSFA) Real Estate sub-group. SSFA collaborates across the financial sector and real economy to support the growth of Singapore as a trusted, vibrant, and inclusive sustainable finance centre.

SSFA has six thematic focus areas, reflecting core priorities of the broader sustainable finance ecosystem, involving key stakeholders such as financial institutions, real economy corporates, service providers, government bodies, academia, NGOs and others, essential for advancing the industry.

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This paper does not necessarily represent the views of the Workstream Co-leads, Sub-group lead, any individual member of the Workstream, or the SSFA EXCO.

¹ As of 2026, SSFA's workstreams have transitioned to a project-based model.

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Foreword

By Singapore Sustainable Finance Association.

Singapore's pursuit of net-zero emissions by 2050 is contingent on multiple factors, from the maturity of decarbonisation technologies to effective international cooperation². Included within this ambition is the decarbonising of the real estate sector, which is substantial in both size and emissions.

The Singapore Sustainable Finance Association (SSFA) facilitates collaboration between financial and non-financial sectors to support the low carbon transition and sustainable economic growth of Singapore, to build a vibrant, trusted, and inclusive sustainable finance ecosystem in Singapore. SSFA has therefore spent the last 12 months exploring measures to accelerate progress in this area as part of the work undertaken by the Real Estate sub-group of SSFA's Transition Finance Workstream.

For decarbonisation to be successful, cross-sectoral, and intra-sectoral collaboration is critical. This is as true for real estate as it is for transportation and industry. Our work is founded on the importance of collaboration, as reflected in our approach to working with the real estate sector.

This effort was initiated by the convening of key players in Singapore's real estate ecosystem. Real estate companies, regulators, service providers, policymakers, and financial institutions shared their challenges and discussed how collective action would help.

This paper therefore synthesises the insights gleaned from the key ecosystem players in these areas and offers practical recommendations aimed at increasing the pace of decarbonisation in the real estate sector. Given the targeted scope of this work – and therefore, this paper – certain issues of relevance to decarbonising the built environment (for example, embodied carbon) are not explored at this stage.

As the real estate ecosystem takes the next step of acting on these proposed solutions, participants should persist in this spirit of collaboration. The holistic, whole-of-ecosystem collaboration applied in preparing this paper helps enhance our understanding of the obstacles to decarbonising the built environment – and how to address them effectively.

Everyone is accountable, and nobody can tackle decarbonisation alone.

² National Climate Change Secretariat. (2022) Overview of Singapore Climate Targets. Retrieved October 2024 from <https://www.nccs.gov.sg/singapores-climate-action/singapores-climate-targets/overview/>

Introduction

The importance of collaboration

No sector can decarbonise in isolation.

Complex and overlapping value chains make decarbonisation in one sector conditional on parallel decarbonisation in another. Cross-sectoral collaboration is therefore essential for Singapore to hit its climate targets.

Given the large exposure of Singapore's financial sector to real estate, as well as the impact of buildings on the country's emissions profile, the SSFA EXCO agreed in early 2024 that real estate would be one of three key focus areas for the Association's Transition Finance Workstream³.

SSFA, with the MAS, hosted a fact-finding roundtable in July 2024 for domestic and international financial institutions. Key stakeholders within the real estate sector were also represented, including the Singapore Green Building Council (SGBC) and BCA.

This approach reflects the importance attached by SSFA and its members to intra- and cross-sectoral collaboration, to enable effective decarbonisation of the sector.

³ For reference, the other two focus areas are the power sector and transition planning.



Why is decarbonising the built environment difficult?

The roundtable surfaced several practical challenges that require attention if decarbonisation of real estate is to be accelerated:

1. Data gaps remain within the building and construction sector

Publicly available sustainability information for buildings has been important in helping inform decarbonisation strategies for the sector. However, some data gaps remain and present challenges, particularly regarding industrial buildings. Reasons include inadequate metering infrastructure in many older assets, complex tenancy arrangements, commercial sensitivity concerns particularly around process loads, and cost implications for enhanced metering and reporting systems.

2. Complexity within the real estate supply chain compounds data collection challenges

Corporate supply chains are invariably complex. This is no different for the built environment. Supply chain participants can include designers, contractors and subcontractors to name a few. Furthermore, bigger players within the supply chain (for example, developers) often have differing expectations of suppliers related to the provision of sustainability data. Such data is crucial to driving the wider sector's decarbonisation. While it remains difficult to collect, decarbonisation progress will be slowed.

Disparate expectations of suppliers related to the provision of sustainability data could complicate a process that may already be burdensome for most built environment supply chain participants.

3. Delivering decarbonisation is beyond the means of this sector alone

Control (or lack of it) is also a key challenge. The progress of real estate decarbonisation domestically is (partially) contingent upon the rate of grid decarbonisation at a national level. If grid decarbonisation does not proceed swiftly, then the buildings sector will not be able to meet its sustainability objectives.

4. The green premium remains limited, dampening appetite to accelerate decarbonisation

There remains little (if any) difference in valuation levels between green and non-green buildings in Singapore. If tenants are not willing to pay a commensurate premium for a green(er) space, or less for a browner space, then motivating and delivering decarbonisation becomes more challenging.

Illuminating the way ahead

The July 2024 SSFA real estate roundtable gave a preliminary sense of the most pressing challenges hampering the building sector's decarbonisation in Singapore, and the areas SSFA would focus on.

Through the roundtable discussions, four areas of priority emerged for SSFA:

1. Whole-of-building data
2. Real estate supply chain
3. Sectoral decarbonisation pathways and
4. Real estate valuation.

Since then, the SSFA Transition Finance Workstream's Real Estate sub-group, comprising mostly of real estate companies, investors, and banks met several times, hosting experts from various organisations who offered perspectives on potential solutions.

In early 2025, SSFA also collaborated with the Association of Banks in Singapore (ABS) to survey the latter's members on the financing of energy efficiency retrofits. Questions asked included: Is there demand from corporate clients for such retrofits? Where is this coming from?

A second roundtable was held in July 2025 — 12 months after the first. Ideas first put forward in 2024, then refined and tested, were put to the same audience for discussion and validation. The next section provides an overview of the SSFA thinking in the four areas of priority.

Four priority areas:

1. Whole-of-building data gaps
2. Supply chain
3. Pathways
4. Valuation

1. Whole-of-building data gaps

Why?

Filling data gaps is not a new challenge.

Singapore's BCA has, since 2014, published benchmarks annually (in the form of the Annual Building Energy Benchmarking Report or BEBR) to monitor Singapore's building energy performance⁴. The Annual Mandatory Submission required by BCA of building owners covers the following types of buildings:

- Commercial buildings; comprising office buildings, hotels, retail buildings, and mixed developments
- Healthcare facilities
- Educational institutions
- Civic, community, and cultural institutions
- Sports and recreation centres

Information provided informs decarbonisation planning and delivery for the sector.

However, some data gaps remain and present issues. These are especially pronounced for industrial buildings in the following categories:

- Business 1 (industrial) buildings — Predominantly used for manufacturing (light industries) and e-business⁵
- Business 2 (industrial) buildings — Predominantly used for general industrial purposes, including production and assembly⁶

While the latest annual BEBR⁷ covers information on around 1000 buildings in Singapore, no industrial buildings in either of the two categories above are represented within the report.

Activities are underway to address these gaps and associated emissions.

Industrial facilities that are large energy consumers ($\geq 54\text{TJ/year}^8$) and greenhouse gas (GHG) emitters ($\geq 25\text{ktCO}_2\text{e/year}^9$) are subject to mandatory emissions reporting and energy management practices requirements under the Carbon Pricing Act & Energy Conservation Act (ECA).

Under the ECA, there are also regulatory frameworks to address industrial building emissions, such as the Minimum Energy Efficiency Standards for key industrial systems such as water-cooled chilled water systems and the Minimum Energy Performance Standards for industrial motors.

4 Building and Construction Authority. (2025) BCA Building Energy Benchmarking Report and Data. Retrieved October 2024 from <https://www1.bca.gov.sg/sustainability/legislation-on-environmental-sustainability-for-buildings/existing-buildings/building-energy-benchmarking-report/>

5 Urban Redevelopment Authority. (2025) Business 1 (Industrial). Retrieved October 2025 from <https://www.urau.gov.sg/Corporate/Guidelines/Development-Control/Non-Residential/B1/Allowable-Uses>

6 Urban Redevelopment Authority. (2025) Business 2 (Industrial). Retrieved October 2025 from <https://www.urau.gov.sg/Corporate/Guidelines/Development-Control/Non-Residential/B2/Allowable-Uses>

7 Building and Construction Authority. (2026) BCA Building Energy Benchmarking Report and Data. Retrieved February 2026 from <https://go.gov.sg/bca-bebr-data>

8 Terajoules per year

9 Kilotonnes of carbon dioxide equivalent per year

Listed and large non-listed companies are also subject to sustainability reporting requirements by the Singapore Exchange and the Accounting and Corporate Regulatory Authority.

Yet challenges do arise when gathering emissions data. As mentioned above, the reasons include inadequate metering infrastructure in many older assets, complex tenancy arrangements, commercial sensitivity concerns particularly around process loads, and cost implications for enhanced metering and reporting systems.

While this issue comes up across industrial buildings, the problem is perhaps more acute in the areas of light industrial, logistics, warehousing, and e-business¹⁰. Broadening access to whole-of-building data in this area specifically would thus address a pain point flagged by industry representatives.

What is whole-of-building data?

The key components of whole-of-building data are gross energy usage intensity (EUI) coming from: i) landlords, ii) tenants, iii) electricity usage, and iv) gas usage. Electric vehicle charging loads can be excluded.

Real estate pathways coming from the Carbon Risk Real Estate Monitor (CRREM) and the Science Based Targets Initiative (SBTi) both consider whole-of-building EUI data to be the relevant measure of performance.

Better sustainability information on industrial buildings is crucial for domestic financial institutions to provide sustainable or Singapore-Asia Taxonomy (SAT)-aligned financing to this sub-sector of real estate¹¹.

For example, under SAT section “3.4 Acquisition or ownership of buildings”, a green building must comply with one of the following criteria:

- *Prevailing Green Mark Certification, or*
- *The building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED)¹² or GHG emissions or energy consumption and demonstrated by evidence which at least compares the performance of the relevant asset to the performance of the national or regional stock and at least distinguishes between residential and non-residential buildings¹³.*

For both green and amber criteria¹⁴ within the SAT, under “Acquisition of Buildings”, the BEBR is cited as a source that can be used to determine building eligibility (assuming the prevailing Green Mark Certification is unavailable). The cross-referencing of relevant BCA data (found in the BEBR) with the contents of the SAT represents joined-up thinking on the part of Singapore government.

However, as referenced above, data gaps do exist within the BEBR for several reasons. The consequence is that qualifying certain industrial buildings for sustainable financing (in line with SAT) becomes more challenging¹⁵.

¹⁰ While these issues relate to heavier industrial buildings, such assets often cease to represent real estate emissions and are reflected in as manufacturing sector (process emission) contributors. This observation also holds for data centres – while housed in buildings, they are not building sector emissions.

¹¹ Monetary Authority of Singapore. (2023) Singapore-Asia Taxonomy. Retrieved October 2024 from <https://www.mas.gov.sg/-/media/mas-media-library/development/sustainable-finance/singaporeasia-taxonomy-updated.pdf>

¹² PED is a regulated energy approach that covers the key base building components but excludes process loads (plug loads) as well as supplementary tenant/occupant systems; which can include supplementary heating, ventilation, and air conditioning. PED is not consistently defined and there are variations as to what is included, hence whole-building EUI is the preferred metric for commercial building typologies. However, EUI is less suitable for heavy industries.

¹³ Ibid., 59.

¹⁴ For reference, the equivalent Amber criteria is that the building in question must be within the top 25% of the national or regional building stock. The sunset date for the activity is 2030.

¹⁵ Recognising this issue, the SSFA in July 2025 issued Guidance for Leveraging the Singapore-Asia Taxonomy in Green and Transition Financing, which advises how Taxonomy users may address this and other data availability issues.

This example illustrates how data limitations can have cascading effects on the availability of sustainable finance, which in turn can limit decarbonisation progress.

Publishing whole-of-building data in a consistent fashion for a greater variety of building typologies would provide a transparent baseline to assess performance, address existing data gaps and identify retrofitting needs in a holistic manner.

Whole-of-building data access (electricity, gas and district cooling where used) is critical for real economy players when communicating to investors, given that CRREM and SBTi pathways use a whole-of-building approach (broadly aligned with BCA's Green Mark scheme).

Distributing wholesale access to buildings data can help overcome other challenges highlighted by SSFA members. For example, master lease agreements sometimes stand in the way of data availability. Where the master tenant acts as landlord, occupants do not have a direct contractual relationship with the property owner. Occupants may thus have limited access to sustainability data.

What and how?

BCA's BEBR represents a best-in-class initiative that provides transparency to the sector on the sustainability performance of the domestic built environment.

To further strengthen the BEBR's pre-eminent position while also driving wider real estate decarbonisation, SSFA welcomes ongoing dialogue with BCA on extending whole-of-building data availability to a broader range of asset classes, over time. Wider data coverage would support more comprehensive reporting and benchmarking of decarbonisation approaches across the sector. It is also important that, where feasible, the full data set, including gas and district cooling, is made available.

BCA has acknowledged the value of extending data coverage to industrial buildings whilst recognising significant implementation challenges. After consulting with relevant agencies, it identified several key considerations, including inadequate

metering infrastructure in many industrial buildings, complex tenancy arrangements that create administrative burdens, commercial sensitivity concerns particularly around process loads, and substantial implementation costs for enhanced metering and reporting systems. These challenges are particularly relevant for industrial buildings, which operate beyond existing regulatory frameworks such as NEA's Minimum Energy Efficiency Standards for key industrial systems.

Despite these challenges, BCA remains constructively engaged and has expressed openness to explore practical solutions through a work group facilitated by SSFA. Such solutions could focus on common areas and key equipment for building services, balancing transparency objectives with the identified practical constraints. SSFA welcomes this constructive approach and stands ready to collaborate with BCA on developing disclosures for priority asset classes, such as industrial buildings, that are cognisant of and commensurate with commercial and practical realities.

Through this workgroup, SSFA will work with BCA to signal how and when such information will be made available as soon as possible, thus providing clarity and supporting planning of decarbonisation strategies.

Under the Building Control Act Part 3B, Section 22, such data can be requested and published via this mechanism:

"The commissioner of Building control may do all or any of the following... (b) by written notice to a supplier of electricity, gas or any other type of energy (called in this section an energy supplier) require the energy supplier to provide the Commissioner of Building Control with information in the possession of the energy supplier relating to the energy consumption of any building or buildings specified in the notice"¹⁶

SSFA looks forward to collaborating with BCA in exploring suggested solutions and working together to chart a practical path forward.

¹⁶ Singapore Statutes Online. (2025) Building Control (Amendment) Act 2024. Retrieved October 2025 from <https://sso.agc.gov.sg/Acts-Supp/28-2024/Published/20241008?DocDate=20241008>



2. Supply chain

Why?

Disparate expectations of suppliers related to the provision of sustainability data could complicate a process that may already be burdensome for most built environment supply chain participants.

There is an opportunity to explore how greater consistency can be introduced. Consistency alone may not deliver the necessary behavioural change, of course. Any review should also consider the enabling role of incentives and whether current structuring (e.g., green leases) remains fit for purpose.

Feedback received during SSFA engagements also identified certain data collection pain points within real estate supply chains. The pioneering work reflected in the Singapore Emissions Factor Registry developed by the Singapore Business Federation (SBF) represents an ideal vehicle for addressing these pain points.

What and how?

SSFA members propose that a time-limited taskforce be convened, comprising key stakeholders within Singapore's real estate ecosystem.

This could be led by relevant sector lead agencies (e.g. BCA, NEA, MHA, NParks) and involve relevant TACs. The taskforce's initial remit may comprise:

- a) Revisiting and refining tenant engagement tools, templates, and incentives (e.g., green leases) with a focus on facilitating bottom-up data collection that can supplement the recommendations made above regarding the expansion of BEBR
- b) Reviewing the market for the most suitable platforms to allow tenants and the wider supply chain to easily disclose information captured
- c) Developing a wider range of supply chain proxies/templates for the facility management sector, to cover the long tail of emissions that cut across areas such as security and cleaning

The real estate supply chain is complex, and many participants may lack the means or incentives to decarbonise. A dedicated taskforce can address this by bringing coherence to a fragmented landscape and accelerate decarbonisation across Singapore's built environment.

SSFA members stand ready to support such a taskforce as required. The taskforce should also consider capabilities emerging in the market, such as those being developed by technology platforms such as Gprnt¹⁷.

¹⁷ Gprnt's platform "enables SMEs to generate a basic emissions report in minutes using smart data integrations and AI. This unlocks the data needed to decarbonise supply chains, scale green financing programmes and support government-led climate action".

3. Pathways

Why?

SSFA recommends that real estate companies, working with ecosystem partners – including financial institutions, BCA and the SGBC – make every effort to pursue decarbonisation in an ambitious and responsible manner.

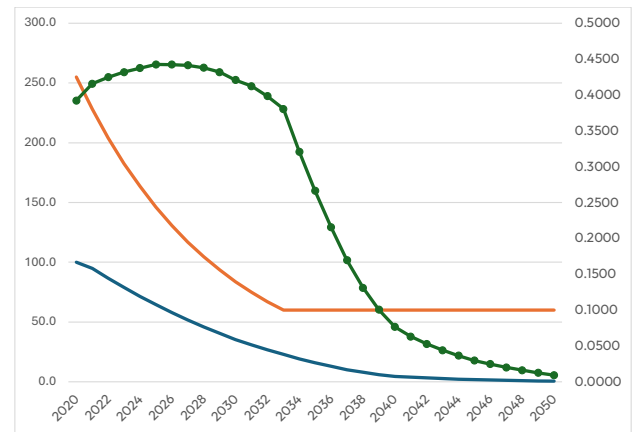
Nevertheless, certain global decarbonisation pathways guiding activity in the real estate sector may not be achievable across Singapore, ASEAN and Asia. This is often due to circumstances outside the sector's control (e.g., grid decarbonisation levels). This reality needs to be engaged with, rather than avoided.

To illustrate this, we refer to the CRREM decarbonisation and energy reduction pathways using the example of an office building in Singapore. The CREEM 1.5°C pathway requires a steep reduction in whole building energy intensity from a 2020 baseline of 255 kWh/m²/yr to 60 kWh/m²/yr by 2033 (represented by the orange line in the graph).

In keeping with the CREEM 1.5°C decarbonisation glidepath where whole building GHG intensity decreases from a 2020 baseline of 100 kgCO₂e/m²/yr to a 2050 net zero state (blue line), the implied emissions intensity of the electricity grid

in Singapore (green line) would see a rapid decline from 2031 to 2050. At current levels of 0.402 kg CO₂/kWh (based on 2024 EMA data), such steep grid decarbonisation is likely more aggressive than what Singapore's system can deliver, realistically.

Decarbonisation and energy reduction pathway - CRREM 1.5°C for Singapore Office Building



- Whole building GHG intensity pathway (kgCO₂e/m²/yr)
- Whole building energy intensity pathway (kWh/m²/yr)
- Implied grid intensity (kg CO₂/kWh)

Source: CRREM Risk Assessment tool APAC V2.07. Implied grid intensity is calculated based on CRREM GHG intensity pathway data point for each year divided by the whole building energy intensity pathway data point for that year.

What and how?

SSFA members recommend real estate companies make explicit reference to the challenges encountered when seeking to meet targeted emissions reductions in their sustainability reporting. Such a reference could be framed as follows:

The [name of reporting entity] commends ongoing initiatives aimed at establishing frameworks and sectoral pathways for transitioning the real economy towards net zero emissions. We recognise, however, that current pathways may not fully account for the unique context and significant challenges that the real estate industry faces in Singapore, ASEAN, and Asia. Greater contextualisation of sectoral pathways to net zero is critical to catalyse the adoption and financing of decarbonisation strategies and sustainability goals within the real estate sector.

Recognising these realities, the development and adoption of contextualised pathways that deviate from global pathways, where necessary, should be seen as a legitimate and conscientious response to local conditions, rather than a reflection of diminished ambition. Real estate companies may face heightened legal and commercial risks if required to comply with global pathways that do not reflect local realities. For instance, the lack of access to whole-of-building energy data can result in incomplete or inaccurate sustainability disclosures, exposing companies to potential misrepresentation and regulatory non-compliance.

While we recognise the importance of setting ambitious decarbonisation targets, it is crucial to consider the real-world constraints that impact the building sector's transition to net zero carbon emissions in this region. Accordingly global frameworks, such as CRREM and SBTi, may benefit from the further development of a robust evidence base that accurately reflects achievable energy efficiency and greenhouse gas emissions performance targets. Our objective is to foster constructive dialogue and continuous engagement among pathway developers, regulators, and industry participants to ensure transition pathways are both realistic and effective. By advocating for a contextualised approach, we aim to facilitate viable decarbonisation outcomes for all stakeholders involved.

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Real estate companies and financial institutions, to the extent their real estate exposure is material, may consider integrating the above statement into their sustainability reporting and investor dialogues. The extent to which the statement is used will help determine its credibility and thus its potential to provide additional time for developers to pursue decarbonisation to the best of their abilities.

Any use of a statement such as that proposed above should in no way, shape or form represent a get-out-of-jail-free card. It does, however, provide a means for the sector to demonstrate willingness to engage with a fundamental issue, in a consistent fashion, while a tailored solution is developed for Singapore.

Beyond mitigating potential regulatory non-compliance risk, such a statement may help ensure credible real estate strategies (from a decarbonisation perspective) are not excluded from accessing institutional capital from international asset owners. This is especially relevant for asset owners that demand alignment with sectoral pathways.

Finally, a statement such as this can only have credibility if its use is time limited. SSFA and its members would propose it only be applicable up to and including 2027, or until a tailored pathway for Singapore has been developed — whichever comes first.

4. Valuation



Why?

The causal link between the ESG credentials of a building and its valuation appears weak.

To be clear, the act of valuation does not equate to the creation of value. Nevertheless, ESG integration within the valuation process can play an important role in educating valuation users about which factors are important. A clearer (and greater) role for ESG factors can also provide the transparency for more holistic and accurate pricing.

This space is not static, of course. It was only in 2024 that the IVSC confirmed it would require international valuations to incorporate ESG from 2025 onwards. The latest IVSC standards provide non-exhaustive lists of relevant ESG factors for consideration.

Valuers still have the licence to determine how they should be integrated, though, so investigation is recommended to unpack how best to integrate evolving international standards domestically.

Additional direct regulatory interventions, such as a so-called “green supporting factor” or “brown penalising factor”, have rendered such measures unattractive in many cases¹⁸.

A bottom-up approach that recommends and explains how ESG factors can be integrated into the valuation process can avoid some of those downsides while still pointing the way towards Singapore’s overarching policy aims.

Clearer links between ESG integration and valuation can direct and motivate the pursuit (and financing) of further decarbonisation across Singapore’s building stock.

¹⁸ European Banking Authority. (2023) On the role of environmental and social risks in the prudential framework. Retrieved October 2025 from https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2023/1062711/Report%20on%20the%20role%20of%20environmental%20and%20social%20risks%20in%20the%20prudential%20framework.pdf

What and how?

SSFA members recommend a time-limited working group be convened, the objectives of which would be to:

1. Educate the real estate ecosystem in Singapore on the importance of integrating ESG factors into the valuation process, and on the importance of ESG transparency allowing for compatibility
2. Confirm and develop an appropriate approach to integrating ESG factors into the current value view valuation process in Singapore

There appear to be two possible approaches to integrating ESG factors into the valuation process, allowing comparable evidence for valuers to execute evidence-based judgement of ESG:

- 1) A principles-based approach — ESG factors shall be integrated, but there is discretion as to how
- 2) A checklist-based approach — All factors shall be considered by valuers from an ESG perspective as part of the valuation process

It would be useful to review which approach may be best suited to Singapore.

Without clear recognition in asset valuations, the economic case for decarbonisation often remains unclear. Integrating ESG factors to the valuation process makes that case visible by creating pricing signals that reward sustainability, motivate investment in low-carbon buildings, and align market behaviour with Singapore's decarbonisation objectives.

Who might be involved with the working group?

This should involve key players in the domestic valuation space (such as the Institute of Valuers and Appraisers and Singapore Institute of Surveyors and Valuers, given their expertise and leadership in the domestic market). Such a working group may also benefit from international participation, such as from the Royal Institute of Chartered Surveyors.

Call to action: The importance of collaboration

Central to all recommendations made in this paper is the importance of collaboration.

The engagements undertaken by SSFA in the real estate sector over the last 12 months have stressed this point throughout, as members have sought not only to identify challenges but also potential solutions.

Just as this was a collaborative exercise, the potential next steps needed to effect change will require partnerships across developers, financial institutions, government, and regulators among others.

In summary, the following key actions have been recommended for the different ecosystem partners.

Area of priority	Key actions
Whole-of-building data gaps	For BCA to continue exploring the extension of whole-of-building data availability to a broader range of asset classes over time
Supply chain	For any suitable appropriate party (e.g. BCA) to convene and lead a time-limited taskforce, comprising of key stakeholders within Singapore's real estate ecosystem. The taskforce would explore topics like expanding the range of supply chain proxies for facility management services
Pathways	For real estate companies and financial institutions, where appropriate, to make explicit reference to the challenges encountered when seeking to meet targeted emissions reductions in their sustainability reporting
Valuation	To convene a time-limited working group with key domestic and international players in the valuation space

The collaborative, whole-of-ecosystem approach underpinning SSFA's work positions Singapore not merely as an adopter of global standards but as a jurisdiction capable of producing contextualised, credible solutions for the wider region. By bringing together financial institutions, policymakers, and industry practitioners, SSFA has fostered the kind of multi-stakeholder alignment that complex challenges such as real estate decarbonisation demand.

Where these recommendations are translated into action, their collective effect will be to mobilise sustainable capital at greater scale, deploy it with greater integrity, and price it with greater accuracy. Together, they will reinforce Singapore's standing as a trusted sustainable finance hub. SSFA and its members look forward to continuing this conversation in pursuit of actions that can collectively accelerate the pace of real estate decarbonisation in Singapore.

Appendix

Acronyms

Acronym	Description
ABS	The Association of Banks in Singapore
ASEAN	Association of Southeast Asian Nations
BEBR	Building Energy Benchmarking Report
BCA	Building and Construction Authority
CRREM	Carbon Risk Real Estate Monitor
ECA	Energy Conservation Act
EMA	Energy Market Authority
EUI	Energy Usage Intensity
ESG	Environmental, Social and Corporate Governance
GHG	Greenhouse Gas
MAS	Monetary Authority of Singapore
PED	Primary Energy Demand
RECS	Renewable Energy Certificates
REITS	Real Estate Investment Trust
SAT	Singapore-Asia Taxonomy for Sustainable Finance
SBF	Singapore Business Federation
SBTi	Science Based Targets Initiative
SGBC	Singapore Green Building Council
TACs	Trade Associations and Chambers

References

Building and Construction Authority. (2025) BCA Building Energy Benchmarking Report and Data. Retrieved October 2024 from <https://www1.bca.gov.sg/sustainability/legislation-on-environmental-sustainability-for-buildings/existing-buildings/building-energy-benchmarking-report/>

[Building and Construction Authority. \(2026\) BCA Building Energy Benchmarking Report and Data. Retrieved February 2026 from https://www1.bca.gov.sg/sustainability/legislation-on-environmental-sustainability-for-buildings/existing-buildings/building-energy-benchmarking-report/](https://www1.bca.gov.sg/sustainability/legislation-on-environmental-sustainability-for-buildings/existing-buildings/building-energy-benchmarking-report/)

European Banking Authority. (2023) On the role of environmental and social risks in the prudential framework. Retrieved October 2025 from https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2023/1062711/Report%20on%20the%20role%20of%20environmental%20and%20social%20risks%20in%20the%20prudential%20framework.pdf

Monetary Authority of Singapore. (2023) Singapore-Asia Taxonomy. Retrieved October 2024 from <https://www.mas.gov.sg/-/media/mas-media-library/development/sustainable-finance/singaporeasia-taxonomy-updated.pdf>

National Climate Change Secretariat. (2022) [Overview of Singapore Climate Targets](https://www.nccs.gov.sg/singapores-climate-action/singapores-climate-targets/overview/). Retrieved October 2024 from <https://www.nccs.gov.sg/singapores-climate-action/singapores-climate-targets/overview/>

Singapore Sustainable Finance Association. (2025) Retrieved October 2025 from <https://www.ssfa.org.sg/wp-content/uploads/2025/07/SSFA-Taxo-WS-Guidance-for-Leveraging-the-SAT-in-Green-and-Transition-Financing-Jul-2025-1.pdf>

Singapore Statutes Online. (2025) Building Control (Amendment) Act 2024. Retrieved October 2025 from <https://sso.agc.gov.sg/Acts-Supp/28-2024/Published/20241008?DocDate=20241008>

Urban Redevelopment Authority. (2025) Business 1 (Industrial). Retrieved October 2025 from <https://www.ura.gov.sg/Corporate/Guidelines/Development-Control/Non-Residential/B1/Allowable-Uses>

Urban Redevelopment Authority. (2025) Business 2 (Industrial). Retrieved October 2025 from <https://www.ura.gov.sg/Corporate/Guidelines/Development-Control/Non-Residential/B2/Allowable-Uses>

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The Singapore Sustainable Finance Association (SSFA) is an industry body established by the Monetary Authority of Singapore (MAS) along with the financial industry in January 2024. Building on the successful work of the Green Finance Industry Taskforce (GFIT), SSFA is established to collaborate across the financial and real economy sectors to support the growth of Singapore as a trusted, vibrant, and inclusive sustainable finance centre. SSFA welcomes participation from financial services, non-financial sector corporates, academia, non-governmental organisations, policymakers, and other industry bodies.



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