ULI Australia

CITY OF MELBOURNE
NET ZERO IMPERATIVE

Urban Land Institute Australia Technical Assistance Panel

ULI GREENPRINT NET ZERO IMPERATIVE

Technical Assistance Panel Report | 31 JULY 2024

THIS REPORT IS PREPARED BY:
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Atelier 10

ON THE COVER: Skyline of the City of Melbourne. *(Adobe Stock)*

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The views, opinions and conclusions expressed in this report are those of the Urban Land Institute Technical Assistance Panel authors and do not necessarily reflect the views or policies of the City of Melbourne. The Technical Assistance Panel was convened to prepare recommendations on a Zero Carbon Precinct model and approaches for implementing that model for the City of Melbourne and are subject to further consideration by Melbourne City Council. The content of this report is provided for strategic advice and informational purposes only and should not be construed as an endorsement by the City of Melbourne.

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ULI Australia and the City of Melbourne respectfully acknowledges the Traditional Owners of the land we govern, the Wurundjeri Woi-wurrung and Bunurong / Boon Wurrung peoples of the Kulin Nation and pays respect to their Elders past and present.

We acknowledge and honour the unbroken spiritual, cultural and political connection they have maintained to this unique place for more than 2000 generations.

We accept the invitation in the Uluru Statement from the Heart and are committed to walking together to build a better future.

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The Urban Land Institute is a global, member-driven organization comprising more than 45,000 real estate and urban development professionals dedicated to advancing the Institute's mission: shape the future of the built environment for transformative impact in communities worldwide.

ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and the Asia Pacific region, with members in 80 countries.

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ULI Australia conducts a range of Technical Assistance Panels (TAPs), providing global perspectives and objective, responsible advice to local decision-makers on a wide variety of land use and real estate issues, from site-specific projects to public policy questions. The TAP program is intentionally flexible to provide a customised approach to specific land use and real estate issues. In fulfilment of the ULI global mission, this TAP report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

Learn more at https://australia.uli.org/programs/advisory-services/.

Acknowledgment

The City of Melbourne are the beneficiary of this thought leadership work. The TAP would like to thank and acknowledge the City of Melbourne for their work in preparation, support and coordination leading up to and during the TAP. The TAP would also like to thank the stakeholders and strategic advisers who shared their perspectives, experiences, and insights with the TAP.

Technical Assistance Panel

Strategic Advisers and members of the TAP are volunteers dedicated to proving a professional service to government in support of civic and industry sustainability transformation.

Distinct from Advisory Services panels, TAPs leverage local expertise through a half-day to three-day process.

Technical Assistance Panel, Strategic Advisers and Stakeholders

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CBRE Group

Colliers International Group Inc.

FG Advisory

Grant Advisory

Jones Lang LaSalle Incorporated (JLL)

LaSalle

Riverlee

RMIT Univerity

The University of Melbourne

Skyline of the City of Melbourne

IMAGE SOURCE: GETTY IMAGES

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Aerial view of City of Melbourne

IMAGE SOURCE: GETTY IMAGES

Key Terms and Retrofit Melbourne Definitions

'Zero Carbon Ready' Building	1. It has a high level of energy efficiency. City of Melbourne will set a 5-star NABERS whole building energy rating as a minimum efficiency benchmark. 2. It uses no fossil fuels in its operation. It uses electric building services that can be powered by 100 per cent renewable electricity. 3. It has a carbon reduction action plan to transition the building to whole-of-life zero-carbon (including embodied carbon) after 2040. 4. Its owners regularly report on its progress towards zero emissions, embedding learning.
Mid-tier Building	Mid-tier buildings are often defined as any building lower than Premium or A-Grade, as outlined in the Property Council of Australia's Guide to Office Quality. Market research has shown mid-tier buildings share common characteristics (EY, 2015) that may present barriers to implementing emissions reduction retrofits: • Smaller footprints of 10,000 m2 or less. • Built before 2000, with older building services, including the original HVAC system and fluorescent tube lighting. • Diverse ownership profiles, including private, family trusts, strata-title and owners living overseas. • Higher vacancy rates when compared to Premium and A-Grade assets. • Small leased floor plates, with tenants that are small and medium-sized enterprises. • Lower rents per square metre. • No NABERS rating because most do not trigger mandatory disclosure under the Building Energy Efficiency Disclosure Act 2010, as they have small floor plates and do not get sold often. • No dedicated property or facilities manager.
Zero Carbon Precinct	An exemplar block of Zero Carbon Ready Buildings. To deliver a precinct, a collaboration with all the buildings to decarbonise, revitalise and activate the block. It could also include pilot projects for particular types of buildings, such as heritage-listed buildings.
Zero Carbon Lease	A zero-carbon lease is a mechanism for tenants to request a zero-carbon space. It also provides building owners and managers with a means to ensure tenants do what is needed to produce zero-carbon outcomes for the whole building. Leases include clauses that set out the minimum requirements for a zero-carbon lease.
Zero Carbon Risk Tool	A zero-carbon risk tool is a way for building owners to measure the impact of their building's carbon performance on its value.
Emissions Cap	An emissions ceiling or cap is a regulatory tool that mandates a limit on building emissions following a transition period. Building owners must follow a compliance order if their building's emissions exceed the cap or face financial penalties for inaction.

Source: Retrofit Melbourne, City of Melbourne 2023.

THE TECHNICAL ASSISTANCE PANEL (TAP) ASSIGNMENT

The City of Melbourne set the assignment for the ULI Net Zero Imperative Technical Assistance Panel (TAP). The City of Melbourne objective is to accelerate decarbonisation retrofits of mid-tier buildings in the municipality with a focus on B, C and D grade buildings. The TAP was tasked with identifying ways for the City of Melbourne to incentivise retrofits and Zero Carbon Precinct engagement, as well as providing key recommendations to help the city achieve its stated objectives and decarbonisation ambitions. The key objectives of the TAP assignment are outlined below.

The TAP Objectives

- To identify block or precinct-scale uplift case studies, from Australia and internationally, and understand the recipe for success.
- To explore the challenges and opportunities facing typical stakeholders within the municipality of Melbourne, when assessing, planning, financing and implementing decarbonisation solutions within a precinct. This could include (but not be limited to):
    - Carbon asset stranding risk.
    - Access to resources (financial, technical, other).
    - Support and incentives available (Federal, State, local, other).
    - Planning controls.
    - Infrastructure availability and capacity.
    - Supply and demand for zero-carbon space.
- To identify additional precinct activation and future proofing opportunities that can occur in parallel with precinct decarbonisation such as infrastructure upgrades, accessibility, economic development, artwork, biodiversity, and micro-climate improvement.
- To develop a model for a Zero Carbon Precinct uplift that will enable a replicable pilot across Melbourne and Australia more broadly. The model development will include:
    - Precinct uplift visioning.
    - Site selection criteria.
    - Governance, funding and stakeholder engagement framework.
- To identify measurable indicators and outcomes that the pilot should track to assess progress towards building decarbonisation, economic activation and social benefits.

The Tap Focus Areas

To inform the development of options and recommendations, the TAP was asked to focus on:

- The Retrofit Melbourne Plan ambitions.
- Global case studies – including similarities and common themes.
- Key challenges and opportunities.
- Scale of key actions.
- Big and bold ideas and key success factors.

City of Melbourne suburb boundaries

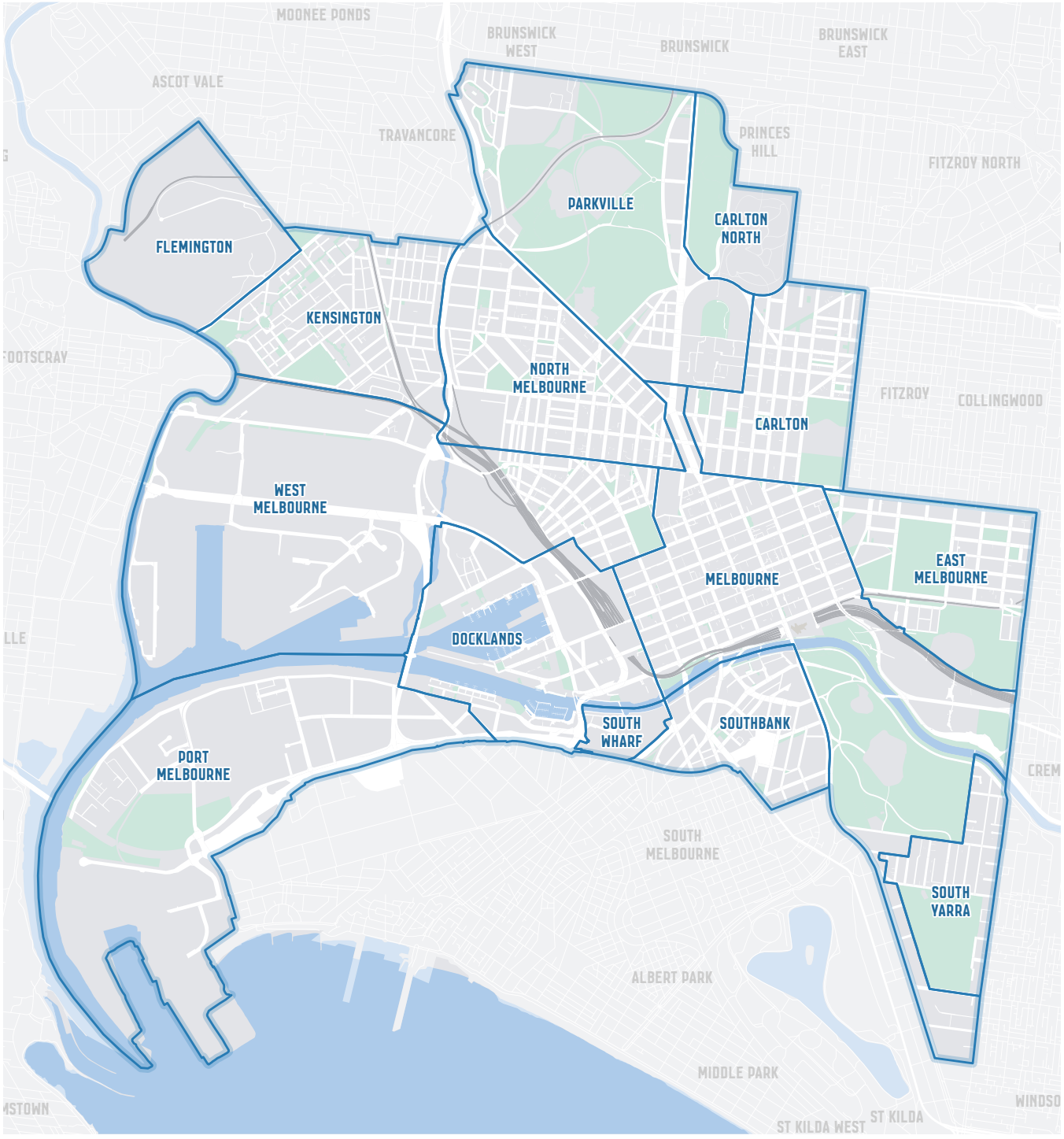


IMAGE SOURCE: MAP CREATED BY SPATIAL (CITY DATA) © CITY OF MELBOURNE 2023

IMAGE SOURCE: PIXABAY STOCK

Little Bourke Street, Melbourne.

Key Success Themes

Building on the existing work undertaken by the City of Melbourne, the TAP reflected on a series of key markers for a successful Zero Carbon Precinct uplift and were explored across four key domains and themes.

People

- Clear precinct and community identities that are focused on decarbonisation and sustainability outcomes.
- Building owners are engaged with City of Melbourne and each other as collaborative cohort.
- Momentum and enthusiasm for decarbonisation builds over time to become sustainable and the norm.
- Owners and stakeholders working together on decarbonisation, leveraging local ownership and legacy commitments to drive enthusiasm and coordination.
- Building occupancies and use increases, helping to protect asset value in Melbourne and boost the green economy.
- Melbourne as a global leader and centre of excellence for decarbonisation and Net Zero Precincts.

Environment (Decarbonisation)

Improved data and understanding of contribution to emissions reduction and addressing climate change impacts:

- Reductions in operational emissions.
- Number of electrifications.
- Occupancy rates and value correlated to decarbonisation.
- Number of retrofits undertaken.

Improved city decarbonisation through:

- High Value and Zero Carbon Ready Buildings.
- Operational emissions reductions.
- Minimising embodied carbon.

Economy

- Maintaining local and legacy ownership.
- Building occupancies and use intensifies / vacancies reduced.
- Energy and carbon outgoings are reduced.
- No building assets are stranded.
- Local jobs, skills and training, are bolstered through the green economy.

Place

- Zero-carbon buildings and places.
- Place-based decarbonisation communities.
- Local / precinct scale identity shaped and enhanced by decarbonisation.
- Improvement districts and precincts to foster decarbonisation and place identity, quality, and experience improvements.
- Urban resilience increased and sustainability co-benefits delivered.

Sustainability and Urban Uplift Walking Tour

On Day 1 of the TAP, panel members participated in a walking tour led by Rob Adams AM and Maria Panagiotidou from the City of Melbourne. The group explored seven buildings under the Postcode 3000 Plus program, where residential spaces have been integrated into former office buildings. During the tour, Panagiotidou introduced five CBD projects that have been successfully retrofitted to align with the latest sustainability targets, with hopes that more buildings will follow under the Retrofit Melbourne Initiative. Adams also highlighted key place-making efforts throughout the CBD, from simple interventions such as permeable bluestone pavements to the Raingarden Tree Pit Program, both of which have contributed to the city's long-term sustainability goals.

TAP members on a guided tour of the CBD.

IMAGE SOURCE: ULI

SUMMARY OF TAP INSIGHTS AND RECOMMENDATIONS

Derived from strategic advisor and stakeholder interviews and workshop discussions on how the City of Melbourne can deliver on its ambition to enable a Zero Carbon Precinct uplift pilot model, the below is a summary of the key insights:

TAP Key Insights and Takeaways

The current challenges being faced in Melbourne to decarbonise are not exclusive. Despite differences in location, scale and size, other cities and precincts have encountered similar issues and themes to Melbourne.

Data collection and sharing is key to success of the decarbonisation process. Without detailed data through surveys, we cannot understand the scale or complexity of the problems currently facing B, C and D grade building owners.

It will be important to apply a place-based lens to this issue and bring community and investors along for the journey.

There is an identified need to reshape and shift the narrative currently in Melbourne around investment and decarbonisation. The City of Melbourne can play a key role in reshaping this narrative to position Melbourne as an example of 'best practice' for net-zero investments and decarbonisation innovation.

The success of the decarbonisation program will rely heavily on early adopters and key champions.

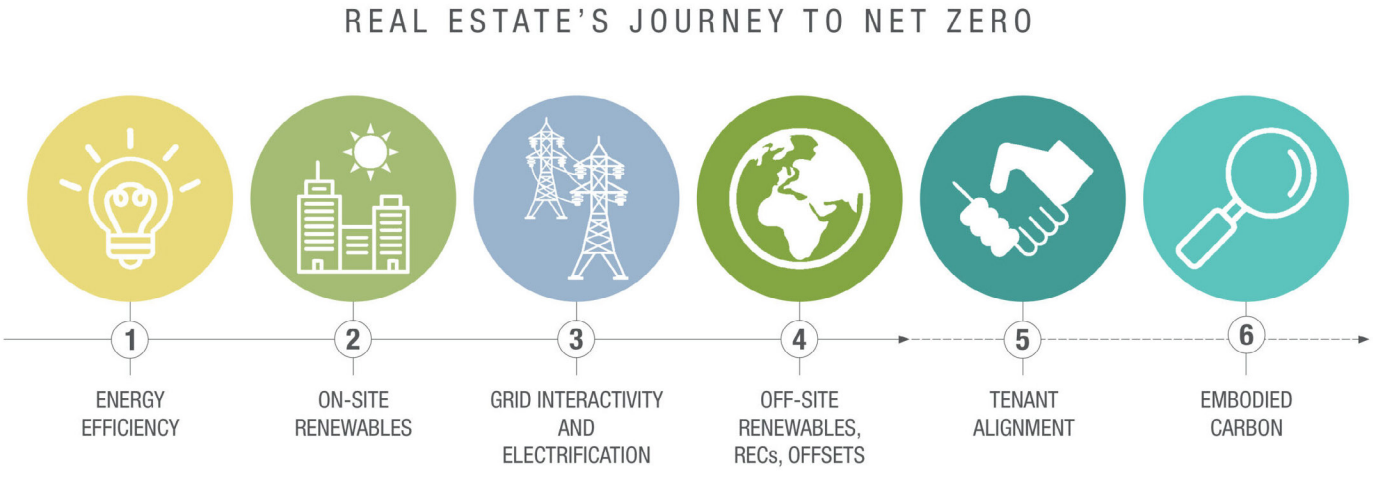


IMAGE SOURCE: ULI

ULI outlines actionable steps for the real estate sector to achieve net-zero in its *Real Estate Journey to Net Zero* report.

The City of Melbourne can play a role in being an early leader and example of 'best practice' for the change, and key anchor for supporting B, C and D grade building owners.

The City of Melbourne can reshape the narrative to position itself as a model for net-zero investments and decarbonisation innovation.

TAP Major Conclusions and Key Recommendations

The following six key recommendations were identified and selected by the TAP as having the most potential for impact and accelerating change. These have been investigated and developed by the TAP members into more detailed recommendations in the report.

01. **City of Melbourne Net Zero Precinct Ambition (PPPID – Program, Portfolio, Precinct, Improvement District)**
A mechanism to ensure the greatest possibility of early take up to decarbonisation of B, C and D Grade Commercial Buildings in Melbourne.

02. **An 'Improvement District' Framework for Melbourne CBD**
A new private/public partnership model for mixed used 'Improvement Districts'.

03. **City of Melbourne Retrofit Common Open Data Energy Platform**
A platform or tool to be developed which focuses on the decarbonisation of all buildings, not just mid-tier buildings, in order to be zero-carbon ready by 2040.

04. **City of Melbourne Net Zero Carbon Destination**
A campaign to make the CoM the destination for investing in the transition to a Net Zero Economy.

05. **Zero Carbon Buildings Exchange**
A physical and online centre of subject matter expertise, education, and practical resources for asset owners and managers to support their decarbonisation journey.

06. **City of Melbourne Retrofit Carbon Credit Unit Offset Scheme**
Innovative funding mechanism to accelerate the decarbonisation of B, C and D Commercial Buildings.

IMAGE SOURCE: ULI

Day 1 of TAP kicks off with a strong opening from the City of Melbourne, highlighting their vision for the city's future.

TAP Recommendation List

The TAP identified further recommendations to enhance and add value to the Zero Carbon Precinct initiative of the Retrofit Melbourne Plan. These recommendations have been assigned to the City of Melbourne role to either Lead, Facilitate, Partner or Advocate.

Lead

1. Set decarbonisation targets and define key terms.
2. Engage with the utility providers regarding the capacity and timing of an electrification mandate.
3. Develop a timeline for the implementation of the Retrofit Melbourne Plan and nominate when key milestones should be achieved by building owners.
4. Develop a net-zero or decarbonisation procurement program for building services.
5. Consider 'As of Right' development planning tools to encourage the move to net-zero.
6. Consider retrofit first planning tools to encourage the move to net-zero.
7. Develop a pilot net-zero project for an existing Council asset.

The TAP provided recommendations to enhance the Zero Carbon Precinct initiative, assigning the City of Melbourne roles to Lead, Facilitate, Partner, or Advocate.

Facilitate

8. Convene a panel of stakeholders who represent B, C and D grade building owners and managers as a 'decarbonisation taskforce'.
9. Identify and implement the first round of precinct tools as identified in City of Melbourne Net Zero Precinct ambition (PPPID – Program, Portfolio, Precinct, Improvement District) recommendation.

Partner

10. Work with those key stakeholders as identified through the TAP interview process to engage with the owners and managers of B, C and D grade assets (such as CBRE and JLL).
11. Work with TAFEs and Unions to build trade awareness and skills and advocacy with respect to net-zero strategies.
12. Work with the industry to generate a narrative of decarbonisation value and the risk of failure to act.
13. Participate as a stakeholder in a precinct as defined in the City of Melbourne Net Zero Precinct ambition (PPPID – Program, Portfolio, Precinct, Improvement District recommendation.

Advocate

14. Develop and deliver a consistent and powerful message regarding risks and opportunities for B, C and D assets becoming stranded assets.
15. Explore internally whether there are any mechanisms to give rebates or financial incentives to asset owners if they implement decarbonisation strategies.
16. Advocate at the State and Federal Government level for reduction of or rebates to taxes for those who achieve net-zero principles.
17. Advocate for a local carbon tax to be implemented.

500 Bourke Street Site Tour

At the end of the CBD Walking Tour, TAP members visited the redeveloped ISPT-owned 500 Bourke Street commercial tower. The refurbishment transformed the tower into a sustainable, all-electric building powered by renewable energy. By retrofitting the existing structure, the project reduced its carbon footprint while offering Premium A-Grade tenant experiences. With a strong pre-commitment occupancy rate in the post-pandemic market, the management team noted high demand from legal services seeking high-quality office spaces with top-tier amenities and a focus on ESG principles. The team is confident that all office spaces will be fully leased by the year's end.

TAP members on a guided tour of 500 Bourke Street.

IMAGE SOURCE: ULI

Aerial view of City of Melbourne in distance.

IMAGE SOURCE: GETTY IMAGES

INTRODUCTION

Climate change and the impacts on our cities, urban areas and communities is a key challenge facing urban policy makers, industry, developers and consultants working in the built environment. Australia in its revised National Determined Contribution (NDC) to the UNFCCC in 2022 reaffirmed the legislated target of net-zero greenhouse gas emissions by 2050 and committed to reduce greenhouse gas emissions (GHG) by 43% by 2030 based on 2005 levels.

Significant fiscal commitments were made in the Australian Government's recent Federal Budget to support energy performance upgrades, powering net-zero industries, increasing renewable energy generation and storage, and decarbonisation initiatives across a range of sectors.[1] The Australian Government is finalising a Net Zero Plan along with six sectoral emissions reduction plans; Electricity and Energy, The Built Environment, Transport and Infrastructure, Resources, Industry and Agriculture and Land which will provide guidance to all industries for the clean energy transition and decarbonisation.

The City of Melbourne (CoM), located in the state of Victoria, has committed to reaching the target of net-zero emissions in the municipality by 2040, with interim commitments of 45-50% by 2030, and 75-80% by 2035. The CoM is addressing these targets through several key initiatives, including the transformation and retrofit of the city's commercial buildings to create a Zero Carbon Precinct uplift.[2] Although progress in reducing emissions from buildings is underway, CoM have identified that the current rate of progress will not be enough to meet the zero emissions targets. Partnering with ULI Australia, the City of Melbourne has engaged the support of key experts and advisers to deliver a Technical Advisory Panel (TAP) under the ULI Net Zero Imperative (NZI). The scope of the TAP is to support the City of Melbourne to develop a pilot Zero Carbon Precinct model for the Melbourne municipality, with the intention that the model can be replicable as 'best practice' across other areas of the city and across Australia. The proposed model and pilot will consider a range of issues in its design, including climate justice, energy poverty, extreme weather vulnerability and the identified need for uplift in housing options, public services and public amenities.

A Zero Carbon Precinct

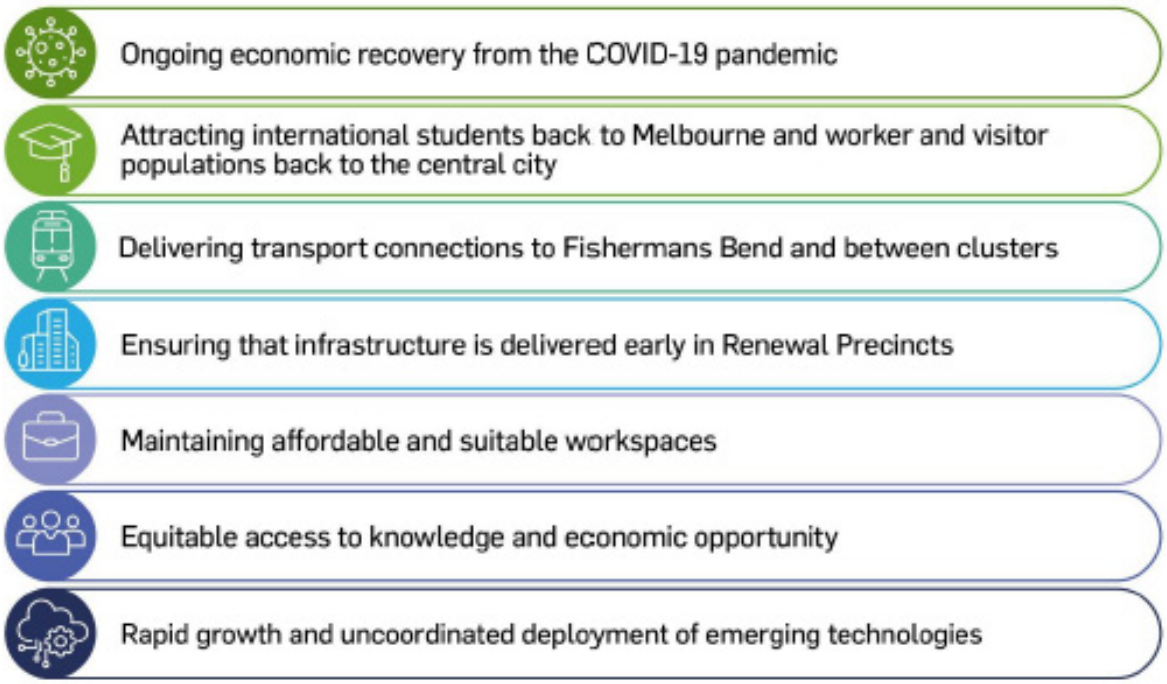
The model of a zero -carbon precinct has been proposed as a way of establishing critical mass of building retrofit activity within a defined area, helping to generate future sustainable outcomes and a positive, lower-carbon vision for Melbourne through relevant uplift activities.

The intention of the proposed uplift model is to support and incentivise mid-tier building owners (commercial office buildings grade B, C and D) to take action towards decarbonising their buildings through direct incentives, knowledge and resource-sharing. Grade B, C and D commercial office buildings within the Melbourne Central Business District (CBD) are typically less likely to be retrofitted for decarbonisation. This is due to a range of factors, including smaller ownership profiles, lack of regulation, post-pandemic high vacancy rates, and a lack of immediate investment returns for owners.

Incentivising retrofits can help prevent B, C and D grade buildings from becoming stranded assets and creating vacant "dead zones" within the city due to declining occupancy and future demand.

[1] Department of Climate Change, Energy, the Environment and Water (2024). Net Zero. Available at: https://www.dcceew.gov.au/climate-change/emissions-reduction/net-zero

[2] City of Melbourne, 2024.



SOURCE: ADAPTED FROM THE CITY OF MELBOURNE, 2024.

Figure 1 - Key challenges facing Melbourne.

City of Melbourne Net Zero Imperative TAP

The CoM was selected to join a cohort of six cities in the ULI Net Zero Imperatives Global Cohort 3. The purpose of the program in each city is to assist building owners and other relevant groups to reduce carbon emissions associated with buildings, communities, and cities, and to knowledge share and learn from other ULI cities in their decarbonisation journeys. The TAP was tasked with identifying a series of district-scale uplift case studies from both local and international jurisdictions to understand key success factors, challenges, and opportunities within the Melbourne municipality, as well as future-proofing options to develop a replicable Zero-Carbon Precinct model for Melbourne. In collaboration with the City of Melbourne (CoM), the TAP established a collective vision and a series of key recommendations. Further detail on the activities undertaken by the TAP, key insights and final recommendations are detailed within the subsequent sections of this report.

The TAP program aims to help building owners and groups reduce carbon emissions while sharing knowledge and learning from other ULI cities' decarbonisation efforts.

The Melbourne Context

Melbourne is well known locally and globally as a vibrant, modern and multicultural city, featuring world-leading universities, renowned sporting and cultural events, and a range of unique and closely connected neighbourhoods spanning from the CBD and beyond. Melbourne's unique features, vibrant day and night-time economy and diverse population rank it as one of the most liveable cities in the world.[3]

Population demographics and economic growth

According to the Australian Bureau of Statistics (2023), an estimated 177,396 people live within the

City of Melbourne, with forecasts expecting the population to increase to 249,775 by 2032.[4] The largest cohort of residents and businesses is in the CBD – Hoddle Grid, Melbourne's central economic and cultural hub with an estimated residential population of 54,001 in 2023.[5] The Melbourne CBD is the engine room and vital component of the broader metropolitan region's growth and economic productivity.[6] The City of Melbourne has forecasted population growth within the municipality to reach over 308,000 by 2041, with job growth forecasted to increase by 41 percent over the same period, reaching over 659,200 jobs.[7]

Environment and climate change

Melbourne's predicted population growth paired with the impacts of climate change requires the City of Melbourne to consider its role in leading change and action towards decarbonisation. To achieve becoming net-zero by 2040, there is an identified need for the council to lead innovative solutions around opportunities to adapt to complex factors in planning, designing and building processes.

Melbourne features several environmental assets, including an extensive network of large public parks, gardens and well managed waterways and catchments. However, climate change poses a significant threat to these assets and the broader environment and the community. The effects of climate change are already being felt at a local level, with Victoria having experienced some of its worst bushfires, worsening droughts, and flooding events in recent years, generating subsequent impacts for the City of Melbourne LGA.[8]

With the pressures of a growing population, there is a need for the City of Melbourne to consider how it will continue to meet future demand for provision of green open spaces. The City of Melbourne also must address the impacts of climate change and how it can expand its ecological services, including biodiversity, flood management and city cooling initiatives.

To address these pressing challenges, the City of Melbourne must consider the role of sustainable urban policy to design, construct and manage buildings and infrastructure in an innovative and adaptive manner. This will help ensure a sustainable, low-carbon and climate resilient future for Melbourne.

Key Challenges Facing The City of Melbourne

The City of Melbourne is a dynamic city that is subject to both local and macro challenges, which are anticipated to evolve over time in both the near and long term. Despite this, the city has identified several key issues that will confront policymakers, industry leaders, businesses, and the community in the coming years (see Figure 1).

[3] Invest Victoria (2024). Why Melbourne. https://www.invest.vic.gov.au/why-melbourne/a-worlds-liveablecity#:~:text=We%20are%20ranked%20second%20in,which%20to%20live%20and%20work.

[4] City of Melbourne (2024). Melbourne Profile. https://www.melbourne.vic.gov.au/about-melbourne/melbourneprofile/Pages/melbourne-profile.aspx

[5] City of Melbourne (2024). About Council. https://www.melbourne.vic.gov.au/about-council/Pages/aboutcouncil.aspx

[6] City of Melbourne (2024). City of Melbourne Population and Jobs Forecasts 2021-2041. https://www.melbourne.vic.gov.au/aboutmelbourne/research-and-statistics/Pages/city-forecasts.aspx

[7] ABS 2024.

[8] Urbis (2018). Unlocking Melbourne's CBD. https://urbis.com.au/app/uploads/2019/02/Unlocking-Melbournes-CBD-2.pdf

[9] City of Melbourne (2024). City of Melbourne Population and Jobs Forecasts 2021-2041. https://www.melbourne.vic.gov.au/aboutmelbourne/research-and-statistics/Pages/city-forecasts.aspx

[10] City of Melbourne (2024). Climate change impacts on Melbourne. https://www.melbourne.vic.gov.au/about-council/vision-goals/eco-city/Pages/adapting-to-climate-change.aspx

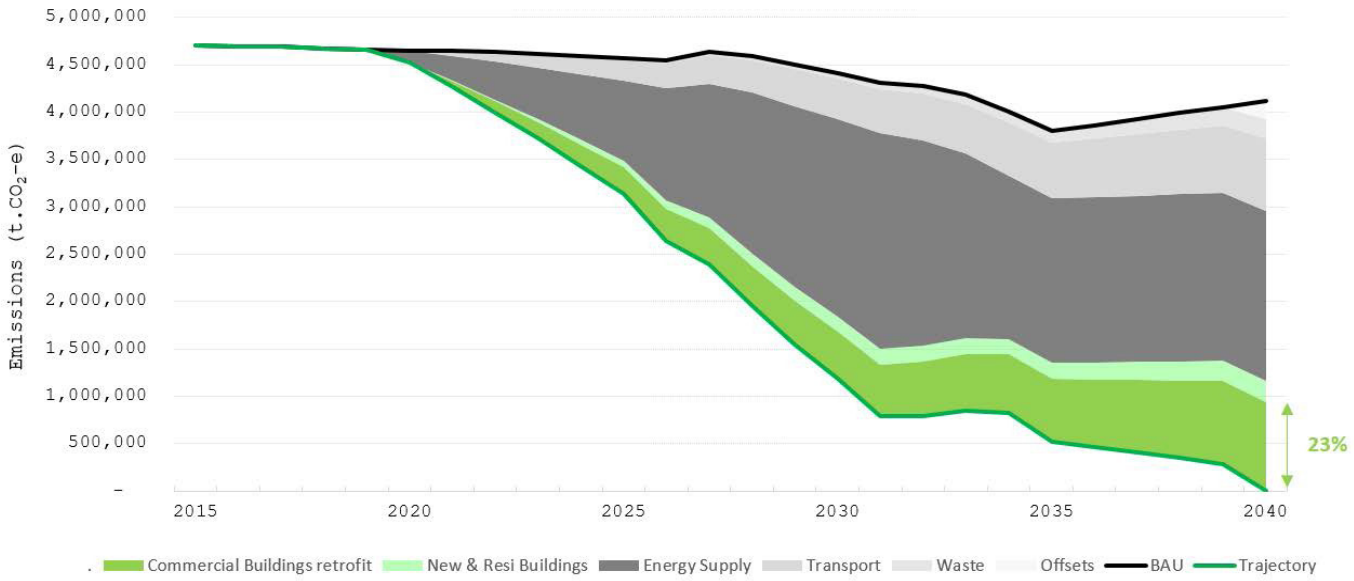
RETROFIT MELBOUNE - AN OVERVIEW

As part of its plan to achieve net-zero emissions, the CoM prepared and released the Retrofit Melbourne Plan in October 2023, which outlines eleven initiatives that will be undertaken by the CoM. At the top of the initiative pyramid sits Zero Carbon Ready Buildings, with the CoM setting a goal for all existing buildings to be 'ready' by 2040 with a focus on implementing building retrofits for B, C, and D grade mid-tier buildings. With commercial buildings currently accounting for nearly 60 percent of emissions across the entire Melbourne municipality, the adoption of decarbonisation initiatives and emissions reduction activities within commercial properties remains too low to feasibly meet the City's goal of reaching net-zero by 2040. Therefore, to deliver on this ambition, current building retrofitting activities must increase tenfold per year within the municipality (see Figure 2).[11]

The Retrofit Melbourne Plan

Post COVID-19, Melbourne's business, social and economic districts are undergoing considerable transformation while also navigating the ongoing impacts of climate change.

For central Melbourne, post COVID-19 has seen a permanent shift towards a more remote workforce in the CBD. This has resulted in increased vacancy rates for both commercial and private owners – particularly for lower-grade and mid-tier commercial buildings. To address vacancy rates, the City of Melbourne is exploring alternative ways to repurpose commercial buildings within the CBD.



SOURCE: CITY OF MELBOURNE, 2024.

Figure 2: Analysis of emissions reductions over time as the grid is decarbonised from Retrofit Melbourne, 2023.

The CoM has identified this potential and the unique opportunity to repurpose, retrofit, redevelop and adapt the municipality's existing B, C and D grade commercial buildings to be ready for a low-carbon future and achieve the City's goal of achieving net-zero by 2040.[12]

The retrofit transformation presents new opportunities to respond to the affordable housing crisis within the CBD. In the wake of rising costs of living, there is an emerging opportunity to transition underutilised commercial spaces into vibrant mixed-use buildings, which can support social, economic and environmental outcomes for Melbourne residents and visitors.

In 2023, the Retrofit Melbourne Plan was published to enable greater support for mid-tier commercial building owners to transition B, C and D grade buildings to be zero-carbon ready. The Plan details how the CoM will facilitate the investment and knowledge sharing required to enable Melbourne's commercial buildings towards becoming zero-carbon ready.

Retrofitting Melbourne's mid-tier buildings

Retrofitting Melbourne's B, C and D grade buildings requires overcoming several challenges. Achieving stakeholder buy-in is a key challenge, with the majority of the city's mid-tier buildings owned by family trusts, individuals, and international investors. It is clear that achieving stakeholder buy-in for retrofitting, decarbonisation and net-zero emissions requires tailored approaches to incentivisation.[13] Evidence suggests undertaking effective building retrofits has the potential to generate boosts to the economy.[14] Economic modelling shows how effective building retrofits could add over $2.7 billion to the Victorian economy by 2040. [15]

A 2015 study from EY focusing on research into improving energy productivity in mid-tier commercial office buildings in Australia highlighted some of the key barriers to owners retrofitting buildings.[16] These include:

- An absence of effective incentives.
- Ineffective government interventions.
- Different priorities, pressures and capital constraints on building owners, reducing prioritisation of energy efficiency upgrades.
- Split incentives limiting landlord returns from investing in energy efficiency upgrades that benefit tenants only.
- Lack of or difficulty accessing affordable and trustworthy technical support.
- Land banking of office space.
- Lack of investment in maintenance.

Additional barriers exist when seeking to reduce emissions from mid-tier buildings.[17]

- Low knowledge sharing between mid-tier building owners to support improvement activities.
- Under-representation of mid-tier commercial building owners within industry bodies (i.e. PCA).
- Mid-tier commercial buildings are often occupied by small tenants that lack awareness or corporate policy around improving environmental performance.

Retrofit Melbourne Initiatives

Implementation of the Retrofit Melbourne Plan is a leading priority for the CoM. To deliver the plan, the CoM has committed to 11 key initiatives, divided into four workstreams: Advocacy, Information and Support, Enabling Mechanisms and Regulation. The initiatives seek to address barriers to delivering successful Zero Carbon Ready Buildings and support broader decarbonisation outcomes of the city.

[13] Ibid.

[14] Ibid.

[15] Ibid.

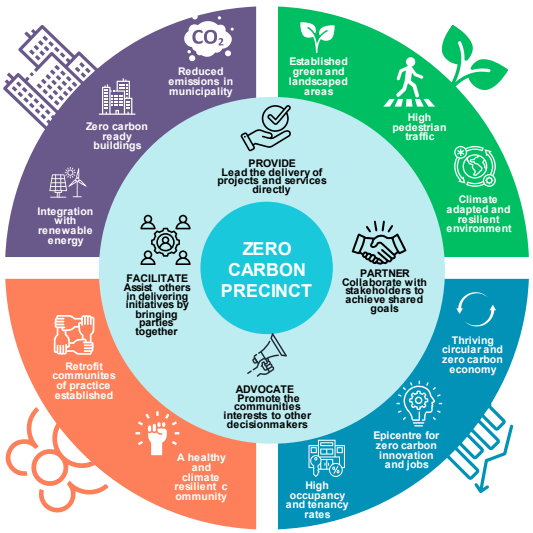
[16] EY (2015) Mid-tier commercial office buildings in Australia: Research into improving energy productivity, Green Building Council of Australia, accessed 8 May 2023. https://www.gbca.org.au/uploads/97/36449/Midtier%20Commercial%20Office%20Buildings%20Sector%20Report_FINAL.pdf

[17] Ibid.

The Initiatives Under Retrofit Melbourne

Advocacy	1.	Periodic building energy use disclosure.
	2.	Building Retrofit Fund.
Information and Support	3.	Zero Carbon Buildings Portal.
	4.	Zero Carbon Buildings Advisory Group.
	5.	Zero Carbon Building teams.
	6.	Zero Carbon Buildings thought leadership and events.
Enabling Mechanisms	**7.**	**Zero Carbon Precincts.**
	8.	Zero Carbon Leases.
	9.	Zero Carbon Risk Tool.
Regulation	10.	Rates incentives or penalties.
	11.	Setting an emissions cap.

Figure 3: Zero Carbon Precinct.



SOURCE: CITY OF MELBOURNE, PREPARED FOR DISCUSSION PURPOSES, 2024.

Zero Carbon Precinct

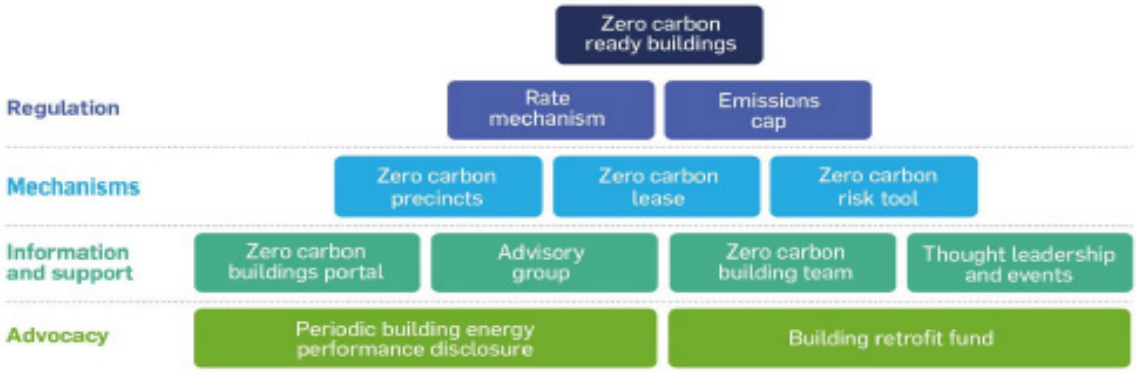
To deliver the Retrofit Melbourne Plan, Zero Carbon Precincts have been identified by the CoM as a key enabling mechanism. The concept of a Zero Carbon Precinct has been proposed as a promising way to accelerate retrofit activities to a defined area within a city - creating a positive, lower carbon vision for the precinct and concentrating place-based activity.[18] By accelerating retrofit activities to a defined area, there are opportunities to not only foster decarbonisation improvements, but also generate new place identities, enhance quality and create improvements to visitor experiences in Melbourne.

The intention of delivering a Zero Carbon Precinct uplift within the CoM is to solidify the role of the council in providing knowledge and information sharing, effective assistance and incentives to B, C and D grade building owners to overcome barriers to decarbonisation and reduce emerging risks of these buildings becoming stranded assets, creating city 'dead zones'.

A Zero Carbon Precinct has been defined by the CoM as an 'exemplar block of Zero Carbon Ready Buildings'. The initiative aims to develop a prototype model for a Zero Carbon Precinct retrofit, incorporating amenity uplift. This model will support the creation of a pilot project in collaboration with industry partners. The project is intended for inclusion in the next Council Plan (2025–2029). The aim of the model is to test a Zero Carbon Precinct's effectiveness as an incentive and accelerant for building owners to retrofit for zero-carbon, while engaging in communities of practice, creating channels of knowledge and resource sharing.

[18]City of Melbourne (2023). Retrofit Melbourne.

Figure 4: The Retrofit Melbourne initiative pyramid.



SOURCE: CITY OF MELBOURNE, 2024.

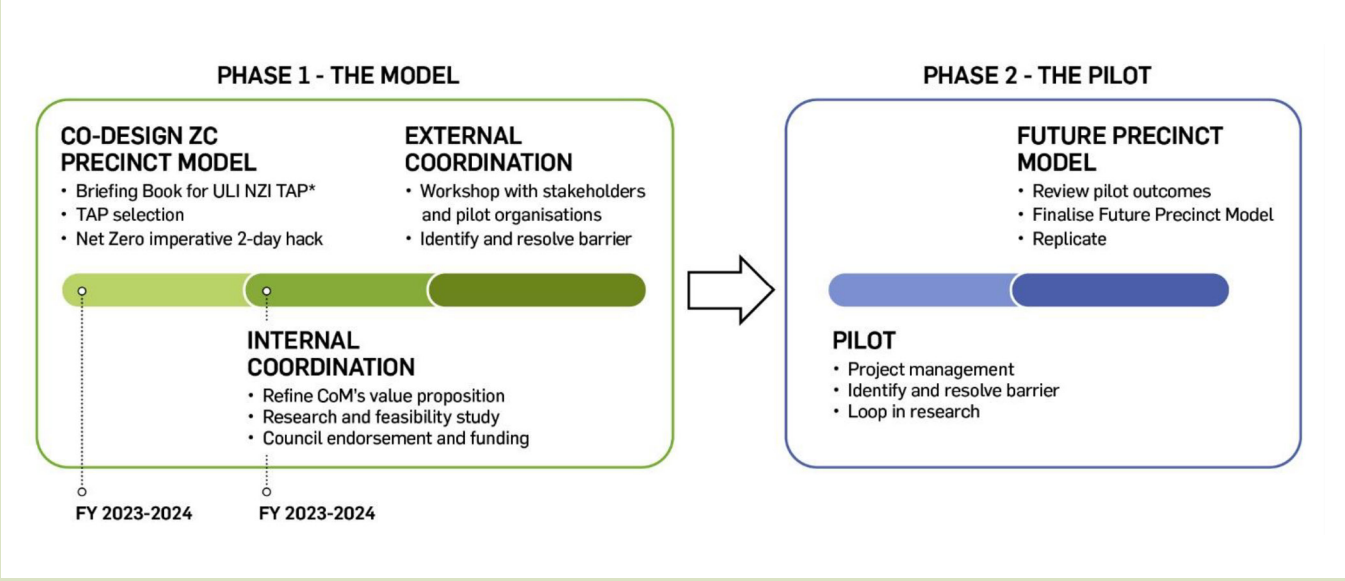
Co-Designing a Model of a Zero Carbon Precinct

The implementation of Zero Carbon Precincts is divided in two phases by the CoM:

- **Phase 1: Co-design of a Zero Carbon Precinct Model** - conduct literature review for lessons learned from implemented case studies, develop the model, the business case and the feasibility study, seek funding and Council endorsement of the pilot.
- **Phase 2: Pilot Zero Carbon Precinct** - monitor progress via research, evaluate and replicate across the municipality.

The TAP was given the responsibility of exploring Phase 1 – the co-design of a model for a pilot of a Zero Carbon Precinct or block in collaboration with partners. This co-design was undertaken in collaboration with the ULI Net Zero Imperative TAP and focused on project visioning and the identification of a suitable governance and financing framework.

Figure 5: Approach and timeline for the Model and Pilot - Zero Carbon Precinct



SOURCE: ADAPTED FROM THE CITY OF MELBOURNE, 2024

Aerial view of Albert Park with Melbourne CBD in the distance.

IMAGE SOURCE: PEXELS

NET ZERO IMPERATIVE TECHNICAL ASSISTANCE PANEL (TAP)

The scope of the TAP was to explore a potential model for a Zero Carbon Precinct for the CoM, that could enable a replicable 'best practice' pilot across the Melbourne CBD and Australia more broadly. The TAP was tasked with supporting the development of a model that incorporated future visioning for the Net Zero Precinct with considerations for place and identity, development of an appropriate site selection criteria to inform the pilot, proposed governance options and advice on potential frameworks to support sustainable funding.

City of Melbourne Net Zero Imperative TAP Process

The TAP convened in June 2024 to support the CoM through a three-day panel workshop, held on 11-13 June 2024 in the Melbourne CBD. The TAP consisted of key technical advisory global and local experts from a variety of jurisdictions and areas of expertise in urban development, finance, data, governance, sustainable development, net-zero, decarbonisation, infrastructure, urban design and city planning.

Purpose of the workshop

The TAP focused on global best practice outcomes, project visioning and identification of suitable governance and financing frameworks for the CoM to consider and inform the delivery of a Zero Carbon Precinct pilot under the Retrofit Melbourne Plan.

The TAP workshops included an extensive consultation process and interviews with strategic advisers and stakeholders to explore key considerations for the model, including place-making and decarbonisation efficacy of ideas, infrastructure solutions, funding, governance and broader policy. Panel discussions also considered exploration of potential ideas to support the success of the Zero Carbon Precinct pilot in Melbourne, including precinct activation, city greening, economies of scale and resource-sharing among government, industry and mid-tier commercial building owners.

To inform the development of options and recommendations, the TAP reflected on the following focus areas:

- Retrofit Melbourne ambitions.
- Global case studies – including similarities and common themes.
- Key challenges and opportunities.
- Scale of key actions.
- Big ideas and key success factors.

STAKEHOLDER ENGAGEMENT

The ULI Australia brought together over twenty five area stakeholders including industry experts, civic and community leaders, and public sector officials, to combine expertise and knowledge to inform the development of key recommendations for the acceleration of building decarbonisation. The TAP conducted interviews with leading sector stakeholders and strategic advisers to gain insight into the typical profiles and motivations of mid-tier building owners, the advantages and disadvantages of large-scale decarbonisation, the challenges and solutions for successful implementation, and key recommendations from sector stakeholders for the TAP's consideration.

Key Questions

The following key questions (see Table 1) were used to guide discussions with key stakeholders and strategic advisers from a range of organisations, including building owners, managers and developers, government representatives, industry institutes and consultancies.

The TAP interviewed sector leaders to understand mid-tier building owners' profiles, challenges, and solutions.

Table 1 - Stakeholder interview questions.

Building Owners	• Who are the typical small to medium asset owners in your portfolio/who you work with? • What motivates them? What do they care about? What are their priorities? • Why aren't these owners decarbonising? • What incentives are needed to encourage decarbonisation?
Decarbonisation and Scale	• What are the main opportunities of decarbonising at the scale of a city block? • What are the main challenges? • When it comes to decarbonisation, what can be solved at the precinct-scale? • What is best solved at the building scale?
Successful Decarbonisation	• What is your experience with decarbonising the built environment? • What are the solutions that work for decarbonising these buildings? What has been possible/not possible? • What are your main challenges? What are some solutions you would try next time? • What tools do you use to verify, assist, assure success? • What case studies do you recommend we look at?
Key Take Aways	• Any recommendations made which should be considered by the TAP?

Key Stakeholder Insights

The responses gathered from the stakeholder interviews are summarised in the table below in five main key areas (see Table 2). The insights provided reflect perspectives on both the City of Melbourne and the broader State of Victoria.

Table 2 - Stakeholder interview response summary.

Barriers to Building Retrofits and Upgrades	• Limited upfront capital available for many B, C and D grade building owners to spend on building upgrades and retrofits. • Difficulty in gaining owner buy-in to undertake building retrofits due to lack of understanding and/or incentive for decarbonisation and transition away from gas to electrification. • B, C and D grade building ownership is often through family investments where there are multiple owners under a family trust, or in some case international investors who own the buildings. These groups can be challenging to engage with to make efforts towards building upgrades and retrofits due to lack of awareness, lack of financial imperative to enact changes, limited capital or a disconnect geographically.
Accessibility	• Decarbonisation schemes must be practical and easy to access for small building owners. • Ensuring simplicity and practicality in building owner decarbonisation investment schemes is likely to achieve greater stakeholder buy-in, particularly if schemes are designed in a way that achieves a higher payback period and visible benefits following initial investment. • Removing barriers and hurdles for building owners to undertake building upgrades is important, particularly for smaller owners. Examples include providing appropriate incentives, creating engagement programs to better support owners with access to the right information and resources.
Meaningful Incentives	• Deployment of meaningful incentives for building owners to implement retrofitting upgrades for zero-carbon are essential to establishing stakeholder buy-in and scale of support towards collective decarbonisation objectives. Some of these incentives may include improving the speed of building approvals for zero-carbon upgrades/developments, removing roadblocks for developers and reducing costs.
Awareness Raising	• Greater industry and building owner awareness around trends towards enhancing decarbonisation and the benefits of transitioning building assets away from ageing and carbon-negative infrastructure. • Information and knowledge sharing through communities of practice to encourage building retrofits, demonstrating how investments can support greater energy efficiency and decarbonisation.
Early Adopters	• Identification of key early adopters who can champion the net-zero agenda and actions towards decarbonisation will be key to establishing stakeholder buy-in and case study exemplars to drive sustained change.

GLOBAL CASE STUDIES - SUMMARY OF FINDINGS

In developing the Zero Carbon Precinct model, the TAP reviewed global case studies to address challenges, opportunities, and innovations across different regions. The aim was to provide flexible net-zero frameworks for precinct development and offer practical strategies to enhance policy implementation. Common challenges included cost, knowledge gaps, tenant motivation, technological readiness, regulatory complexities, and issues with small to mid-sized buildings. All case studies recognised the need for a significant shift to accelerate decarbonisation.

Figure 6 - Common themes identified across jurisdictional case studies.

Challenge with mid to low tier buildings and how to motivate	**Public tools and access to resources**	**Equity and the need for community engagement**
District-wide infrastructure considerations and strategies	**Advocacy and policy reform**	**A business for net-zero**
District-wide renewable energy strategies	**The need for capital investment**	**Alternative funding arrangements and solutions**

ULI Beijing CBD NZI – Developing a Long-Term Strategy for Achieving a Net Zero Carbon CBD

The ULI Beijing TAP delivered in 2019 was tasked with developing a long-term strategy to move towards a Net Zero Carbon CBD, anchored by collaboration with government and local enterprises. The TAP engaged local think tanks, experts and scholars, companies, design institutes and technology organisations to support decision making processes and design with the central and municipal government. The TAP supported international case study research and leveraged key urban development experts with local project experience to inform findings and the development of a long-term strategy. The purpose of the research was to develop a system of indicators for dual carbon planning consistent with relevant local strategies and technology, and to develop implementation requirements for Beijing. The development of the strategy sought to assist municipal and central governments and key stakeholders in China to identify carbon peaks, carbon-neutral targets and best practice ways to achieve a Net Zero Carbon CBD.

Key learnings	• Highlights the need for the development of a net-zero carbon eco-system to coordinate stakeholders. • Accentuates the importance of digital platforms in managing data and informing strategies. • Highlights continuous monitoring and disclosure of emissions to ensure implementation. • Driving the agenda of green finance is needed to accelerate zero-carbon activities.

ULI Chicago – Climate Ready Chicago: Strategies for Accelerating Building Decarbonisation

With buildings accounting for nearly 70% of carbon emissions in Chicago, there is an identified need for the real estate industry to re-evaluate its responsibilities and opportunities to play a key role in reducing carbon emissions. To support the delivery of a 'Climate Ready Chicago', the ULI Chicago Initiative brought together over 50 stakeholders, including industry experts, civic and community leaders, and public sector officials, to combine expertise and knowledge to inform the development of key recommendations for accelerating building decarbonisation. The final recommendations focused on three broad categories with more detailed strategies and actions within each. The recommendations delivered focused on:

- Strengthening the policy ecosystem to encourage net-zero carbon.
- Alignment of resources with decarbonisation goals.
- Engagement and education of all stakeholders.

Key learnings	• High cost of decarbonisation, knowledge/resource gaps, tenant's willingness to pay for green features. • The need to identify or develop key decarbonisation resource hubs in the region/city. • Improvement of access to existing funding sources and exploration of new funding sources is key. • 'Cost of doing nothing' to be highlighted as a key risk for commercial building owners.

ULI Minneapolis – Creating a Net Zero Framework for a Climate Resilient Future

ULI Minneapolis convened a panel of expert advisers from a range of disciplines, including community development, architecture, urban and environmental planning, and renewable and district energy, to focus on the 115-acre downtown Minneapolis site locally known as the Root District. The purpose of the TAP was to provide guidance for the establishment of a flexible net-zero framework to inform future decision-making for the development of the district, focusing on decarbonisation and emissions reduction. The TAP and a series of key stakeholders met to discuss the complexities of the local built environment, history, and community of the district to inform a detailed implementation plan for developing a net-zero framework, with a particular focus on equity to address community need and the future sustainable development and decarbonisation of the district. The TAP delivered a series of key recommendations to enable the success of the Root District net-zero strategy and future decision making.

Key learnings	• Equitable development by strong community engagement as a key factor in the Net Zero Framework. • The importance of a long-term planning strategy and phases. • Considerations to be given to the existing infrastructure and its opportunities or challenges. • Importance of champions to continue and generate the momentum.

KEY CHALLENGES AND OPPORTUNITIES

The TAP identified a series of key issues, challenges and opportunities for the development and delivery of investment in Zero Carbon Precinct uplift for the municipality following the interviews from the key stakeholders and strategic advisers and a review of the global case studies. These have been summarised below (See Table 3).

Table 3 - Issue identified by the TAP.

	Challenges	Opportunities
Data Gaps	There is a lack of data and awareness within government, building owners, industry and key stakeholders regarding the technical extent of decarbonising the buildings in Melbourne.	In addressing this data awareness gap, the CoM may seek to undertake the following: • Strengthen the energy benchmarking ordinance and establish a clear baseline. • Focus on data collection through more sophisticated digital platforms for collection, management and sharing of data (for example, individual buildings, precinct data – utility bills and energy audits). • Calculate a carbon emissions baseline for the precinct beyond just buildings (for example, looking at public space, infrastructure, transportation and municipal infrastructure).
Difficulty Engaging with Owners	There are challenges when engaging with building owners as needs, wants, fears and aspirations are diverse and not fully understood by the CoM. There are also differences in motivations for the building ownership group, including maintaining legacy, security and return on investments. In addition, the 'hands-off' nature of international owners generates further challenges with engagement for supporting decarbonisation action.	To improve engagement with building owners, the CoM may seek to undertake the following: • Establish an active program to gain service provider and building owner buy-in to decarbonisation actions. This may include connection through direct discussions and engagement. • Adopt a precincts focus to direct attention and drive targeted engagement and outreach opportunities to a concentrated area. • Partner with leading vendors to B, C and D grade building owners to engage indirectly. • Partner with leading vendors for direct engagement. • Draw owners into meaningful communities of practice to improve knowledge sharing, collaboration and generate trust and stakeholder buy-in.

Table 3 - Issue identified by the TAP (continued).

	Challenges	Opportunities
No Current Imperative to Act	Melbourne's current office and commercial market (and the market more broadly) is going through a difficult transition period with significant economic and social pressures impacting market growth. This is creating financial and motivational barriers for building owners to decarbonise including: • A poor commercial rental market currently in Melbourne, resulting in no 'race to the top'. • B, C and D grade building tenants unmotivated towards zero-carbon/ NABERS ratings. • No current payback or 'tangible' return for decarbonisation as its effects and impact will likely only be encountered in future. • Decarbonisation and building retrofits are an expensive undertaking with minimal immediate returns for owners. • No financial penalties for inaction.	The current slow market provides an opportunity for the CoM to establish and implement financial incentives and/or penalties for decarbonisation action/inaction. There are opportunities to dedicate time and resources towards aligning green capital amongst B, C, and D grade owners. This includes time for owners to plan for decarbonisation, with capital investment to come in future when the market rewards action.
Future Decarbonisation Risks are Under-appreciated	There are challenges that exist with improving owner and community appreciation of the risks of future decarbonisation inaction including: • Owners currently do not perceive market changes and risk to asset values. • The rapidly changing sustainability requirements creates challenges for owners to remain informed. • Minimal appreciation of the consequences of big buildings reducing gas consumption (i.e. rate hikes, network branch shutdowns). • Limited thinking around future decarbonisation regulation, incentives related to carbon emissions reduction, and how future building tenants will value carbon and resilience.	There are identified opportunities for the CoM to collaborate with B, C and D grade building owners to raise awareness, develop capacity and undertake strategic engagement. This will help to support key players on their pathway towards decarbonisation. There are opportunities for the CoM to take a leadership role in building and reshaping the narrative in Melbourne around the benefits of businesses and buildings being zero-carbon ready. This includes creating awareness around new visions for Melbourne. For example, Melbourne as a Central Activity District rather than Central Business District, and how this would change building use and value. The CoM may seek to play a further role in creating awareness regarding risks of stranded building assets, asset sustainability and future access to debt, equity, insurance for owners.

Table 3 - Issue identified by the TAP (continued).

	Challenges	Opportunities
Technical Challenges are Front of Mind for Building Owners	There are technical and cost challenges in navigating the complexity of decarbonisation. Many building owners see the costs associated with retrofits and decarbonisation action as a key barrier, and fear changes required as a result. There is an acknowledged technical complexity in delivering system replacements within existing buildings. However, costs associated with technical consultancy advice for works is often a prohibitive factor for many smaller building owners, reducing the uptake of system replacements and building retrofits. In addition, the current focus of many facilities managers for B, C and D grade buildings is often more oriented around 'fixing' rather than 'improving' existing assets.	There are opportunities for the CoM to support B, C and D grade building owners in addressing some of these technical challenges including: • Building awareness around the benefits of decarbonisation and net-zero ready buildings through communities of practice and information sharing. • Identifying a selection of key early adopters to support championing the change. • Establishing a collaborative resource hub or portal to support task allocation and accountability in line with Retrofit Melbourne actions. • Identifying technical solutions and creating design guidelines to support building owners. • Developing a procurement strategy to support decarbonisation actions and longer-term projects.
Importance of Finance	Fiscal barriers are a key challenge for B, C and D grade building owners in committing to decarbonisation and retrofit activities. This includes availability of finances to undertake building retrofit projects, asset replacement or renewals and minimising the risk of stranded assets. Availability of private capital to finance decarbonisation is often limited for smaller owners.	The CoM can undertake research to identify and assess potential options and opportunities for innovative financial vehicles. This will help to provide more innovative funding opportunities and access to support B, C and D grade owners with decarbonisation uplift activities. There are opportunities for the CoM to investigate investment schemes to attract financing of upgrades for small owners, supporting energy saving and decarbonisation for small buildings.
Importance of Narratives	The current narratives around property developer investment in Melbourne and owner investment into decarbonisation and sustainability initiatives for B, C and D grade buildings is limiting decarbonisation action.	The CoM can play a leading role in shaping the investment narrative for Melbourne, as well as leading new narratives around the value of innovation, sustainability and being 'Future Ready'. Other potential opportunities the CoM may seek to explore include: • Leveraging the Zero Carbon Program to provide an inclusive and innovative decarbonisation narrative for Melbourne. • Uplifting the narrative around the benefits of Zero Carbon Precincts or districts to support concentration of energy and attention from stakeholders. • Adopting a place of focus to encourage local cohorts to act and to shape the local narrative around decarbonisation.

Table 3 - Issue identified by the TAP (continued).

	Challenges	Opportunities
Decarbonisation will be Delivered by Other Investment	There is a general expectation that competition amongst building tenants may drive improvements regarding investments that support decarbonisation. However, it has been identified that there is almost no current interest from tenants in supporting these improvements from their own will.	To better engage tenants in the decarbonisation process, there is a need for landlords and building owners to drive change and attract tenants seeking to reduce their environmental footprint. As building equipment and services reach the end of their operational life, there are opportunities for building owners and landlords to electrify and remove gas, as well as undertake other upgrades or retrofits to work towards reducing carbon emissions. The CoM may seek to play a role in supporting B, C and D grade owners in planning for decarbonisation upgrades by timing upgrades to align to end of life milestones for assets and tenancy demand. With the existing lag time to deliver decarbonisation projects and upgrades, there are opportunities for the CoM to invest time in building conceptual links for owners between capital investment and opportunities for decarbonisation strategies.

What Does Success Look Like for The City Of Melbourne?

Building on the existing work undertaken by the CoM, the TAP reflected on a series of key markers for successful Zero Carbon Precinct uplift. Success factors were explored across four key domains, with insights summarised below (See Table 4).

Table 4 - City of Melbourne value proposition.

People	Economy
• Clear precinct and community identities that are focused on decarbonisation and sustainability outcomes. • Owners and building managers are engaged with the CoM and each other as a collaborative cohort. • Momentum and enthusiasm for decarbonisation builds over time to become sustainable and the 'norm'. • Owners and stakeholders coming together to work together on decarbonisation, leveraging local ownership and legacy commitments to drive enthusiasm and coordination. • Building occupancies and use increases, helping to protect asset value in Melbourne and boost the green economy. • Melbourne as a global leader and centre of excellence for decarbonisation and Net Zero Precinct uplift.	• Maintaining local and legacy ownership. • Building occupancies and use intensifies / vacancies reduced. • Energy and carbon outgoings are reduced. • No building assets are stranded. • Local jobs, skills and training are bolstered through the green economy.
Environment	**Place**

Improved data and understanding of how we are contributing to emissions reduction and addressing climate change impacts, for example:
• Reductions in operational emissions.
• Number of electrifications.
• Occupancy rates and value correlated to decarbonisation.
• Number of retrofits undertaken. Improved city decarbonisation through:
  • High value and Zero Carbon Ready Buildings.
  • Operational emissions reductions.
  • Minimising embodied carbon.
	• Zero-carbon buildings and places.
	• Multiple place-based decarbonisation communities (i.e. improvement districts or precincts).
	• Local / precinct scale identity shaped and enhanced by decarbonisation.
	• Improvement districts and precincts formed to foster decarbonisation and generate place identity, quality, and experience improvements for the city.
	• Urban resilience increased and sustainability co-benefits delivered.

Insights Overview

The TAP worked collaboratively to identify key considerations, challenges and opportunities in the visioning and development of a Zero Carbon Precinct uplift pilot. Insights and key takeaways from panel discussions, stakeholder and strategic advisor interviews, global case study review and TAP expertise were summarised at a thematic level and used to inform a series of actionable and ambitious recommendations to the CoM. These insights, takeaways and recommendations seek to support the CoM in its role as a leader in building retrofits, decarbonisation and emissions reduction towards achieving net-zero by 2040.

Success means revitalising places, enhancing environmental sustainability, stimulating the economy, and empowering the community.

Key Takeaways

The following key takeaways were derived from the stakeholder and strategic advisor interviews and workshop discussions on how the CoM can deliver on its ambition to enable a Zero Carbon Precinct uplift pilot model:

The current challenges being faced in Melbourne to decarbonise are not exclusive.

Despite differences in location, scale and size, other cities and precincts have encountered similar issues and themes to Melbourne.

Data collection and sharing is key to success of the decarbonisation process.

Without detailed data through surveys, we cannot understand the scale or complexity of the problems currently facing B, C and D grade building owners.

There is an identified need to reshape and shift the narrative currently in Melbourne around investment and decarbonisation.

The CoM can play a key role in reshaping this narrative to position Melbourne as an example of 'best practice' for net-zero investments and decarbonisation innovation.

It's important to apply a place-based lens to this issue.

Engaging both the community and investors will be essential for the journey.

Early adopters and key advocates will be crucial to the success of the decarbonisation program.

The CoM can play a role in being an early leader and example of 'best practice' for the change, and key anchor for supporting B, C and D grade building owners.

SOURCE: CONCEPT BY PRIYA GHANDI, ATELIER 10. CREATIVE BY DANNY MATULIC, URBIS

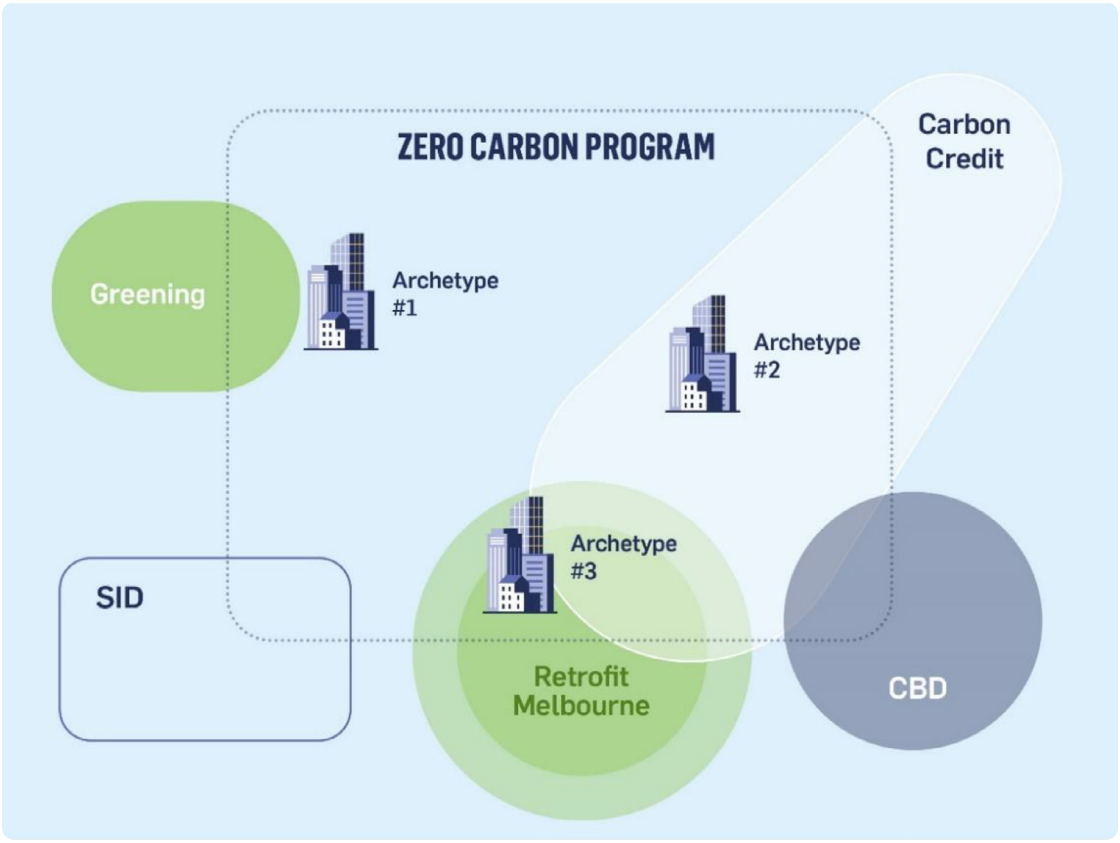


Figure 6 -Conceptual diagram of a Zero Carbon Program for the City of Melbourne incorporating Urban Greening, Retrofit Melbourne, Sustainable Improvement District (SID), carbon credits and building archetypes.

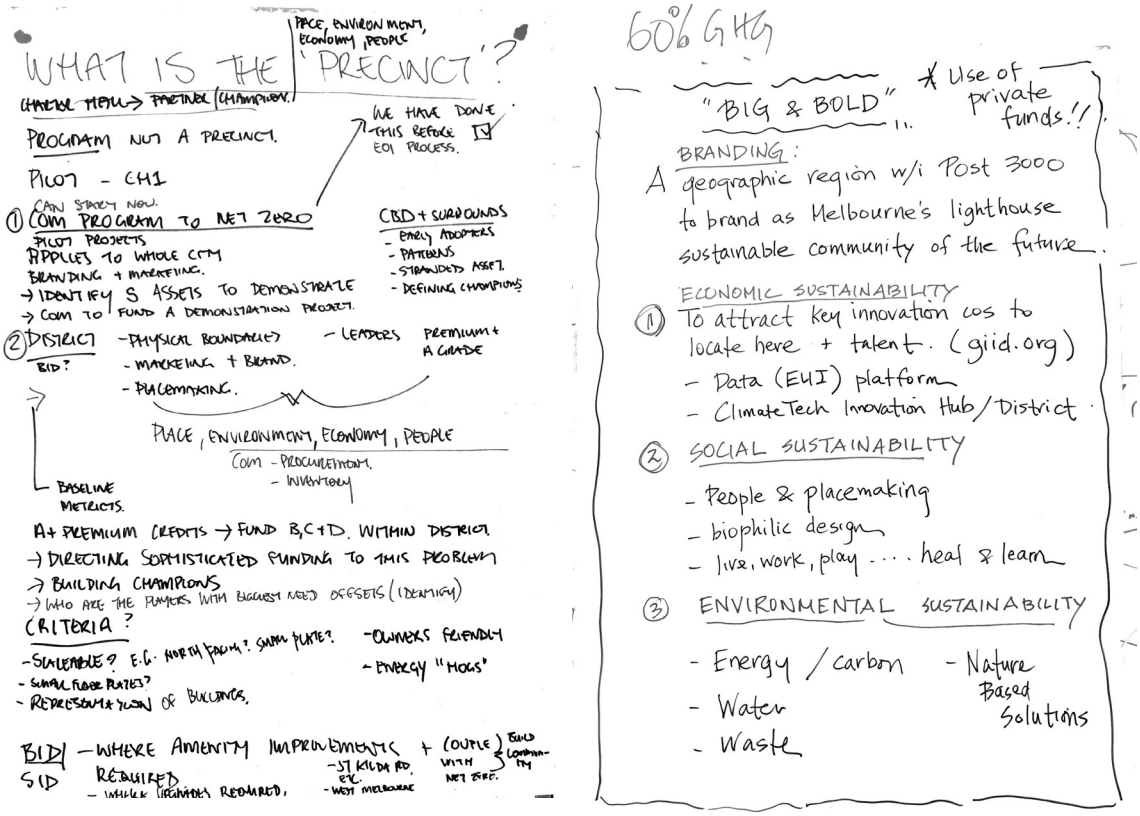
Big and Bold Ideas

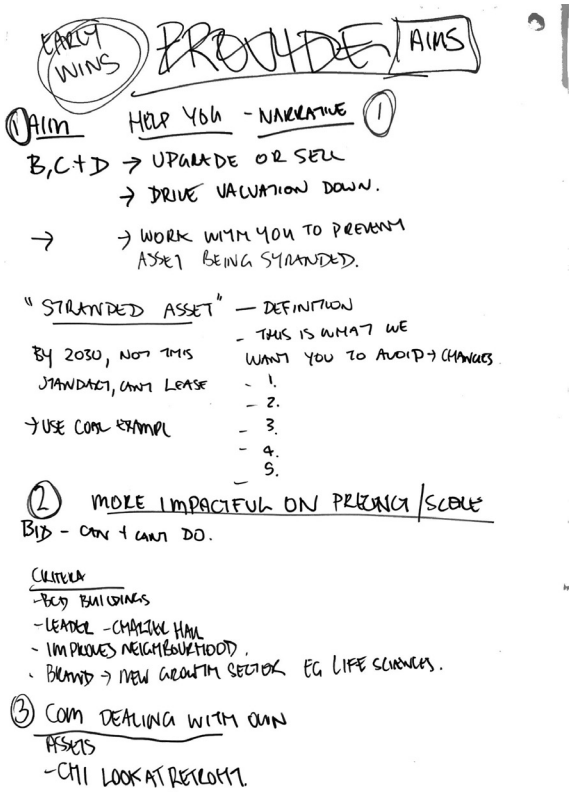
In concluding the TAP, the Panel reflected on a number of 'big and bold ideas' for consideration by the CoM to bolster ongoing decarbonisation transformation in the city. The TAP explored and unpacked these future-focused ideas, with high-level takeaways articulated below. Several of these 'big and bold ideas' have been incorporated into the key recommendations for this report.

Figure 7 - 'Big and bold ideas' emerged from the TAP.

Implement a local carbon offset scheme.	**Establish a data platform to support data collection and transparency.**	**Deploy 'As of Right Development' for zero-carbon proposals.**
Improvement districts to deliver allied decarbonisation outcomes.	**Nested districts to support zero-carbon programs and sustainability improvements.**	**Undertake a council pilot to share lessons learned and roll out across a broader portfolio.**
Establish a decarbonisation procurement program to engage experts, skilled contractors and consultants to support net-zero opportunities.		

Brainstorming insights and notes from the TAP session.





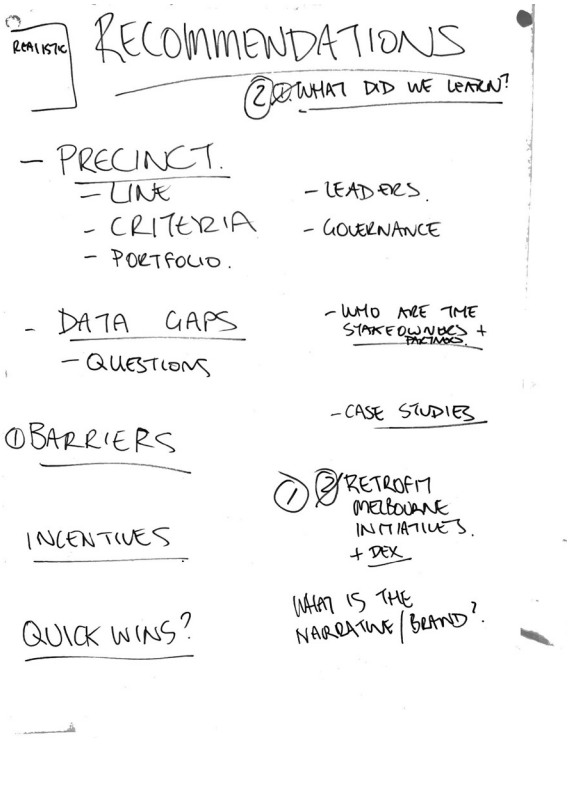


IMAGE SOURCE: ULI

Team conducts a mock-up presentation ahead of the final TAP session, refining every detail to ensure impactful delivery of insights.

IMAGE SOURCE: ULI

FINAL TECHNICAL ASSISTANCE PANEL (TAP) RECOMMENDATIONS

Decarbonising existing buildings is challenging, but essential in order for the CoM to achieve the stated objectives and net-zero targets. In order to accelerate the rate of decarbonisation, a holistic approach must be taken by the CoM in order to support carbon neutral living. As such, this recommendation section has been broken into two parts:

Part A: TAP Recommendations

The TAP has developed a series of recommendations which can be summarised into two key areas.

1. Recommendations List – Lead, Facilitate, Partner, Advocate

   The CoM presented to the TAP the value propositions where net-zero affects daily city life (Place, Environment, Economy and People) and the areas which the CoM are willing to participate and/or the roles which they are likely to play in the net-zero strategy (Lead, Facilitate, Partner and Advocate).

   Following a review of the Retrofit Melbourne Plan, discussions with the CoM, the stakeholder and strategic advisory interviews and review of local and international case studies, the TAP have made a series of recommendations to enhance and add value to the Retrofit Melbourne Plan. These have been grouped to reflect the various roles CoM can play in delivering these recommendations (Lead, Facilitate, Partner and Advocate).

2. Key Recommendations - Big and Bold

   Six key recommendations were identified which could be classified as 'big and bold'. The CoM encouraged the TAP to make these big and bold recommendations and to give consideration to the Retrofit Melbourne Plan and the CoM value proposition. These big and bold ideas have been developed by the TAP members into more detailed recommendations below.

Part B: Linking the Recommendations to the Retrofit Melbourne Plan

Part B takes the recommendations from the TAP and compares against the Retrofit Melbourne Plan recommendations to demonstrate the synergy between the recommendations and to further enhance the Retrofit Melbourne Plan outcomes.

Part A: TAP Recommendations

The following six key recommendations were identified and selected by the TAP as having the most potential for impact and capacity to accelerate change. These recommendations have been further investigated and developed by the TAP members post the conclusion of the TAP process and are included following the recommendations table (See Table 5).

After reviewing the Retrofit Melbourne Plan and consulting with stakeholders, the TAP made recommendations to enhance its value.

Table 5 - Key recommendations - Big and Bold.

01.	**City of Melbourne Net Zero Precinct ambition, PPPID (Program, Portfolio, Precinct, Improvement District) approach**	A mechanism to ensure the greatest possibility of early take up to decarbonisation of B, C and D Grade Commercial Buildings in Melbourne. A conceptual diagram in the Appendix shows the correlation between these elements.
02.	**An 'Improvement District' Framework for Melbourne CBD**	A new private/public partnership model for mixed used precincts – 'Improvement Districts'.
03.	**City of Melbourne Retrofit Common Open Data Energy Platform**	To assist the CoM to deliver on net-zero targets, the TAP recommends that a platform or tool be developed which focuses on the decarbonisation of all buildings, not just mid-tier buildings, in order to be zero-carbon ready by 2040.
04.	**City of Melbourne Net Zero Carbon Destination**	A campaign to make the CoM the destination for investing in the transition to a Net Zero Economy.
05.	**Zero Carbon Buildings Exchange**	A physical and online centre of subject matter expertise, education, and practical resources for asset owners and managers to support their decarbonisation journey.
06.	**City of Melbourne Retrofit Carbon Credit Unit (CoMRCCU) Offset Scheme**	An innovative funding mechanism to accelerate the decarbonisation of B, C and D Grade Commercial Buildings.

Recommendations List – Lead, Facilitate, Partner, Advocate

Following a review of the Retrofit Melbourne Plan, discussions with the CoM, the stakeholder and strategic advisor interviews and review of local and international case studies, the TAP have made a series of recommendations to enhance and add value to the Retrofit Melbourne Plan. Below is a list of recommendations that have been allocated into sections according to the role of the CoM (to Lead, Facilitate, Partner and Advocate). In addition, the TAP has provided an indication of timeline for implementation and guidance around indicative costs and CoM resourcing efforts for consideration.

1. Lead

Where the CoM will lead the discussion and initiatives.

	Project/ Initiative	Action	Indicative Cost	CoM Staff Resourcing
Short term (1-2 years)				
1.1	Set decarbonisation targets and define key terms.	• Align with the Retrofit Melbourne Plan targets. • Include definitions of key terms and what they mean for the CoM (in particular, net-zero).	$	●
1.2	Engage with the utility providers regarding the capacity and timing of an electrification mandate.	**Key questions:** • What is the capacity of the grid now? • What upgrades are planned? • What would need to occur to the grid in order to support 100% electrification? • When could this occur?	$$	●●
Medium term (2-5 years)				
1.3	Develop a timeline for the implementation of the Retrofit Melbourne Plan and nominate when key milestones should be achieved by buildings.	• Consider a campaign with messaging which highlights the risk of buildings becoming stranded assets if action is not taken. • Make suggestions as to where individual buildings should be on the timeline regarding energy and gas (for example by 2040, your building should...). • Nominate the 'quick wins' such as energy efficient quick changes. • Describe risks and penalties for failing to act such as stranded asset issues, gas prices and even a potential carbon tax.	$	●●

1. Lead

Where the CoM will lead the discussion and initiatives (continued).

	Project/ Initiative	Action	Indicative Cost	CoM Staff Resourcing
Medium term (2-5 years)				
1.4	Develop a net-zero or decarbonisation procurement program for building services.	• A panel of consultants, contractors, suppliers etc. which form a pre-purchased 'kit' and can be purchased at a reduced rate 'off the shelf'. • A suite of 'kits' to be made available which will make it cheap and easy for a building to be upgraded once the service and operational aspects of the building reach its 'end of life' (think IKEA flat pack or similar). • A 'one stop shop' and a singular point of call to make it easier for building owners and managers.	$$	●●●
1.5	Consider 'As of Right' development planning tools to encourage the move to net-zero.	• Offer incentives to building owners and developers for achieving net-zero in new build or redevelopment application processes. • This could include dedicated fast tracked planning processes, guaranteed approval times and even commercial incentives if net-zero is achieved (such as additional height opportunities or reduced car parking.	$$	●●
1.6	Consider retrofit first planning tools to encourage the move to net-zero.	• Review existing planning controls in the context of 'retrofit' rather than demolish. What improvements could be made to the planning requirements to make it easier to retrofit rather than demolish? • Offer incentives to building owners and developers for 'retrofit first' rather than demolition. • This could include dedicated fast tracked planning processes, guaranteed approval times and even commercial incentives if net-zero is achieved (such as additional height opportunities or reduced car parking requirements).	$$	●●
1.7	Develop a timeline for the implementation of the Retrofit Melbourne Plan and nominate when key milestones should be achieved by buildings.	• This could form part of the PPPID opportunity as defined in the key recommendations summary. • The CoM would be seen as a leader demonstrating a commitment to decarbonising its own assets. • Potentially begin with a pilot and then roll out across all assets. • Share findings and lessons learnt with other B, C and D class asset owners and managers. • Use as an anchor for building like-minded communities of decarbonisation. • Liaise with State Government to explore opportunities to retrofit buildings owned and/or occupied by State Government as a part of the pilot.	$$$	●●●

2. Facilitate

Where the CoM will facilitate discussions and actions to initiate change.

	Project/ Initiative	Action	Indicative Cost	CoM Staff Resourcing
Short term (1-2 years)				
2.1	Convene a panel of stakeholders who represent B, C and D grade building owners and managers as a 'decarbonisation taskforce'.	• Utilise those stakeholders and strategic advisers interviewed as part of the TAP process and continue conversations. • Facilitate regular events and activities to share information about net-zero strategies and actions for these typologies. • Also use as a tool for CoM to share information RE recommendation 1.4 as defined above. • CoM to use as a tool to collect further information to assist in developing strategies to achieve net-zero in these assets.	**$$**	●●
Medium term (2-5 years)				
2.2	Identify and implement the first round of precinct tools (as per the recommendations on pages 48-51) as identified in the PPPID opportunity in the key recommendations summary.	• Refine the PPPID criteria as defined in the key recommendations summary. • Nominate and communicate the PPPIDs, their objectives, incentives and where to go for further assistance.	**$$$**	●●●

3. Partner

Where the CoM will partner with key stakeholders to demonstrate leadership and change (continued).

	Project/ Initiative	Action	Indicative Cost	CoM Staff Resourcing
Short term (1-2 years)				
3.1	Work with those key stakeholders as identified through the TAP interview process to engage with the owners and managers of B, C and D grade assets (such as CBRE and JLL).	• This will assist the CoM to 'get to know the customer'. • Further understanding of the issues and opportunities relating to achieving net-zero and implementing recommendation 1.4 as identified above.	$$	●●●
3.2	Work with TAFEs and Unions to build trade awareness and skills and advocacy with respect to net-zero strategies.	• Ensure the workforce is ready for the implementation of net-zero strategies with respect to retrofitting existing buildings (e.g. how to replace a gas heat pump with an electric one).	$	●●
Medium term (2-5 years)				
3.3	Work with the industry to generate a narrative of decarbonisation value and the risk of failure to act.	• This will assist in implementing recommendation 1.4 as identified above.	$	●●
3.4	Participate as a stakeholder in a precinct as defined in the PPPID opportunity located in the key recommendations summary.	• This could be in the form of government representation, planning authority, public realm manager and/or even an asset owner. • Active participation in the precinct to demonstrate leadership and government support for change.	$$	●●

4. Advocate

Where the CoM will advocate for policy change and drive narratives to encourage the implementation of Net Zero Precincts at a local level.

	Project/ Initiative	Action	Indicative Cost	CoM Staff Resourcing
Short term (1-2 years)				
4.1	Develop and deliver a consistent and powerful message regarding risks and opportunities for B, C and D assets becoming stranded assets.	• Frame narrative in a way which is helpful - We've reviewed your asset, and we are concerned that your asset may be stranded by (date/year). • Identify that CoM is not wanting this to happen and as such, the CoM is here to help. • Identify why this is (such as stranded assets hurt the economy and the liveability of the city). • Identify the implications of becoming a stranded asset (no gas, no tenants etc). • Describe any penalties (such as a carbon tax) and when that will come into play to ensure enough lead time for asset owners and managers to act.	$$	●●●
4.2	Explore internally whether there are any mechanisms to give rebates or financial incentives to asset owners if they implement decarbonisation strategies.	• This could take the form of rate rebates or other financial incentives.	$	●●
Medium term (2-5 years)				
4.3	Advocate at the State and Federal Government level for reduction of or rebates to taxes for those who achieve net-zero principles.	• Identified as a significant hurdle for investment in office/ commercial development in the CoM. • Cost of implementing net-zero strategies also identified as a significant barrier for action. • A tax reduction or rebate for the implementation of net-zero strategies.	$	●●●
Long term (5+ years)				
4.4	Advocate for a local carbon tax to be implemented.	• Clearly articulate the rules and requirements ahead of time to give asset owners and managers enough time to plan and implement. • Describe the methods of assessment and the penalties ahead of time.	$	●●●

Recommendation 01

CITY OF MELBOURNE NET ZERO PRECINCT AMBITION, 'PROGRAM, PORTFOLIO, PRECINCT, IMPROVEMENT DISTRICT' (PPPID) APPROACH

By Rob Adams AM (TAP Member)

A mechanism to ensure the greatest possibility of early take up in decarbonisation of B, C and D Grade Commercial Buildings in Melbourne.

The CoM identified within the Retrofit Melbourne Plan the concept of Zero Carbon Precincts. As part of the TAP briefing, one of the key 'asks' from the CoM was to consider what a Net Zero Precinct could be:

- What characteristics would it have?
- How would the TAP select a precinct?
- What would be the key selection criteria?

"A PPPID approach is likely to be the most effective tool going forward."

IMAGE SOURCE: ADAMS URBAN

Figure 8: Postcode 3000 retrofitted office buildings

The TAP in considering the parameters for a Net Zero Precinct (who, where, why, how) recognised that a precinct level approach could provide multiple benefits including:

- Impactful branding.
- Great venues for workshops, conferences and to demonstrate the higher quality of place to citizens and visitors.
- Accelerating Net Zero Precincts while boosting the local economic development and making the precinct better for residents and visitors.
- Having a higher probability of attracting private investors and reducing dependence on Government funding.
- Providing social uplift, as has been demonstrated in some Japanese precincts led by leading private companies -Nihonbashi precinct by Mitsui Fudosan, and the Marunouchi precinct by Mitsubishi Estate.
- Environmental sustainability (including decarbonisation of our buildings).

However, through the TAP's deliberations, stakeholder and strategic advisor interviews as well as the review of the international case studies, the TAP recognised that caution was necessary so as to not limit the opportunity for early adopters to emerge from anywhere in the Capital City Zone.

To ensure that every opportunity to encourage owners of B, C and D grade buildings to retrofit and decarbonise their buildings is realised, the TAP suggests that a Program, Portfolio, Precinct and Improvement District (PPPID) approach is likely to be the most effective tool going forward.

Past Experience

The TAP recognises the experience gained through Postcode 3000 in the early 1990's and the difficulty in identifying where the early adopters may come from. As a result, the TAP recommends, that rather than relying on establishing precincts, it may be prudent to support this approach with a combination of a Program, Portfolio, Precinct and Improvement District approach.

A retrospective analysis of the location where B, C, and D buildings were retrofitted as part of the Postcode 3000 program indicates that these were widespread, and no single precinct was apparent (see Figure 8).

The Census of Land Use and Employment (CLUE) mapping (Data Vic) of B, C, and D buildings does show the potential for precincts to emerge, but what configuration these precincts may take was not apparent to the TAP (See Figure 9). As a result, the TAP recommends that the City of Melbourne look to apply a PPPID approach.

How would it work?

The TAP envisages that the zero-carbon buildings transformation would be better served by developing interventions at four levels. These include:

1. **A Program level** - which covers the capital city zone. This approach would put in place incentives that could be taken up by any early adopters from within the central city. Given that this material would most likely need to be generated for precincts, there would seem to be limited additional work to make it available to all building owners in the city. This would:
    - Remove the difficult task of trying to pick winners.
    - Show a clear indication of long-term commitment.
    - Embody a wider narrative that was clearly linked to civic outcomes, such as an increased mixed use within the city which would require less new infrastructure and deliver opportunities for new businesses.
    - Comprise an approach that is open, accessible, equitable.
2. **A Portfolio level** - that was not dependent on a

IMAGE SOURCE: CITY OF MELBOURNE

Figure 9: CLUE 2022 - Building condition by grade (B, C and D grade highlighted)

physical cluster and more aligned with building typologies or grades. This would enable a common approach based on a thematic portfolio. For example, Postcode 3000 demonstrated that older buildings with smaller footprints were easier to retrofit. This would:

- Allow a focus on leaders and early adopters of groups of buildings who are more likely to achieve outcomes.
- Develop targeted knowledge transfer to like-minded building owners.
- Enable targeted use of city resources.
- Help debunk the generalised statements about the difficulties of retrofitting office buildings.

3. **A Precinct level** – which could look at a block or street, such as Lonsdale Street, where the civic opportunity of relocating buses to La Trobe Street and providing a Swanston Street treatment of the public realm, could make this precinct more

"Focused on casting the net as widely as possible to maximise the chances of success."

attractive for building owners. This allows:

- A practical focus for resource-intensive support programs.
- Improved visibility.
- Concentration of reward (e.g. public realm improvements as incentive for participation) and sharing of risk.
- A socially connected and vibrant owner/ facility managers cohort. This puts followers in a meaningful relationship with leaders.
- Related place-based sustainability outcomes to be trialed and incentivised.

4. **Improvement Districts** – potential neighbourhoods that could be focused on 'business', 'sustainability' or even 'net-zero'. These would:
   - Require leaders within the cohort.
   - Build community within the area.
   - Allow for targeted good low capital improvements such as streets-capes and other allied decarbonisation outcomes, such as an urban forest and city as a catchment.
   - Encourage collective service bargaining programs, activation programs, education and rate relief.
   - Attract investment, partnerships, talent and drive.
   - Deliver great place outcomes.

   The TAP recognises that not all these benefits are exclusive to any one approach. The TAP was more concerned with the need to cast the net as widely as possible so as to increase the possibility of success.

Net Zero Precinct Approach Consideration

The appropriate application of these tools to various parts of the city will depend on a number of factors including:

1. Further data and the collection of base line metrics.
2. Where are the net-zero Premium and A grade buildings located?
3. Who are the 'leaders' and 'champions' of net-zero in Melbourne and where is their building stock located?
4. What areas need improvement – place, environment, economy, people?
5. Where are the buildings using the most energy?
6. Is there a particular configuration of building that will allow for easy adaptation?

Rob Adams AM served as the esteemed guide for the CBD Walking Tour during the TAP Session.

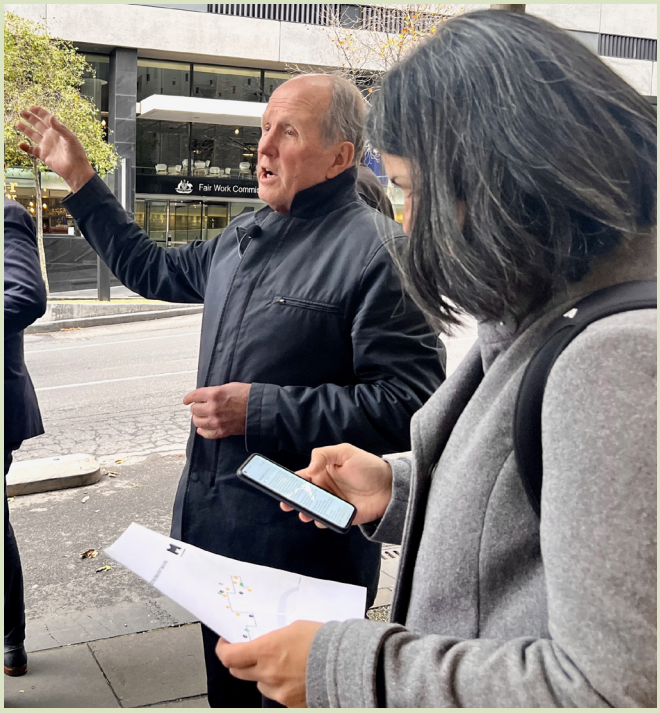


IMAGE SOURCE: ULI

Recommendation 02

AN 'IMPROVEMENT DISTRICT' FRAMEWORK FOR MELBOURNE CBD

By Jace Tyrrell (Strategic Advisor)

A new private/public partnership model for mixed used precincts – 'Improvement Districts'

New times call for new models of collective investment in precincts between the physical built environment, occupiers and attractions and the public spaces across precincts. Business Improvement Districts (BIDs) have been operating across the northern hemisphere, South Africa, New Zealand and Singapore for 50 years. There are over 2,000 such partnerships in operation globally where collective investment by property owners, occupiers and public agencies are in place to deliver commercial (visitor economy), environmental and social outcomes in a geographically defined area, precinct or city-wide. BIDs provide a structured, equitable and sustainable governance model for collaboration across multi-owned and mixed precincts where shared outcomes with the public sector and the local community can be realised.

"The CoM should explore a pilot Sustainability Improvement District in Melbourne CBD."

IMAGE SOURCE: THE MAY FAIR HOTEL

New Bond Street is one of ten London BIDs where business tenants have initiated street-scape upgrades.

How would it work?

BIDs or Improvement Districts (IDs) have to be formally mandated through a ballot of participating businesses, administered by an independent party. If the ballot secures a majority vote in favour by both value and volume of businesses, the organisation is enabled through legislation to 'levy' liable businesses and organisations (public and private sector) for the funding of the five-year precinct business proposal and delivery plan. This mandate is to be renewed through a ballot every five years with a new business proposal/strategy produced for each term. The levy can be collected by a local authority, State entity or outsourced, where the 'ID' covers the costs for this collection. The average levy in London was approximately $15,000 pa.

The CoM should consider 'facilitating' and 'advocating' for the following:

- Victorian Government to seed/match fund a two-year pilot program in the Melbourne CBD to enable baseline analysis, business development, capability building and pilot program delivery to accelerate the formalisation of IDs. (Or SIDs). An Academy program of upskilling and partnership development to run in support of this pilot with industry and global experts.
- A baseline analysis, business development, capability building and pilot program delivery to accelerate the formalisation of IDs. (Or SIDs). An Academy program of upskilling and partnership development should run in support of this pilot with industry and global experts.
- The Lord Mayor of Melbourne to prioritise a way forward for 'IDs' to be formalised in policy.
- Amongst a potential pilot program, look to develop out the model within the Australian context, including testing other forms of 'Improvement District' constructs i.e. Sustainability Improvement District, Experience Improvement District, Visitor Improvement District, Community Improvements Districts etc.

Sustainability Improvement Districts (SIDs) – For Mixed Use Precincts

From the United Nations to Nation States, targets to address the climate emergency and reach net-zero by 2050 are being legislated and regulatory reform enacted to accelerate sector specific targets being met. Global publicly listed firms now have fiduciary requirements to report on triple bottom line impact through scope 1, 2 and 3 addressing climate change.

There has been little development of precinct wide strategies for setting collective private and public sector environmental and social outcomes at a place base level. A pilot program was developed with London's West End led by New West End Company (the local BID) with the City Council and property industry where a Charter for the Built Environment has been developed.[19]

This was based on a two-year materiality assessment of the major sustainability issues that would yield the most positive commercial and environmental outcomes across the users, operators and investors in a defined precinct.

The CoM should consider if there is scope for a pilot Sustainability Improvement District to be developed in Melbourne CBD in particular, where a series of environmental improvement targets are set across property owners, occupiers, operators and the public sector and they are collectively monitored and supported in achieving precinct wide outcomes.

[19] https://www.westminster.gov.uk/media/document/sustainable-city-charter

Recommendation 03

THE RETROFIT MELBOURNE COMMON OPEN DATA ENERGY PLATFORM

By Chungha Cha (TAP Member)

A Real-Time Energy Data Platform to Drive Data-Driven Decisions for a Greener Built Environment

The main objective of the Common Open Data Energy Platform is to develop an online, real-time digital platform for the collection of energy consumption data which will help leap-frog CoM's progress to decarbonise the built environment with data-driven decisions.

This would transform the CoM into a world leader and a pioneer in global decarbonisation by attracting top-tier, cutting-edge climate tech industry leaders and capital investments to the city. This vision aligns with Melbourne's identity as one of the world's most liveable cities and a hub for advanced research and innovation.

Creating a Common Open Data Energy Platform (EUI database) is the first crucial step in this net-zero journey. This platform is essential for addressing the climate crisis, as it provides straightforward information for accelerating zero-carbon retrofits of all buildings, not just the mid-tier buildings. Coupled with branding, large-scale Zero Carbon Precincts and neighbourhood uplift, it can also help revitalise Melbourne's office scene and economy.

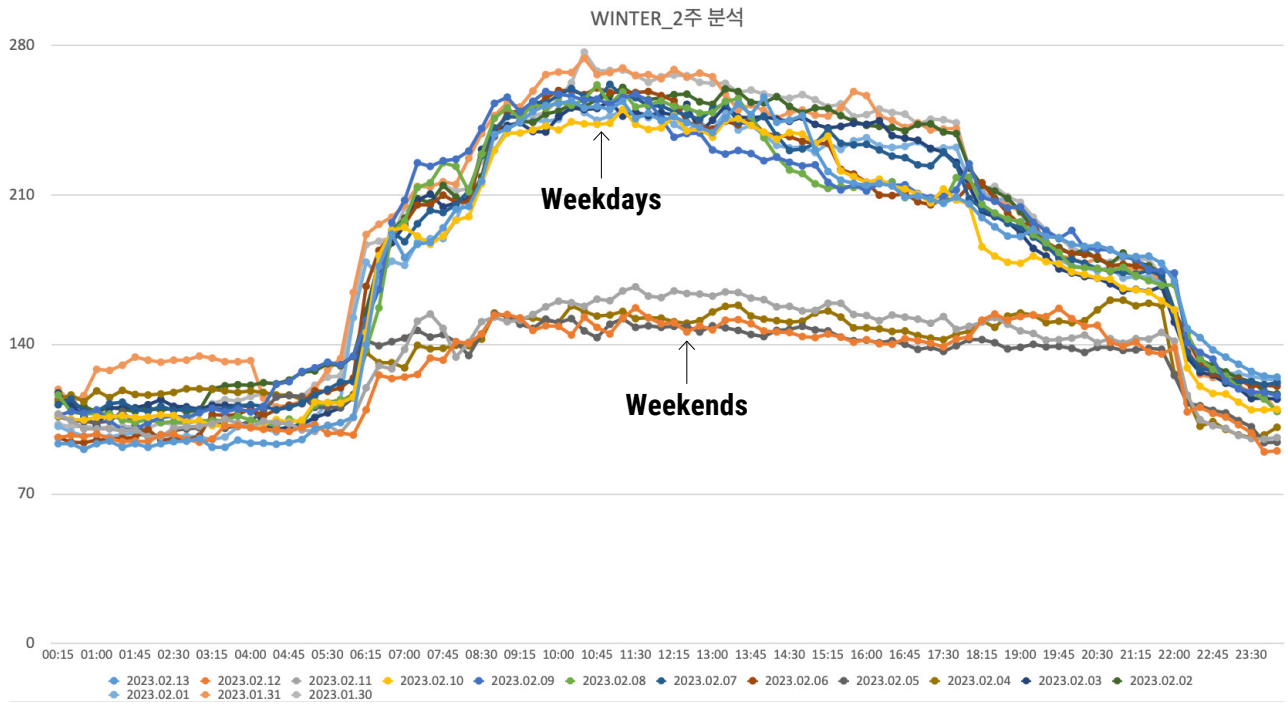


IMAGE SOURCE: REIMAGINING CITIES LLC

Figure 10: Korea Electric Power Company's graphical analysis of building energy consumption in 15-minute intervals during February (winter).

This online data platform will help drive economic growth for building owners, energy providers, scientists, researchers, sustainability-minded businesses and consultants, start-ups and venture capital investors to foster innovation and creative solutions.

The data platform will attract best in class R&D leaders, universities, students, startups, talent, energy efficiency focused corporations, ESCOs and investors to quickly identify challenges and to innovate better solutions more efficiently.

Melbourne's Zero Carbon Precincts will become "living labs" by activating vibrant neighbourhoods and ecosystems of government, citizens, academia and businesses all working together to innovate improved lifestyles as well as leading solutions in energy efficiency, climate tech and sustainability: driving down energy consumption and supplying clean energy (i.e. solar, wind, waste-to energy, tidal, hydrogen, fuel cells, batteries, capacitors), last mile mobility, and new materials related to reducing embodied carbon.

How would it work?

In preparing this report, the TAP conducted extensive research on available open data, interviewed energy data management consultants, and analysed NABERS ratings. The summary of the findings and insights on building the energy data platform are as follows:

1. **There is a need to "measure what we manage".** If the CoM wants to manage the energy efficiency of B, C and D grade buildings to achieve net-zero ready by 2040, the metrics needed to collect and analyse are kWh and kWh/m² (see Figure 10). Relying on proxy or modelled data can only solve part of the problem. The TAP found that a lot of data is already out there. There is just a need to aggregate the data to convert it into useful information upon which smarter decisions can be based.

2. **2022 Commercial Building Baseline Study.** The TAP in their research located a useful set of downloadable excel data tables. The excel file had annual data from 2012 to 2050. This baseline study could potentially form the initial framework for what data is needed to manage energy efficiency of all buildings.[20] The study contained the following data.
   - Total number of commercial buildings in 2023: 22,417.
   - Building address, type (space use).
   - Total GFA (gross floor area) in sqm metric.
   - Energy consumption in kWh metric (electricity, gas, etc).
   - Energy use intensity (EUI) in kWh/m²a metric.

3. **Average Energy Use Intensity (EUI) by "Space Type" (Electricity and Gas).** A simple metric of total energy use of the building in kWh/m²a can be a valuable start. The CoM would need to validate how the above-mentioned study obtained these energy use intensities (EUIs) and the accuracy of the figures.
   A summary of the data can be found in the Appendix of this report, highlighting the use type, EUI, and EUI projections of each building use type for 2030, 2040 and 2050.

4. **Keep it simple in the beginning** to get a beta version up and running quickly to demonstrate its powerful potential to help create innovation jobs and exportable solutions. Many researchers will want more granular data. However, the CoM should minimise investments in digital meters or sub-meters and other types of sensors to obtain granularity in the beginning.
   - Focus on collecting what is out there to determine the integration that the CoM can do quickly. With the beta version, the CoM can

[20] http://strategypolicyresearch.com.au/

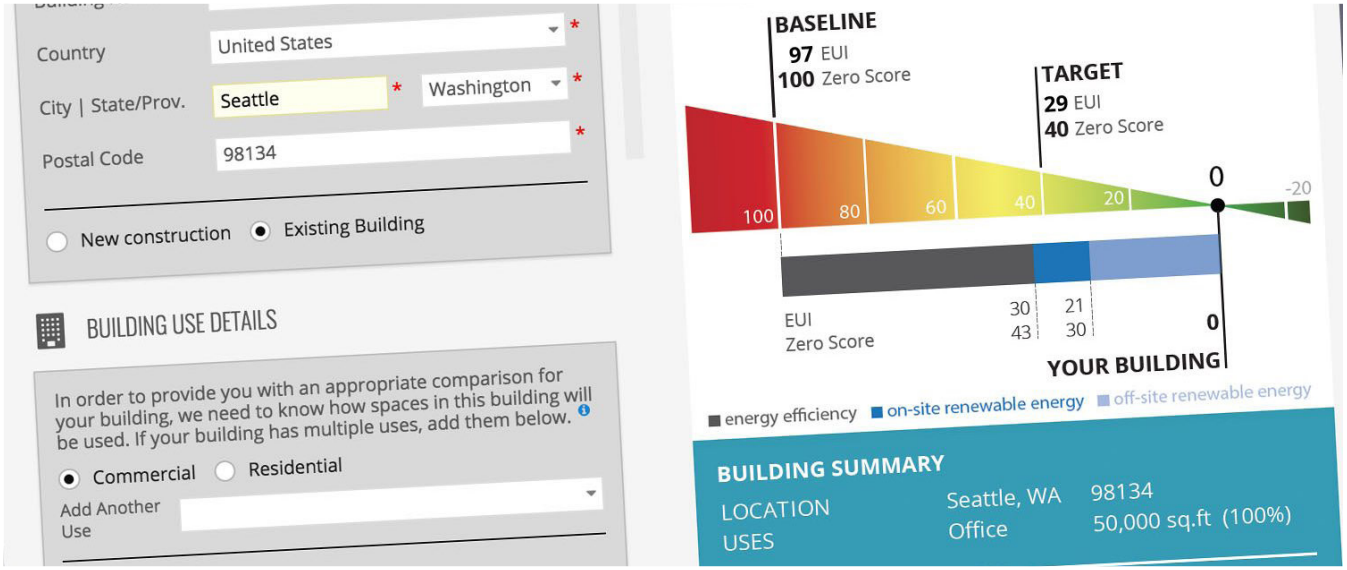


IMAGE SOURCE: WWW.ZEROTOOL.ORG

Figure 11 - The Zero Tool compares building energy-use intensity nationwide in U.S., using the 2003 CBECS[21] dataset to maintain consistent goals and baselines.

better understand the peaks and troughs of energy usage in the building sector to better plan expensive energy supply investments.

- A simple example of value is by looking at Melbourne's energy usage data forecasted to increase 393 million kWh by 2050. What is the best clean energy supply mix the CoM should be deploying? Understanding the energy consumption patterns would help avoid costly mistakes.

5. **As more data sets are added, many more areas for innovation can be accelerated** in key areas of sustainable development: social, environmental and economic.
    - Energy supply data sets (types of energy, energy mix, matching the types of energy to the consumption of energy) (See Figure 11). This can be easily verified by third parties for globally accepted best practices for carbon accounting.
    - Healthy places data, for example, outdoor environment data (air pollution, noise pollution, etc), indoor air quality (IAQ) to measure odourless toxic chemicals in the air that citizens breathe, or indoor environmental quality (IEQ), that include thermal comfort (temperature and humidity).
    - Space optimisation or anonymised people mapping data for optimisation and public safety.
    - Social uplift data sets: What are the CoM's desired outcomes? What are the CoM's objectives that can be quantified? For example, walkability, open public spaces,

[21]Commercial Buildings Energy Consumption Survey by U.S. Energy Information Administration (EIA).

affordability, etc.

- Economic uplift data sets: The CoM would need to determine the desired outcomes and measurable metrics together with key stakeholders.

6. **Different stakeholders can be offered different levels of access** to the open data platform depending on their participation and value provided. For example, the CoM could provide almost total access for investors that help fund the platform development, or subscription-based access and an AI test bed access for "living lab" developers. These initiatives will attract a diverse ecosystem of stakeholders, innovation companies and tenants into neighbourhoods to accelerate the growth of Melbourne's innovation economy.
7. **A public-private governance structure** may help to ensure that both public and private interests are served. By both sectors working together, the shared objectives of decarbonisation and financially viable retrofits could be achieved more effectively.
8. **What is a 'zero-carbon ready' building?** As Melbourne progresses in electrification, commercial buildings must meet 5-star NABERS whole building energy ratings to be zero-carbon ready by 2040. However, 'zero-carbon ready' buildings should go further—optimizing energy use, improving efficiency, and generating revenue while addressing climate goals. TAP's analysis reveals that periodic energy disclosures are insufficient, advocating for real-time, data-driven solutions to enable stakeholders to make informed decisions based on total energy consumption (kWh/m² per annum).
9. **Achieving Net Zero readiness by 2040 is a complex challenge.** In simple terms, the CoM needs the data upon which to make informed decisions and be able to immediately monitor the impact of decisions in driving down energy consumption and emissions. The TAP therefore recommends that a Common Open Data Energy Platform (EUI database) be developed as soon as practicable. The platform should be real time and demonstrate a straightforward, world-leading concept for the CoM. This will help to measure the CoM's current status of energy consumption and emissions, develop reduction pathways and monitor progress on a real time basis. Periodic reports or energy audits are not sufficient enough to drive the rapid changes the CoM need to achieve its goals.

Common Open Data Energy Platform Consideration

Potential Partners and Stakeholders

- Government.
- Academia.
- Business Partners.
- Community/Citizens.

Global Example Schemes

- Mitsui Fudosan's Kashiwa-no-ha Smart City Governance Model. (Housing Associations' Charitable Trust).
- Mitsui Fudosan's Nihonbashi "Area Management" model.
- 2030 Districts.

Timeline

The TAP recommends that the development of an online data platform should be an immediate priority for the CoM.

Recommendation 05

CITY OF MELBOURNE ZERO CARBON DESTINATION

By Nina James (TAP Member)

Campaign to Make City of Melbourne The Destination for Investing in The Transition to A Net Zero Economy

Beyond nudging B, C and D grade assets toward net-zero, there is an invitation to the CoM to imagine a bigger game. The TAP recommends the CoM consider becoming THE destination for net-zero real estate investments.

As established in the TAP report, the Melbourne CBD zone is currently experiencing very high post COVID-19 vacancy levels (+17%). The TAP was advised that developers are finding it difficult to financially stack up new developments in the city due to construction and tax costs. And indeed, that investors are reluctant to deploy in Melbourne CBD assets as an outcome of these market indicators.

However, there is currently a global capital shift toward more sustainable investments. This has been driven by increased policy and legislature (particularly in Europe), and a significant uptick in consumer awareness toward ethical and sustainable investment options.

Many sovereign wealth, pension and superannuation funds are setting/ have already set ambitions and

Zero Carbon Destination Consideration

Potential Partners and Stakeholders

- Australian Government.
- Victorian State Government.
- University of Melbourne and RMIT.
- ASFA - Association of Superannuation Funds of Australia.
- RIAA Responsible Investment Association of Australia.
- Investor Group on Climate Change Australia.
- NABERS.

Considerations

- Changing market conditions regarding vacancy, construction costs, State based taxes.
- Market sentiment regarding net-zero appetites.
- Evidence toward performance to prove global leadership credentials.
- Measurement and reporting mechanisms.

Timeline

The TAP envisages that the broad ranging recommendations included in this report, will need to be considered and deployed prior to branding the City of Melbourne as the easiest place to achieve net-zero ambitions. Realistically, this would target the launch of the Brand.

net-zero targets publicly, which ensure their capital is allocated in alignment with ethical and sustainable values globally.

Despite these global capital pressures, there remains a large portion of the Melbourne city building stock which is yet to engage in the transition to a low carbon economy, as established in the TAP stakeholder and strategic advisor interview process.

The CoM currently has high vacancy, a challenging environment for development, dispersed B, C and D grade asset ownership, and little to no indication this state is likely to change in the near future without a substantial intervention.

Taking into consideration all the recommendations the TAP is proposing, there is an opportunity to optimise the impact by creating a program to brand Melbourne as THE Net Zero CBD to invest in globally.

How would it work?

The first step toward the Net Zero CBD, is to review all possible planning levers and advocacy positions to enable capital to flow back into the city.

These considerations would include the "Right of Development" for compliant development applications, limit new building stock to encourage the refurbishment of existing stock first, reduced planning timeframes for compliant refurbishments, expert resources/advisory, grants and sustainable finance support options, knowledge sharing communities, partnerships with industry, pilot programs, academic partner research and a world class open-source data platform.

Beyond these operational interventions, the CoM would then commission a branding agency to compose a Brand and PR campaign to market Melbourne as the easiest place to invest to achieve net-zero commitments.

The Branding strategy would target global investors, large asset owners, sovereign wealth, pension and superannuation funds, private capital, and family offices. The Strategy will focus on investors who have set net-zero targets, or voiced broader Impact objectives and ESG (Environmental, Social and Governance) thematics.

The Strategy needs to articulate the business case for reinvesting in the vibrancy and innovation happening in Melbourne. Finally, the Strategy must form part of the CoM five-year plan, so as to be fundamental to all planning and policy outcomes.

Benefits of a CoM being the Net Zero Capital Destination

- **Environmental** – broad scale upgrades to stranded assets, increasing environmental performance across the building stock.
- **Economic** – creating a narrative to attract global capital back into Melbourne CBD. Leveraging sustainable finance options at scale.
- **Social** – Broadly contribute to a more vibrant city experience, engaging all building stock owners in some way to engage in the transition to net-zero emissions.
- **Global positioning** – CoM as leader in delivering net-zero outcomes at a city scale. This would be marked by other city governments travelling to Melbourne to learn from their innovation.
- **Brand** – the TAP was advised that the city has been branded unfavourably regarding capital allocations in real estate. This counter response will flip the conversation and invite the leaders and innovators to reconsider Melbourne.

Recommendation 04

ZERO CARBON BUILDINGS EXCHANGE

By Priya Gandhi and Paul Stoller (TAP Members)

A Physical and Online Centre of Subject Matter Expertise, Education and Practical Resources for Asset Owners and Managers to Support their Decarbonisation Journey

The CoM have set an ambitious goal of reaching net-zero emissions by 2040.

In order to achieve this, the CoM needs to provide support, guidance, and encouragement to asset owners to achieve their targets. Grade A and Premium buildings are already working towards net-zero due to industry / tenant pressures, and grade B, C and D asset owners are potentially getting left behind.

"The Zero Carbon Buildings Exchange is envisioned as a centre of decarbonisation expertise."

IMAGE SOURCE: BE-EX

Climate Week NYC 2024 hosted at Building Energy Exchange (BE-EX).

Zero Emissions Building Exchange (ZEBx), highlighted its successes since 2018 at its 5-year anniversary in 2023.

IMAGE SOURCE: WWW.CANADIANARCHITECT.COM

The Zero Carbon Buildings Exchange is envisioned as a centre of decarbonisation expertise. Starting as a place (physical and online) for asset owners to go for support and expert guidance, the Exchange could be expanded in the future and eventually become a hub of education transfer within the industry.

What is it?

- A collection of industry professions and subject matter experts to provide a full suite of services to asset owners and managers.
- An information service provider: e.g. information portal, resources and education programs.
- Provides services (or links to services) for building owners and asset managers: to allow for the assessment of an existing building from a net-zero perspective, to identify the opportunities and challenges to achieving net-zero as well as to identify the 'quick and easy wins' which could be implemented in the short term.
- Responsible for collecting program services-related core data, such as building status, opportunities and challenges to decarbonising etc. To further refine activities and programs and to encourage building owners and managers to act.
- Responsible for collecting building resources data, such as specific data on gas use and life-cycle status of gas equipment to assist in forming a plan for 100% electrification goals; NABERS rating / EUI information / Common Open Data Energy Platform, etc. To form a more complete picture of CoM building stock.
- Provide ongoing technical assistance and education to building owners and managers.
- Potentially administer and manage the PPPID as previously defined.

IMAGE SOURCE: BE-EX

Retrofit Playbook for Large Buildings, a knowledge-sharing platform for strategic decarbonisation Produced by BE-EX and ULI.

How would it work?

Operational considerations

- Physical location: for drop-in sessions, ease of accessing information, curation of educational sessions, etc.
- Online centre: online repository of information, can include guides, recordings of educational sessions, links to resources, etc.; Opportunity to expand in the future to include interactive forums or other services which may be useful to the community of users.
- Services offerings: through the centre itself or through partners – recommend any services through the Exchange are without cost (decarbonisation pathways by building type, assistance with identifying needs, etc.); but partners could charge for specific services, e.g. building audits and building-specific advice.
- Partnerships with industry, owners, regulatory bodies: a "one-stop shop" and single place where all parties can come together.
- Funding: different models of funding are possible; primary services should be free for asset owners /

"CoM needs to provide support, guidance, and encouragement to asset owners to achieve their targets."

managers (this can be identified in the strategy development), funding from a variety of sources can help with political neutrality and ensuring the Exchange is seen as an independent body.

How do asset owners use it?

- Net-zero or decarbonisation procurement program for building services.
- A panel of consultants, contractors, suppliers etc. which form a pre-purchased 'kit' that can be purchased at a reduced rate 'off the shelf'.
- A suite of 'kits' available that are in stock which will make it cheap and easy for a building to be upgraded once a building reaches 'end of life' with its asset (think IKEA flat pack or similar).
- Access to educational programs and resources.

Next Steps

- Needs analysis: undertake a SWOT assessment of a sampling of Class B, C and D buildings.
- Develop a strategy including short-, medium-, and long-term priorities; identify targeted areas of CoM (or building types, or owner types, etc.) as part of the prioritisation process.
- Identify staffing and physical location needs and options and associated budget.

Benefits

- **Environmental** – accelerate decarbonisation efforts.
- **Economic** – green jobs support, e.g. decarbonisation thermal plant, to provide a boost to trades.
- **Social** – going on the journey with asset owners will be a huge show of faith.
- **Global positioning** – opportunity to liaise with UN Centre of Excellence as well as similar organisations globally to leverage their learnings and improve.

Buildings Exchange Centre Consideration

Potential Partners and Stakeholders

- Commonwealth Government.
- (DCCEEW) Federal Department of Climate Change, Energy, Environment and Water.
- State of Victoria.
- CASBE / MAV / Other Councils.
- Energy Retailers and Utilities.
- Tertiary Education Institutions.
- United Nations Centre of Excellence for High Performance Buildings.
- NABERS.
- Carbon Neutral Cities Alliance.

Considerations

- Governance framework and paid staff to develop and the run the Exchange on an ongoing basis.
- Physical space - potentially utilise existing CoM assets.
- Ongoing funding sources amid changing governments and budgetary issues.
- Political neutrality – don't want to be seen as pushing a particular political agenda.

Global example schemes

- Building Energy Exchange (BE-Ex), New York City, USA.
- PG&E Pacific Energy Centre, San Francisco, USA.
- Zero Emissions Building Exchange (ZEBx), Vancouver, Canada.

Timeline

- Needs analysis: 3-6 months.
- Strategy development: 3-6 months.
- Funding / staffing / space procurement.
- Initial launch target: End 2025.

Recommendation 06

CITY OF MELBOURNE RETROFIT CARBON CREDIT UNIT (COMRCCU) OFFSET SCHEME

By Brenton Reynolds and Clare Parry (TAP Member)

Innovative Funding Mechanism to Accelerate the Decarbonisation of B, C and D Grade Commercial Buildings

To overcome the key challenge of the capital investment required by B, C and D grade building asset owners to retrofit and decarbonise their buildings, the TAP recommends further investigation into the development of a CoM Retrofit Carbon Credit Unit (CoMRCCU) Offset Scheme for Commercial Buildings (See Figure 12).

This scheme could fund a significant portion of the upgrade retrofit works required for buildings to meet Net Zero Ready performance targets, whilst also leveraging existing activity in the carbon offset markets and generating a new and local impact sector in the Melbourne CBD. The scheme would ideally leverage an existing mechanism under the Clean Energy Regulator's Australian Carbon Credit Unit (ACCU) scheme, however it is also possible that the CoM could establish a separate program under a different third-party accreditation protocol – similar in effect to ACCU – of their own making. When linked to another statement of intent, such as a declaration of a Net Zero Precinct

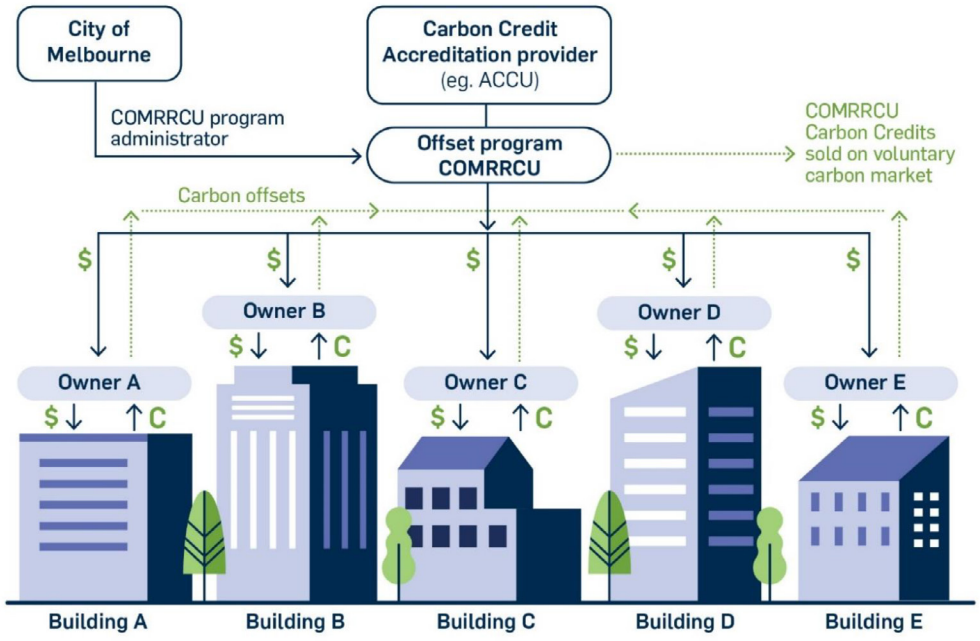


IMAGE SOURCE: CLARE PARRY AND BRENTON REYNOLDS

- Building owners sign up to the COMRRCU offset program/scheme
- The scheme is owned by/administered by the City of Melbourne
- The scheme is accredited by a third party body, e.g. CER or Gold Standard
- Money flows to registered projects as credits are sold on voluntary Carbon markets

Figure 12: City of Melbourne Retrofit Carbon Credit Unit Offset Scheme Structure

or Innovation District, the creation of this financial instrument has the potential to signify globally that the CoM is serious and global leading about achieving their zero-carbon targets.

Each year, Australian companies and government organisations spend up to a billion Australian dollars on offsets for their carbon emissions. These carbon credits are financial assets traded on carbon markets, through the creation of projects that result in carbon abatement, reduction or removal of greenhouse gas emissions from the atmosphere.

The CoMRCCU scheme proposes that investors located in the CoM redirect their carbon offset credit funds into offset projects that are located locally in the CoM. The building owners of B, C and D grade buildings located in the CoM would have the ability to obtain funds to directly invest in their critical carbon-related upgrade retrofit activities, increasing the asset value and providing social value and impact into the precinct in which the buildings are located. Purchasers would gain credit for carbon reduction and would also be able to benefit from the narrative of local climate action, with added social and economic benefits flowing to local communities. It is important to note that, while it may be possible to link individual credits to specific projects, this is not necessary and so participants could remain anonymous outside of the CoM's administrative regime if desired.

How would it work?

The TAP envisages that the retrofit carbon credit scheme would be developed and led by the CoM as a major stakeholder and made available to individual building owners to sign up to and access funding. Early investigations will need to confirm the contractual requirements for the program, including how contracts must be administered for individual buildings and who must be party to the central scheme. This may vary substantially depending on the carbon scheme selected.

The scale of the funding is directly linked to the potential carbon reduction associated with building upgrade works, and thus varies per individual project. An estimate of the carbon potential and forecast market conditions for offsets generated should be undertaken prior to advancing plans for the scheme, to confirm that the magnitude of potential benefit warrants the program.

A contract then links the potential carbon reduction to a tradeable offset credit (in tCO2-e),which can be sold on the voluntary carbon market and 'retired' against the purchaser's emissions. It is important to note that the offset is sold to finance the upgrade works, and sold as a "potential emissions reduction" or PER-type credit. Once the upgrade works are done, the emissions reduction is realised and the PER graduates to a verified reduction and is available to the purchaser to retire. Securing future offsets can be of great benefit to a purchaser, particularly in a heavily constrained and highly volatile market.

The offset can be purchased by any organisation, including the CoM. ACCUs are only tradeable within Australia, although other schemes can open up international carbon markets.

The TAP recommends that the Retrofit Carbon Credit Units be applicable to B, C, D grade commercial buildings, be located within the geographical boundary of the CoM, and be applicable to retrofit projects that lead to a significant reduction in emissions to BAU. Given the administration required for the scheme, it would make sense to limit participation to 'substantial' upgrades that justify the cost of administering.

This program could potentially lead to a world-leading innovative method to solve the problem of decarbonisation retrofits of low energy efficient commercial buildings, simultaneously providing social, economic and cultural value and impact on a local, precinct and city level. Where social or other co-benefits could be realised and demonstrated, these could elevate the value of the credit on the market and thus justify increased investment. In other schemes, the co-beneficiary (e.g. CoM) has co-invested in

CoMRCCU Offset Scheme Consideration

Potential Partners and Stakeholders

- Australian Government.
- Emissions Reduction Fund (ERF).
- Clean Energy Regulator (CER).
- (DCCEEW) Federal Department of Climate Change, Energy, Environment and Water.
- United Nations Carbon Offset Platform.
- Carbon Credits (Carbon Farming Initiative) Rule 2015.
- NABERS.

Considerations

- Legal implications, including standing obligations, for participants.
- Timing and verification of the credit units, including third-party verification requirements.
- Building must be NABERS rated.
- Governance framework.
- Potential adaptation of the Emissions Reduction Fund (ERF).
- Measurement and reporting mechanisms.

Global example schemes

- Retrofit Credits by, HACT UK (Housing Associations' Charitable Trust).
- City Forest Credits, Austin, USA.
- London Green Spaces Initiative, UK.

Timeline

- The TAP envisages investigation and development of the Scheme to take place in the region of 6-12 months (i.e. 1st July 2025), with a potential implementation plan to follow.

the scheme to boost the funding to the individual projects over and above the market investment. This has been up to a 100% co-investment.

The limitations of this scheme are that it relates to commercial buildings upgraded and reused for commercial purposes, and thus within this interaction excludes adaptive reuse.

Benefits of a CoM Retrofit Carbon Offset Scheme

- **Environmental** – reduction in operational emissions within the CoM boundary.
- **Economic** – financial value and uplift to the CoM and Zero Carbon Precincts in which the building retrofits are located.
- **Social** – social value and uplift in the public realm through improved streetscapes and precinct level initiatives.
- **Global positioning** – a highly robust and funding-linked scheme would position the CoM as leader in delivering net-zero outcomes.
- **Access** – the TAP heard that one of the most impactful levers for B, C and D owners was funding, which this program provides. Additionally, this cashflow is from private markets and doesn't rely on government investment.

"We should be channelling offsetting efforts to fund locally focused projects, such as retrofitting and renovating existing assets to maximise energy efficiency and reducing consumption."

Victoria Burrows
Director, Advancing Net Zero,
World Green Building Council.

Part B: Linking the Recommendations to Retrofit Melbourne

No.	Recommendation	CoM Role	TAP Recommendation
1.	Periodic Disclosure	Facilitate, pilot and advocate.	1.1
2.	Better Buildings Fund	Advocate in partnership with the Council of Capital City Lord Mayors.	4.2, 4.3, 4.4
3.	Zero Carbon Buildings Portal	Deliver and manage.	1.3, 1.4
4.	Zero Carbon Buildings Advisory Group	Convene and manage.	1.3, 2.1, 2.2, 3.1, 3.3, 4.1
5.	Zero Carbon Buildings Teams	Provide information, develop a community of practice and run a pilot.	1.3, 1.4, 2.1
6.	Thought Leadership and Events	Convene.	2.4, 2.1, 3.1, 4.1
7.	Zero Carbon Precincts (develop and partner)	Provide information, develop a model and community of practice, partner to pilot.	3.4
8.	Zero Carbon Risk Tool	Support the University of Melbourne to lead the delivery of this mechanism.	1.1
9.	Rates Mechanism	Develop, implement and enforce.	1.1, 4.2, 4.3, 4.4

Skyline of City of Melbourne

IMAGE SOURCE: ADOBE TOCK

CONCLUSION

This TAP assignment has provided a comprehensive approach to accelerate the decarbonisation of mid-tier buildings in the CoM. The assignment has identified key challenges and opportunities, as well as potential solutions to achieve the city's decarbonisation ambitions.

The Critical Role of Data, Collaboration, and Leadership in Transforming Investment Narratives

The TAP process has highlighted the importance of data collection and sharing, reshaping the narrative around investment and decarbonisation, and the role of early adopters and key champions in the decarbonisation process. It has become clear that the CoM plays a crucial role to lead by example and to support building owners on their decarbonisation journey.

Six 'big and bold' recommendations have been identified to accelerate change and have the most potential for impact. These include the City of Melbourne Net Zero Precinct ambition, an 'Improvement District' Framework, a Common Open Data Energy Platform, a campaign to make the City of Melbourne a Net Zero Carbon Destination, a Zero Carbon Buildings Exchange, and a CoM Retrofit Carbon Credit Unit Offset Scheme.

Further recommendations have been provided to enhance the Zero Carbon Precinct initiative of the Retrofit Melbourne Plan, with the CoM in roles including Lead, Facilitate, Partner, and Advocate. These recommendations, if implemented, will significantly contribute to the CoM's goal of becoming a Zero Carbon Precinct and a global leader in decarbonisation and Net Zero Precinct uplift.

The TAP members would like to thank ULI Australia, the City of Melbourne, strategic advisers, stakeholders, and all who contributed to this report. We look forward to continuing our support and assistance with this important and meaningful project and the net-zero ambitions of the City of Melbourne.

APPENDIX

Recommendation 03

The Retrofit Melbourne Common Open Data Energy Platform

01	Melbourne Anticipates 60% Growth in Commercial Floor Space by 2050
02	Real-Time EUI Data for Electricity & Gas by Space Type
03	Melbourne's Energy Demand Set to Surge by 393 Million kWh by 2050
Case Studies - Japan	
04	Mitsui Fudosan's Kashiwanoha Smart City Governance Model
05	Mitsui Fudosan's Nihonbashi "Area Management" Model
06	Mitsubishi Estate's Marunouchi "Area Management" Model
Case Studies - USA	
07	Funding Example in the US
08	2030 Districts
09	Online Access to 500+ Carbon Management Policies and Methodologies
10	End-Use Load Profiles for the U.S. Building Stock
Miscellaneous	
11	Current State of GFA and Energy Consumption Data in Melbourne CBD

Melbourne Anticipates 62.5% Growth in Commercial Floor Space by 2050

While Melbourne focuses on retrofitting existing buildings and reducing reliance on fossil fuels, the city must also address the projected 62.5% increase in gross floor area by 2050 (See Figure 13). A real-time, data-driven platform is essential to equip the city with tools for informed decision-making without requiring significant capital investment. This approach can be scaled across various asset types, ensuring sustainability in both existing and new commercial buildings.

Gross Floor Area by Space Use Type

SA4_CODE_2016	SA4_Name_2016	2-digit Type (Space Use)	2023	2030	2040	(Unit: sqm) 2050	GFA Growth from 2023 to 2050 (sqm)
206	Melbourne - Inner	Retail and wholesale trade buildings	1,966,675	2,222,256	2,666,195	3,224,192	1,257,517
206	Melbourne - Inner	Transport buildings	9,602,189	10,850,046	13,017,557	15,741,948	6,139,759
206	Melbourne - Inner	Offices	10,598,208	11,975,504	14,367,847	17,374,835	6,776,627
206	Melbourne - Inner	Commercial buildings nec	1,327,817	1,500,374	1,800,103	2,176,840	849,023
206	Melbourne - Inner	Factories and other secondary production buildings	775,545	876,332	1,051,396	1,271,438	495,893
206	Melbourne - Inner	Warehouses	4,773,798	5,394,179	6,471,772	7,826,223	3,052,425
206	Melbourne - Inner	Agricultural and aquacultural buildings	9,579	10,824	12,987	15,705	6,126
206	Melbourne - Inner	Other industrial buildings nec	108,658	122,779	147,307	178,136	69,478
206	Melbourne - Inner	Education buildings	1,334,799	1,508,263	1,809,569	2,188,286	853,487
206	Melbourne - Inner	Religion buildings	128,151	144,805	173,733	210,093	81,942
206	Melbourne - Inner	Aged care facilities (including nursing homes)	182,296	205,987	247,137	298,859	116,563
206	Melbourne - Inner	Health facilities	524,298	592,434	710,784	859,541	335,243
206	Melbourne - Inner	Entertainment and recreation buildings	3,576,392	4,041,164	4,848,466	5,863,181	2,286,789
206	Melbourne - Inner	Short term accommodation buildings	2,154,081	2,434,016	2,920,259	3,531,427	1,377,346
206	Melbourne - Inner	Non-residential buildings nec	777,769	878,844	1,054,410	1,275,084	497,315
206	**Melbourne - Inner**	**Total**	**37,840,255**	**42,757,807**	**51,299,522**	**62,035,788**	**24,195,533**
					Increase in building stock (sqm)		**63.9%**

SOURCE: WWW.DCCEEW.GOV.AU

Figure 13 - Commercial Building Baseline Study 2022 VIC data.

Real-Time EUI Data for Electricity & Gas by Space Type

Collecting the average Energy Use Intensity (EUI) by space type for electricity and gas provides valuable, easily accessible data that can be transformed into real-time insights for monitoring energy consumption. However, it is essential to verify how these EUIs were calculated, particularly in the Commercial Building Baseline Study by the Department of Climate Change, Energy, the Environment, and Water (DCCEEW), as they appear to be modelled projections. For instance, it seems unlikely that the “offices” space type would have an average EUI of 141 kWh/m² in 2023, with a steady decline projected for 2030, 2040, and 2050 (See Figure 14).

Combined electricity and gas tables and converted units from MJ/sqm to kWh/m2a (by Cha)
Average Electricity & Gas Energy Intensity by Space Use Type (MJ/sqm.a x 0.777778 = kWh/m2a)

SA4_CODE_2016	SA4_NAME_2016	2-digit Type	2023	2030	2040	2050	1 MJ = 0.277778 kWh	kWh/m2a 2023	kWh/m2a 2030	kWh/m2a 2040	kWh/m2a 2050
206	Melbourne - Inner	Retail and wholesale trade buildings	647	577	495	433	0.277778	180	160	138	120
206	Melbourne - Inner	Transport buildings	99	88	76	66	0.277778	28	24	21	18
206	Melbourne - Inner	Offices	508	452	388	340	0.277778	141	126	108	94
206	Melbourne - Inner	Commercial buildings nec	302	270	231	202	0.277778	84	75	64	56
206	Melbourne - Inner	Factories and other secondary production buildings	144	128	111	97	0.277778	40	36	31	27
206	Melbourne - Inner	Warehouses	158	140	120	105	0.277778	44	39	33	29
206	Melbourne - Inner	Agricultural and aquacultural buildings	138	123	105	91	0.277778	38	34	29	25
206	Melbourne - Inner	Other industrial buildings nec	79	70	60	53	0.277778	22	19	17	15
206	Melbourne - Inner	Education buildings	146	130	111	98	0.277778	41	36	31	27
206	Melbourne - Inner	Religion buildings	235	210	180	157	0.277778	65	58	50	44
206	Melbourne - Inner	Aged care facilities (including nursing homes)	933	831	713	623	0.277778	259	231	198	173
206	Melbourne - Inner	Health facilities	1,042	928	796	696	0.277778	289	258	221	193
206	Melbourne - Inner	Entertainment and recreation buildings	420	374	321	281	0.277778	117	104	89	78
206	Melbourne - Inner	Short term accommodation buildings	955	850	730	638	0.277778	265	236	203	177
206	Melbourne - Inner	Non-residential buildings nec	421	375	322	282	0.277778	117	104	89	78
206	**Melbourne - Inner**	**Average**	**415**	**370**	**317**	**277**	0.277778	**115**	**103**	**88**	**77**

SOURCE: WWW.DCCEEW.GOV.AU

Figure 14 - Commercial Building Baseline Study 2022 VIC data.

Melbourne's Energy Demand Set to Surge by 393 Million kWh by 2050

Melbourne's energy consumption is projected to rise significantly in the coming years. According to the 2022 Commercial Building Baseline Study by DCCEEW, the city's energy demand is expected to increase by 393 million kWh by 2050 (see Figure 15). Implementing a real-time data-driven platform would be an effective strategy for managing future energy demand, allowing for better allocation, prioritization, and support for essential services, including post-natural hazard emergency recovery.

Total Electricity Consumption by Space Use Type

SA4_CODE_2016	SA4_NAME_2016	2-digit Type	2023	2030	2040	2050	1 TJ = 278,000 kWh	kWh (2023)	kWh (2050)
206	Melbourne - Inner	Retail and wholesale trade buildings	953	969	1,012	1,084	278,000	264,934,000	301,352,000
206	Melbourne - Inner	Transport buildings	711	723	755	809	278,000	197,658,000	224,902,000
206	Melbourne - Inner	Offices	4,029	4,100	4,280	4,586	278,000	1,120,062,000	1,274,908,000
206	Melbourne - Inner	Commercial buildings nec	301	306	319	342	278,000	83,678,000	95,076,000
206	Melbourne - Inner	Factories and other secondary production buildings	84	85	89	95	278,000	23,352,000	26,410,000
206	Melbourne - Inner	Warehouses	561	571	596	638	278,000	155,958,000	177,364,000
206	Melbourne - Inner	Agricultural and aquacultural buildings	1	1	1	1	278,000	278,000	278,000
206	Melbourne - Inner	Other industrial buildings nec	6	6	7	7	278,000	1,668,000	1,946,000
206	Melbourne - Inner	Education buildings	145	148	154	165	278,000	40,310,000	45,870,000
206	Melbourne - Inner	Religion buildings	23	23	24	26	278,000	6,394,000	7,228,000
206	Melbourne - Inner	Aged care facilities (including nursing homes)	127	129	135	145	278,000	35,306,000	40,310,000
206	Melbourne - Inner	Health facilities	409	416	434	465	278,000	113,702,000	129,270,000
206	Melbourne - Inner	Entertainment and recreation buildings	1,123	1,142	1,193	1,278	278,000	312,194,000	355,284,000
206	Melbourne - Inner	Short term accommodation buildings	1,539	1,566	1,635	1,752	278,000	427,842,000	487,056,000
206	Melbourne - Inner	Non-residential buildings nec	245	249	260	279	278,000	68,110,000	77,562,000
206	**Melbourne - Inner**	**Total**	**10,257**	**10,434**	**10,894**	**11,672**	**278,000**	**2,851,446,000**	**3,244,816,000**
							Increase in energy consumption		393,370,000

SOURCE: WWW.DCCEEW.GOV.AU

Figure 15 - Commercial Building Baseline Study 2022 VIC data.

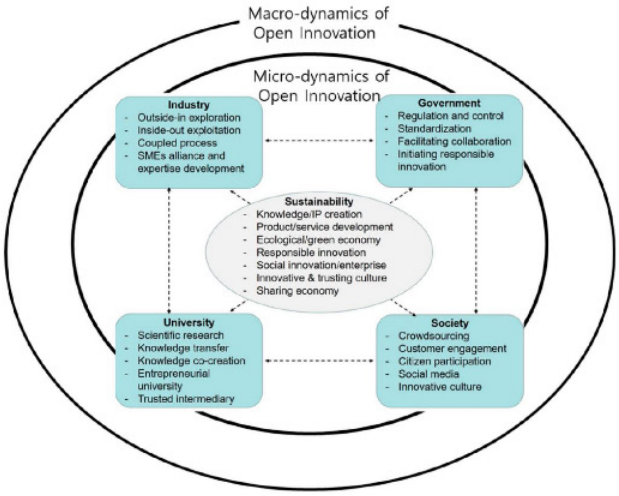
Mitsui Fudosan's Kashiwanoha Smart City Governance Model

QUADRUPLE HELIX MODEL

A System to Create Innovation

Originated from the discussions in "Open Innovation 2.0" of EU

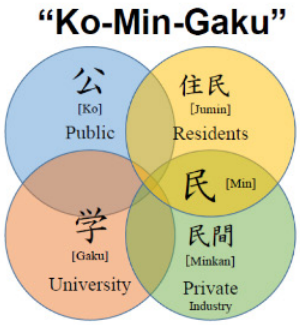
- **Double Helix:** Collaboration of industry and academia
- **Triple Helix:** Institutional and financial support by governments
- **Quadruple Helix:** Participation of citizens as beneficiaries of innovation



Japan's Adaptation of the Model through UDC

Transforming the relationships in the local ecosystem of different stakeholders

- **UDC is the hub of public-private-people university partnership.**
- Anybody, who is interested in the sustainable development of his/her city or neighborhood, can join the initiative.
- Professionals on urban space design lead the activities
- Open lectures are held in the center, to which mothers with children can join and express their thoughts.



Above - This governance model is employed at the Kashiwanoha project by Mitsui Fudosan, one of Japan's largest property developers.

KASHIWA-NO-HA SMART CITY

Innovation District + Smart City

Project details

Location	Kashiwa City, Chiba Prefecture, Japan
Developer & Owner	**Mitsui Fudosan** Co. Ltd.
Size	273 hectares
Master planner & coordinator	Urban Design Center Kashiwa-no-ha (**UDCK**)
Architect	ZGF Nikken Sekkei Jun Mitsui Associates
Landscape Architects	Jun Mitsui Associates
Consultants	Hitachi Ltd. Nikken Sekkei Glumac City of Portland Murase Associates EcoNorthwest
Tsukuba Express open	2005
Smart City project start	2009
1st stage completion	2014 (12.7ha)
Final completion	2030 (300ha)

https://www.kashiwanoha-smartcity.com/en/concept/makekashiwa.html

Mitsui Fudosan's Kashiwanoha Smart City Governance Model (Continued)

URBAN DESIGN CENTER KASHIWA-NO-HA

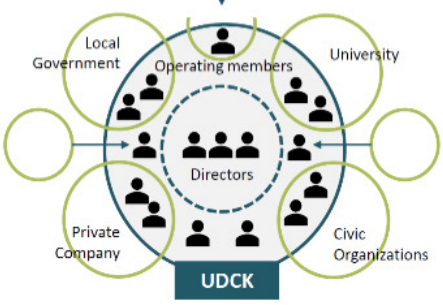
Vision & Execution

UDCK is the Open Platform to accelerate the resolution agenda.
The key to the future city development is the integration and combination of collaboration with the public, private and academic sectors.

Public *
- Chiba Prefectural Government
- Kashiwa City
- Nonprofit Org.

Private *
- Mitsui Fudosan
- Kashiwa Chamber of Commerce and Industry
- Tanaka Region Hometown Council
- Metropolitan New Urban Railway Co.

Academic
- University of Tokyo
- Chiba University
- National Cancer Center



(Unincorporated Association) UDCK 2006.11~

Urban Design Center Kashiwa-no-ha General Incorporated Organization	UDCK Town Management General Incorporated Organization
2011.12~ • Investigative Research • Planning Proposal • Design Management, etc.	2019.01~ • Operation and management of public space

UDCK promotes and supports projects in various areas.

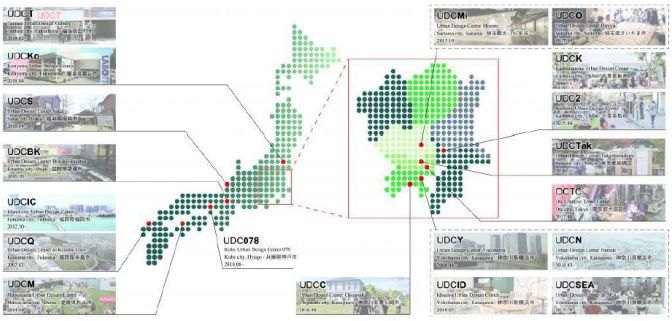
Main advantage:
- Ability to pursue projects with latest technologies by applying them directly to an actual community or space

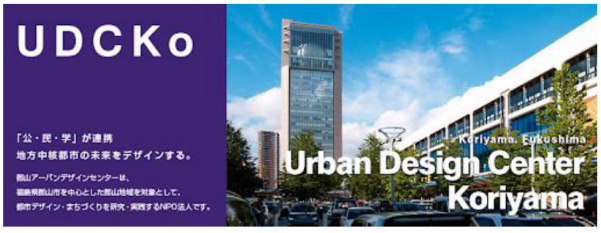
Main themes of activities:
1. Realizing a smart city where state-of-art knowledge is applies
2. Promoting high-quality urban design
3. Creating a lively community

https://www.udck.jp/en/

URBAN DESIGN CENTER

1. **UDC is the governing body and hub of "public-private-academia-citizen" partnership!!**
2. Anybody, who is interested in the sustainable development of his/her city or neighborhood, can join the activities.
3. Professionals on urban space design lead the activities
4. Open lectures are held in the center, to which mothers with children can join and express their thoughts.
5. UDCs are expanding in Japan.





Above - Referred to as the "Urban Design Centre" (UDC), this governance model is utilized in more than 20 smart city developments across Japan.

Mitsui Fudosan's Nihonbashi "Area Management" Model

In May 2024, ULI team visited Mitsui Fudosan to explore their "area management" practices within the Nihonbashi precinct. Their governance approach follows the "quadruple helix model", and we believe that certain elements of their framework could serve as a benchmark for the City of Melbourne in managing its Zero Carbon Precincts.

A key component of their success lies in the Nihonbashi Revitalization Plan, designed to restore the prosperity the district enjoyed during the Edo period, when Nihonbashi thrived as a cultural, economic, and commercial hub. Today, Nihonbashi is a vibrant mixed-use historic district that continues to regenerate itself as a commercial center. Its name, which means "Japan Bridge", originates from the Nihonbashi River crossing and its role as the starting point for five historic roads connecting Kyoto, Tokyo, Nikko, and Shirakawa over the centuries.

An operating agreement between various stakeholders ensures that planning and investment efforts remain aligned with their shared vision.

For more details on the Nihonbashi Revitalization Plan, visit https://www.muromachi-area.jp/english/about/.

The initiative is led by Mitsui Fudosan and other key businesses in the area, with government agencies actively participating in the governance structure to help shape outcomes that benefit both citizens and the environment. A significant focus has been on boosting economic activity and growth, not just through shopping and entertainment, but also by fostering innovation.

In May 2024, Mitsui Fudosan launched a new service to support research equipment procurement and labor management for R&D startups based at MITSUI LINK-Labs—rental labs and offices designed to promote innovation in life sciences. The Japanese government has prioritized nurturing startups, exemplified by the "Startup Development Five-Year Plan" introduced in 2022. However, building a thriving startup ecosystem requires collaboration between the private and public sectors alike.

Similarly, the City of Melbourne's vision would focus on four key areas: (1) people, (2) places, (3) environment, and (4) economy.

: WWW.MUROMACHI-AREA.JP

Spacious, sunlit public spaces with abundant biophilic landscaping and pedestrian-friendly, car-free streets, designed to uplift and revitalise the area.

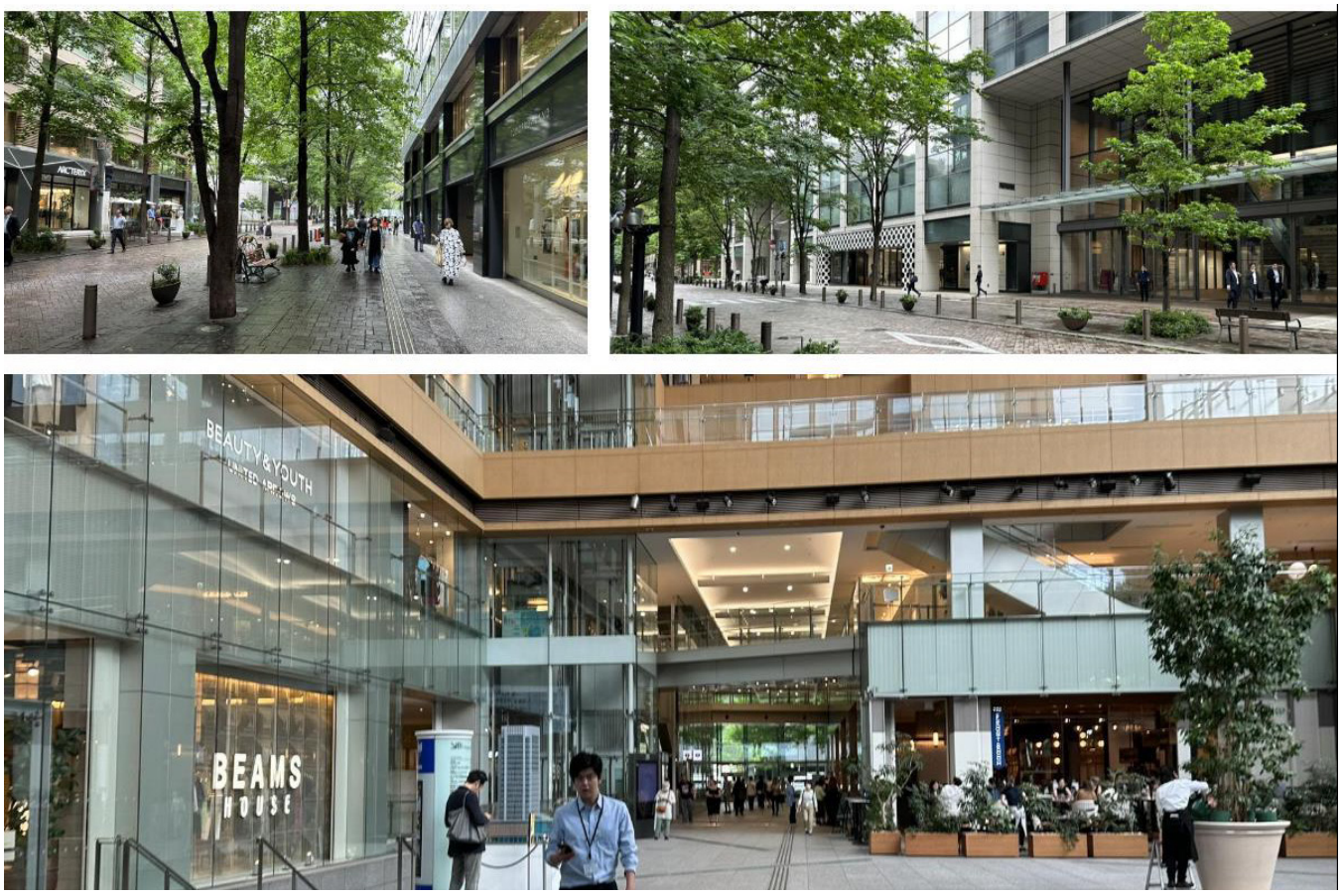
Mitsubishi Estate's Marunouchi "Area Management" Model

Marunouchi, a commercial office district situated between Tokyo Station and the Imperial Palace, formed a cooperative entity called Ligare to enhance its streets and promote activities that support business, conventions, and tourism. With few residents in the area, Ligare focuses on activating public spaces to sustain a vibrant business ecosystem that fosters cultural exchange, knowledge sharing, startups, and established companies.

In May 2024, the ULI team met with Ligare to learn more about their initiatives. A key takeaway was that Mitsubishi directly owns 20% of the properties in the Marunouchi precinct. Collaborating with the other 80% of property owners, along with government entities, retail shops, hotels, and other stakeholders, Mitsubishi played a leading role in creating and funding many of Ligare's activities.

Ligare has pioneered ideas such as regularly scheduled events—both large and small—to build the precinct's brand and attract people to "live, work, and play" in Marunouchi. In Melbourne, a similar non-profit entity could be established to activate the common vision of a "Zero Carbon Precinct". Business leaders could help curate and fund stakeholder engagement activities, contributing to the development and implementation of the precinct's plan.

For more information, visit https://ligare.jp/en/about/.



SOURCE: HTTPS://LIGARE.JP/EN/ABOUT/

Marunouchi, Tokyo.

Funding Example in the US

Commercial Property Assessed Clean Energy (C-PACE) financing is a tool used for the development and renovation of commercial properties. It allows property owners to finance 100% of the costs for energy efficiency improvements, water conservation measures, renewable energy installations, and resilience upgrades. For new construction projects, C-PACE can cover up to 30% of the capital stack.

While the funds are provided by banks, what sets PACE programs apart is that they are not traditional loans. Instead, they are structured as a special property tax assessment, with the financing attached to the property itself rather than the individual owner. As the financing is tied to the land, it is considered non-recourse to the property owner, meaning repayment is linked to the property rather than personal liability.

For more details, visit https://www.pace-equity.com/how-pace-financing-works/.

2030 Districts

Here are some success stories from Maalka, a platform service provider, showcasing impressive achievements from various cities participating in the 2030 Districts initiative:

- **Pittsburgh2030**: Involving 1,200 government and commercial buildings, the district achieved a 34.9% reduction in energy use intensity, saving $61.9 million. This success was driven by sustainability reports, enforcing benchmarking ordinances, and fostering stakeholder engagement.
- **Cleveland2030**: Approximately 400 buildings, covering 73 million square feet, committed to the initiative, resulting in a 28% reduction in energy use and a 35% reduction in water consumption.
- **Seattle2030**: With about 800 buildings participating, the district achieved a 30% reduction in energy use intensity, leading to $5 million in annual savings.
- **Cincinnati2030**: Around 300 buildings are part of this district, which is making significant progress toward ambitious reduction targets.

Accelerating to Zero – Beyond 2030: In the fall of 2022, the 2030 Districts Network adopted a new goal of reducing emissions in the built environment by 50-65% by 2030 and reaching zero emissions by 2040. This goal is achieved through collaboration with members to lower energy and water use, reduce building and transportation related emissions, and promote healthy buildings. Achieving zero emissions requires energy efficiency, electrification, clean energy grids, reducing embodied emissions, and advocating for building codes and policies that ensure a resilient and vibrant future for all.

For more information, visit https://www.wbcsd.org/news/minoro-an-online-platform-to-help-accelerate-the-decarbonization-of-buildings-launches/.

Online Access to 500+ Carbon Management Policies and Methodologies

On 8 July 2024, the new online platform "Minoro" was launched to accelerate the decarbonisation of buildings. Developed by Grimshaw in collaboration with over 20 supporting organisations, including the World Business Council for Sustainable Development (WBCSD), RIBA, Architecture 2030, the World Green Building Council (WorldGBC), and multiple national Green Building Councils, Minoro (minoro.org) offers comprehensive guidance, methodologies, and policies on carbon management. The platform connects these resources to actionable strategies for decarbonising both new and existing buildings.

As an international resource, Minoro provides access to over 500 policies, methodologies, and guidelines—the first time this information has been centralised in one place. The platform is free to use and currently hosts global information as well as region-specific guidance for key areas such as the UK, Europe, the US and Canada, Australia, and New Zealand.

For more information, visit https://www.nrel.gov/buildings/end-use-load-profiles.html.

End-Use Load Profiles for the U.S. Building Stock

The author believes that Australia, Victoria, and Melbourne are already taking similar actions but shares this to emphasize that our recommendations for an open digital platform should surpass those of other leading nations.

NREL and its research partners have developed a comprehensive database of end-use load profiles (EULP) that covers all major end uses, building types, and climate regions within the U.S. commercial and residential building stock. These end-use load profiles are crucial for understanding the time-sensitive value of energy efficiency, demand response, and other distributed energy resources.

This foundational dataset can assist electric utilities, grid operators, manufacturers, government entities, and research organizations in making informed decisions regarding R&D prioritization, utility resource planning, distribution system planning, and state and local energy policy. The datasets illustrate how different building decarbonization pathways will impact the nation's electric grid, energy requirements, and the buildings people live and work in, enabling stakeholders to make better decisions.

For more information, visit https://www.nrel.gov/buildings/end-use-load-profiles.html.

Current State of GFA and Energy Consumption Data in Melbourne CBD

The author notes that there is no straightforward way to directly download GFA (Gross Floor Area) and energy consumption data for individual buildings in Melbourne's CBD. Instead, the available data is at the block level. The author accessed and downloaded relevant Excel data from the provided links, enabling the analysis of block-level GFA and energy consumption in the Melbourne CBD.

The data includes:

- Block-level energy consumption (modelled on building attributes) – 2011 baseline
- Block-level energy consumption (modelled on building attributes) – 2026 projection under a business-as-usual scenario
- Floor space per CLUE industry for blocks

Additionally, the author found that the Department of Climate Change, Energy, the Environment and Water conducted an energy consumption baseline study for commercial buildings in 2022. In the Victoria (VIC) dataset, Melbourne (Inner) is listed under tab SA4 206, which includes GFA by usage, along with gas and electricity consumption data.

For more detailed insights, the author refers to the www.dcceew.gov.au/energy/publications/commercial-building-baseline-study-2022.

In 2011, the City of Melbourne commissioned CSIRO to create a property-level energy consumption dataset for Melbourne's CBD. This dataset is based on modelled data, not actual meter readings, with estimates derived from building attributes such as age and floor area. Both the dataset and the methodology used for the estimation can be accessed through the following:

- Property-level energy consumption (modelled on building attributes) – 2011 baseline and business-as-usual projections for 2016-2026.
- Methodology for the estimation of city-based electricity consumption across Australia for 2016

The author highlights that there are numerous energy retailers in Melbourne's CBD, which adds complexity when attempting to track energy usage per building. However, AGL, Energy Australia, and Origin Energy continue to dominate the market. These three companies currently serve 55% of electricity customers and 61% of gas customers in Victoria.

In terms of energy monitoring, the author notes that large retailers typically offer customers the ability to track their energy usage at intervals ranging from 30 minutes to 24 hours. For example, AGL provides an app that allows users to view and monitor their energy consumption (see: AGL App: How to View and Track Your Energy Usage). Additionally, for third parties to collect data on behalf of customers, authorization is required (see: Requesting Data as an Authorised Third Party).

The Australian Energy Market Operator (AEMO) also plays a key role, offering a NEMWEB platform that tracks live national price and demand data, with specific datasets available for Victoria. The author suggests that AEMO could be a potential partner in the initiative they are targeting. AEMO promotes transparency by collecting and disseminating a range of data related to the National Electricity Market (NEM) to help the market and the public better understand its operations.

Relevant links include:

- AEMO - Tracking Price and Demand by State (LIVE 5-30 minute intervals)
- National Aggregated Price and Demand Data by State - Current and Historical
- Market Data for the National Electricity Market (NEMWEB)

IMAGE SOURCE: ULI

The team delivered their final recommendations to the City of Melbourne, marking the conclusion of the TAP session.

ABOUT THE PANEL

Paul Stoller LEED Fellow

Director, Atelier Ten
Melbourne and Sydney, Australia

Managing director of Atelier Ten's Australian office and global leader of its Benchmarking practice, Paul is recognized for environmental planning and design consulting work on large-scale campus, cultural, and urban projects. Paul's work in Australia includes a major research laboratory for the South Australia Health and Medical Research Institute (SAHMRI), the Sydney Modern expansion of the Art Gallery of New South Wales, Barangaroo South precinct in Sydney, the adaptive reuse of a former auto factory into the Tonsley Park mixed-use development, and the original environmental concepts for Federation Square in Melbourne. Paul's leadership in environmental design has been recognized by the US Green Building Council, who named him a LEED Fellow in 2013. Paul has taught environmental design at the UTS School of Architecture, and environmental design and building services at the Yale School of Architecture. In 2019 Paul was appointed to the NSW Government Architect's State Design Review Panel.

Priya Gandhi

Associate Director, Atelier Ten
Melbourne, Australia

Priya Gandhi continues leading on energy modelling and building performance tools, and working with design teams to integrate efficient strategies into project designs from the outset. Priya uses her background in engineering, architecture, and building science, and passion for climate action to embed sustainability in her projects. She is a member of the fifth cohort of Homeward Bound, a global leadership initiative that heightens the influence and impact of women in STEMM in making decisions for the greater good of our planet. She is a contributor to the Discomfort Zone podcast; Vice President of the building performance simulation association IBPSA Australasia, an active member of Engineers Declare and a regular speaker at events and conferences.

Rob Adams AM

Director, Adams Urban
Melbourne, Australia

Rob Adams, an architect and urban designer, is Director of Melbourne-based urban design practice Adams Urban. Previously City Architect and Director of City Design at the City of Melbourne, for over 40 years, Rob helped lead the rejuvenation of central Melbourne. He received an Order of Australia in 2007, was awarded the Prime Minister's Environmentalist of the Year in 2008 and the Australian Institute of Architects' National President's Prize in 2018. The City Design Division he led between 1986 and 2020 received over 160 international, national, state and local awards for design excellence. Rob represented Australia as a member of the World Economic Forum, Global Future Council on Cities of Tomorrow from 2008-2022. He is a regular keynote speaker at international and national conferences. He has contributed to numerous publications, including leading the award-winning Transforming Australian Cities (2009) and as an editor of Urban Choreography – Central Melbourne 1985– (2018). Since forming Adams Urban in 2020, the practice has been commissioned on projects in Victoria, the ACT, Queensland, NSW, and Tasmania.

Chungha Cha

Founder and Chair,
Reimagining Cities LLC
Seoul, Korea

Cha has been in the finance industry more than 20 years with various financial institutions: Citibank in New York, Yasuda Trust Bank in Tokyo, Asian Merchant Bank and CEO of Lone Star Real Estate Funds in Seoul. Since 2007, Cha's passion for sustainability led him and his partners to establish Reimagining Cities Foundation in collaboration with the Korea Green Building Council non-profit umbrella. With increasing urbanization, we seek to make Cities part of the solution to our energy and climate crises by accelerating the development of sustainable, low carbon buildings, precincts and cities. Cha is currently active with the Urban Land Institute serving as Global Governing Trustee (2023-2027), Co-Chair of the ULI Asia Pacific Net Zero Council and Instructor for ULI Executive Learning Series: "Decarbonisation of the Built Environment: Making the Financial Case".

Nina James

Director, NXJ Impact Advisory
Sydney, Australia

Nina recently lead ESG in Asia Pacific for Blackstone Real Estate. In this role, Nina was responsible for the design and delivery of the global RE ESG strategy as it pertains to the Asia Pacific region, including the carbon emissions target pathways and broader sustainability programs across the RE Asia business. Nina currently sits on the ULI Australia Executive Council, is a Trustee of ULI Asia, and is a member of the Global Standards Committee for GRESB. Nina holds a Bachelor Degree in Landscape Architecture and a Masters Degree in Environmental Management from the University of New South Wales and a Certificate in Sustainable Finance from Columbia University, NY.

Clare Parry

Director - Sustainability
Development Victoria
Melbourne, Australia

A sustainability engineer and consultant with more than 17 years' experience, Clare Parry has worked on some of Australia's most sustainable buildings. As the director of sustainability at Development Victoria, she is focused on employing a highly collaborative mindset to ensure meaningful change in the built environment sector.

Brenton Reynolds

Director - Sustainability
and Net Zero, Urbis
Melbourne, Australia

Brenton Reynolds is a sustainability, energy and climate change advisor with international experience delivering sustainability focused projects and initiatives across Australia and Europe. Brenton leads the Sustainability, Net Zero and Decarbonisation service offers – working with clients to develop net-zero and sustainability strategies by integrating impactful decarbonisation initiatives into their climate, sustainability and ESG agendas – to optimise, increase and retain value of their developments, investments, acquisitions, assets, policies and organisation.

Early in the TAP session, the team conducted an analysis of B, C, and D grade buildings distribution across the CBD.

IMAGE SOURCE: ULI

IMAGE SOURCE: ULI

Left: Discussions within the team regarding the location of the precinct in the CBD. Right: Victoria Cook, Chair of the Net Zero Imperative, leading the visioning session during the TAP session.

Our Stakeholders

Our sincere gratitude to everyone who contributed to the panel.

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