



National Energy Performance Strategy - Consultation paper

City of Melbourne Submission to
Department of Climate Change,
Energy, the Environment and Water

Feb 2023

Executive Summary

This submission is provided on behalf of the management of the City of Melbourne and is based on endorsed Council policy. The City of Melbourne welcomes the opportunity to provide input into the National Energy Performance Strategy Consultation paper for the Department of Climate Change, Energy, the Environment and Water in recognition of the need to find effective ways to support the improvement of energy performance in Australia's buildings.

The National Energy Performance Strategy presents an opportunity for Australia to embrace the transition to a net zero emissions economy. This transition can provide economic opportunity whilst also improving health outcomes and reducing social inequality. The City of Melbourne's Climate Change Mitigation Strategy (The City of Melbourne, 2018) and Response to the Climate and Biodiversity Emergency (The City of Melbourne, 2020) outlines the organisation's priorities for achieving zero emissions for Council operations and for the municipality. Through these strategies, Council has committed to a goal of a zero emissions city by 2040 powered by 100 per cent renewable energy by 2030.

A large portion of energy performance improvements for the City of Melbourne, and Australia as a whole, will come through retrofits of existing buildings. Residential, commercial, and industrial structures account for 20 per cent of Australia's annual greenhouse gas emissions (ClimateWorks, 2020). Energy performance retrofits can lower energy costs, reduce emissions and reduce pressure on electricity delivery infrastructure. Retrofits of existing buildings can come with a wide range of other benefits including increased resilience to the impacts of climate change; improved occupant health and wellbeing; heat island effect mitigation; and generation of high quality jobs.

The content in this submission primarily comes from local engagement on Zero Carbon Buildings (The City of Melbourne, 2022) and Power Melbourne (The City of Melbourne, 2022). It is informed by deep consultation with our community, building owners, managers and tenants as well as the professional associations and organisation in the sector.


The City of Melbourne makes the following recommendations for inclusion in the National Energy Performance Strategy:

1. **Mandate periodic disclosure** (not just during sale or leasing) of energy performance of buildings and reduce the floor area threshold from 1000m² to 500m² for mandatory disclosure under the Commercial Buildings Disclosure (CBD) regulations. Additionally, support the expansion of the CBD program to a wider range of NABERS rateable building types.
2. **Support mandatory disclosure with financial incentives** for improving performance.
3. Provide **consistency in energy regulation** across federal, state and local levels of government. A regulatory framework should be coordinated nationally but able to be implemented locally, with local governments playing a key role in implementation. This should include a national definition for a "zero carbon ready" building. Energy performance regulation should include consideration of electrification, emissions intensity and emissions productivity, not just energy efficiency.
4. **Increase federal government support for education, knowledge sharing and collaboration** schemes related to energy efficiency and emissions reduction such as the CitySwitch program run by capital city local governments. There is a desire from both residents and businesses within the City Of Melbourne to have a 'one stop shop' for knowledge on emissions reduction.

- 5. Provide targeted subsidised access to decarbonisation technologies** and especially for renters, owners' corporations and small business who are least able to afford it.

The City of Melbourne looks forward to continuing to work the Australian Government on the development of the National Energy Performance Strategy. To discuss the points raised in this submission, please contact: John Griffiths, Manager Zero Carbon City, John.Griffiths@melbourne.vic.gov.au.

Yours sincerely

A rectangular box containing a handwritten signature in blue ink. The signature is stylized and appears to read 'Evan Counsel'.

Evan Counsel
General Manager Strategy, Planning and Climate Change

CoM reference: 16149181

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Notes on report structure

The questions from the NEPS consultation paper that are being answered are highlighted at the start of each relevant section using bold text inside a grey box:

Consultation questions

Direct quotes from reports and respondents to City of Melbourne-run consultations are highlighted within a light blue box:

Direct quotes

A summary of the City of Melbourne context and key calls to action for the Australian Government on the National Energy Performance Strategy are presented within the executive summary. Each section then goes into more detail on specific responses to the consultation questions and what the City has heard from its businesses, industry and residents. Each section is compartmentalised to allow for separate analysis, but will need to be read in conjunction with the introduction for context. References are consolidated at the end of the document.

1. Introduction

This submission is provided on behalf of the management of the City of Melbourne and is based on endorsed Council policy. The City of Melbourne welcomes the opportunity to provide input into the National Energy Performance Strategy Consultation paper for the Department of Climate Change, Energy, the Environment and Water in recognition of the need to find effective ways to support the improvement of energy performance in Australia's buildings.

The City of Melbourne commends the Federal Government for the initiative to understand and develop a national approach to the improvement of building energy performance. As the Intergovernmental Panel on Climate Change has noted since 2007, the energy efficiency of buildings is of the key cost-effective opportunities to reduce the contribution to climate change and positively impact the health, resilience and adaptation outcomes of the building environment (IPCC, 2007).

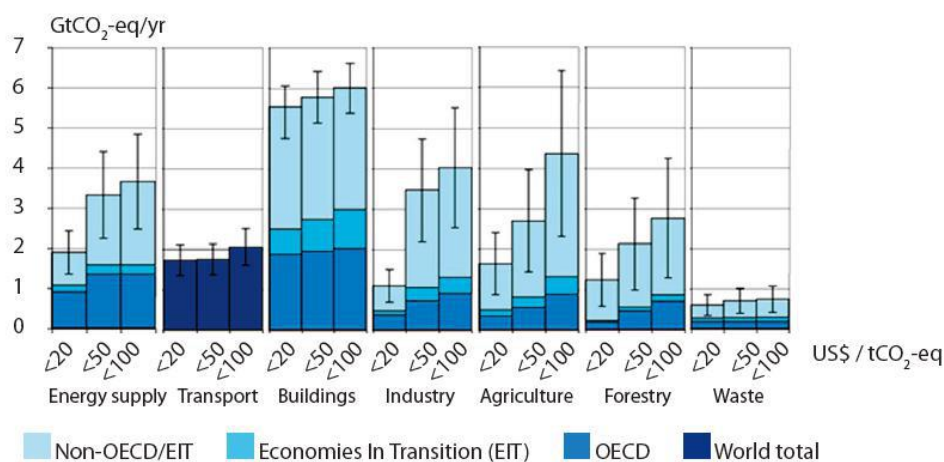


Figure 1: IPCC 2007 showing that building energy efficiency measures are the most cost-effective greenhouse gas-reducing initiative that can be undertaken in the economy.

The City of Melbourne's submission centers around three principles:

- 1. The speed of the transition should be accelerated** – urgent action is required to mitigate the impacts of climate change. The Government should commit to a more ambitious plan to take advantage of an aligned national, state and local ambition.
- 2. Transition is an economic opportunity** – transitioning to zero emissions presents enormous opportunities to develop the clean energy industry, generate jobs, boost economic productivity, and position Victoria as a leader in renewable technologies. The City of Melbourne has an ambition to become the employment center for zero emissions, resilient economy.
- 3. The transition must be socially inclusive and equitable** – the transition needs to be managed to ensure that the benefits are shared equitably and that the costs are not unduly borne by vulnerable communities and those least able to afford it.

City of Melbourne context

The City of Melbourne's Climate Change Mitigation Strategy (The City of Melbourne, 2018) and Response to the Climate and Biodiversity Emergency (The City of Melbourne, 2020) outlines the organisation's priorities for achieving zero emissions for Council operations, and for the municipality. Through these strategies, Council has committed to a goal of a zero emissions city by 2040 powered by 100 per cent renewable energy by 2030.

Improving the energy performance of all buildings within the municipality is a critical component to achieving this. Research has shown that if we only electrify the grid, without improving efficiency and electrifying our buildings then reaching these goals will be difficult.

The content in this submission primarily comes from the discussion papers *Zero Carbon Buildings* (The City of Melbourne, 2022) and *Power Melbourne* (The City of Melbourne, 2022). It is informed by the over 70,000 words provided by our community, building owners, managers and tenants as well as the professional associations and organisation in the sector. The focus is to support the Federal government in their work to consider the gaps, opportunities and needs of our constituents in creating their national response to energy performance improvements in buildings. Additionally, we seek to highlight the critical role local government has and can continue to play in delivering initiatives on the ground.

Research commissioned by the City of Melbourne has shown that to achieve the city's goal of zero net emissions by 2040, 80 buildings per year need to be retrofitted to be 'zero carbon ready'. The City of Melbourne has proposed the following definition of a zero-carbon ready building:

- has a 5-star NABERS or above whole of building rating,
- has all-electric building services,
- reports regularly on energy performance, and
- has a plan to get to absolute zero carbon.

If we retrofit 80 buildings per year to this standard it is expected to deliver \$2.7 billion to the Victorian economy over the next 18 years, 12,000 job years by 2040 and a reduction of energy costs by around \$184 million per year, not accounting for recent increases in energy supply costs. Electrification of buildings also presents an opportunity and challenge for the energy generation sector, as an additional ~1000MW of renewable energy generation capacity will be required to service Melbourne's commercial buildings with no reliance on fossil gas.

Benefits of better energy performance of buildings through retrofits

The University of Melbourne Retrofit Lab (The University of Melbourne, n.d.) summarises the benefits of energy performance retrofits as:

- lowering energy consumer costs,
- reducing emissions,
- taking pressure off the system,
- improving health and comfort.

Retrofitting buildings as an approach to improving building energy performance provides multiple advantages and opportunities, including positive impacts on the climate, health, biodiversity, and significant economic benefits. The degree to which projects will create value depends on multiple factors, the level of investment and scope of retrofit are key drivers, with integrated approaches yielding more positive benefits.

Retrofitting can provide positive economic impacts through the creation of green jobs. As demonstrated by the *Million Jobs Plan* (Beyond Zero Emissions, 2020) an Australian low-carbon economy has the potential to provide 1,778,000 job years over 5 years. Retrofitting buildings and transport, land regeneration, and subsequent training accounts for 713,500 job years in this

estimation. The IEA also estimates for every million dollars invested in energy efficiency measures in the building sector, 10-31 jobs will be created (International Energy Agency, 2020).

Residential, commercial, and industrial structures, account for one fifth of Australia's annual greenhouse gas emissions (ClimateWorks, 2020) (Yu, Wiedmann, Crawford, & Tait, 2017). If Australia is to reach net zero by 2050, the existing construction industry must shift toward more sustainable practices that retain existing materials and improve energy performance. Retrofitting existing buildings and upgrading building services is estimated to save a potential \$17 billion and 171Mt of greenhouse gas emissions over a 15-year period (Australian Sustainable Built Environment Council, 2016). Such financial and subsequent ecological benefits from retrofitting buildings would also provide a healthier, more resilient built environment. The Australian Sustainable Built Environment Council (ASBEC) estimates Australia's building sector can deliver up to 28 per cent of Australia's 2030 emissions reduction target, whilst creating healthier, more productive cities if strategic action and policy is implemented (Australian Sustainable Built Environment Council, 2016).

Infrastructure assets contribute 15 per cent of greenhouse gas emissions to Australia's annual total. These assets further enable 55 per cent of annual emissions through activities they facilitate (ClimateWorks, ISCA, ASBEC, 2020). Retrofitting infrastructure presents opportunities to increase performance and extend the life of assets whilst adapting to and mitigating ecological crises. Mitigation of and adaptation to a changing climate must be considered when approaching any retrofit to create resilience in the built environment.

Climate Benefits:

- Reduced greenhouse gas emissions through increasing energy efficiency in buildings and infrastructure projects to mitigate the climate crisis (Olgyay & Seruto, 2010).
- Adaptation of the built environment for flooding, fires, and other extreme weather events (Victorian Building Authority, 2014).
- Sequestration of carbon through increasing green infrastructure as nature-based carbon sinks (Ariiluoma, Ottelin, Hautamäki, Tuhkanen, & Mänttari, 2021).
- Improving energy, waste and water management systems for efficient resource usage and circularity (Khairi, Jaapar, & Yahya, 2017).

Health Benefits:

- Improving Internal Environmental Quality (IEQ) (Camacho-Montano, Wagner, Erhorn-King, Mumovic, & Summerfield, 2019).
- Urban heat island mitigation through green infrastructure (Baldwin, Matthews, & Byrne, 2020)
- Changing the functional requirements of buildings for aging populations and people with disabilities (Australian Human Rights Commission, 2022).
- Increased thermal comfort.

Biodiversity Benefits:

- Increased biodiversity through green retrofits of buildings or infrastructure that increase urban habitats for species of flora and fauna (Williams, Lundholm, & MacIvor, 2014).
- Pollution reduction.
- Habitat restoration.
- Urban heat island effect mitigation (Baldwin, Matthews, & Byrne, 2020).

Economic Benefits:

- Providing high quality jobs (Jagger, Foxon, & Gouldson, 2013).
- Increasing productivity (UK Green Building Council, 2022).
- Quality of assets (Wilkinson, Sustainable Urban Retrofit Evaluation, 2013).
- Significant reduction in building and infrastructure operational costs (Australian Sustainable Built Environment Council, 2016).
- Improving rental yield through increased building ratings and higher paying tenants (Wilkinson, Routledge Handbook of Sustainable Real Estate, 2018).

Other Benefits:

- Adapting offices to an evolving, digitizing workplace.
- Opportunities for improving social infrastructure such as ventilation and energy sources in schools, pools, and hospitals.
- Retaining historical buildings whilst improving environmental performance (Mazzarella, 2015).
- Export potential to developing cities around the world particularly the Southeast Asian marketplace (McKinsey, 2021).

2. Governance

Energy governance

How can demand considerations be better integrated into Australian energy governance and what are the priorities for change?

From the City of Melbourne's perspective demand considerations can be better integrated into Australian energy governance by:

1. Creating energy efficiency enablers.
2. Developing energy efficiency requirements with timelines to act.
3. Enabling local grid decarbonisation through renewables and storage.
4. Enabling national coordination with local implementation.

1. Energy efficiency enablers

Demand considerations can be integrated into energy governance through a focus on building the capacity in the community and business to understand energy, its supply and its demand and the impact of energy efficiency. These governance approaches should draw on local knowledge, for example, using lessons from water restrictions to enrol the community in supporting efficiency.

This would include providing education and appropriate incentives to be invested in energy efficiency. Ideally, programs would address the barriers in the industry, through clear, nationally aligned programs, implemented at a local level.

2. Energy efficiency requirements with timelines to act

Within the governance framework, the Australian Government should develop energy efficiency requirements with ambitious but achievable timelines. That is, working to have an agreed energy efficiency trajectory supported by enablers (as outlined in point 1) and meaningful consequences.

The City of Melbourne's Zero Carbon Building Discussion paper suggested a zero-carbon ready definition, setting NABERS targets for measuring efficiency with levers such as rates reductions (or adjustments to State based taxes) and an emissions cap to support uptake. A nationally coordinated version of these initiatives, implemented locally, would enable scaling for market supply of products and services.

3. Meeting demand with a decarbonised grid

The City of Melbourne is working to decarbonise the grid by 2030 (The City of Melbourne, 2020). The Council has played a leadership role in this through the Melbourne Renewable Energy Project, aggregating renewable energy demand to drive investment in renewable energy supply. The governance role here is one of broker and innovator.

Our new initiative is Power Melbourne – a neighbourhood battery project which aims to provide residents and business access to affordable local renewable energy, including those unable to install rooftop solar on their own buildings. The governance role here is decentralised power management capacity, increasing resilience and capacity of the renewable energy network. This means there is greater capacity to adapt and respond to demand and supply issues while being part of a larger

network for increased resilience. It also means that efficiency becomes a community activity as a component of supply will be local.

Power Melbourne Overview

The City of Melbourne is dedicated to building energy efficient urban communities that are sustainable, safe, affordable and inclusive, drawing people here from around the world to visit, work and live. To do this we must ensure everyone has access to fair, affordable, renewable energy.

Power Melbourne will transform our fragmented energy infrastructure into a network of coordinated mid-scale batteries across the city. A battery network will allow people to make better choices when sourcing their energy. Creating a simple renewable electricity offering will provide residents with a new choice and support a move towards sustainable energy-generating technology.

(The City of Melbourne, 2022).

4. National coordination with local implementation and the role of local government

Policy or program design stemming from the NEPS should consider pathways where direction can be set at a national level and implemented locally, in partnership with State and Local Governments. Coordination across multiple government, private sector and non-government bodies including research bodies like the CRCs (for example, Building 4.0, Race for 2030). Any coordination mechanism should include all levels of government, with local governments, particularly capital city local governments, being integral to the mechanism.

Local government is ideally placed to translate national and state high level targets and aspirations to local action. Through their planning process local government can implement and ensure the appropriate application of energy efficiency initiatives and requirements. Further, local government are able to demonstrate and pilot locally appropriate initiatives, responding to local market conditions and opportunities. For example, the City of Melbourne is home to a significant amount of mid-tier (B grade and below) commercial office buildings with diverse ownership, whereas Sydney is home to more top tier assets owned by institutional investors. These nuances call for local adaptations of policy and program responses.

Capital city local governments have a proven track record on national coordination on energy performance. An example of this is the CitySwitch program, run in partnership with the City of Sydney, North Sydney Council, City of Adelaide and NABERS. CitySwitch participation covers an estimated 5 million square meters or 19 per cent of all office space in Australia. In 2021 the CitySwitch program (CitySwitch, 2021):

- Had an additional 200,000 square meters signing up to the program.
- Had over 750,000 tonnes of CO_{2-e} saved by its signatories.

Would an energy efficiency target or targets be suitable for Australia?

Whilst economy wide energy efficiency targets present significant design challenges to be effective, sector specific targets, namely for buildings, can be an effective enabler to support investment and decision making by private actors. If the Australian Government were to consider an economy wide target, for example GDP/total energy consumption, this should be underpinned by sector targets that ladder up to a broader target to avoid structural changes in the economy from masking true changes to national energy performance.

The City of Melbourne has seen some industry support for setting commercial building energy efficiency targets through the zero carbon buildings consultation paper responses (The City of Melbourne, 2022). There are models such as the emissions cap put in place in New York City (Local Law 97) the EU minimum energy performance standards (as part of the Energy Performance of Buildings Directive) for worst-performing buildings (European Commission, 2021) that demonstrate effective implementation of targets and related regulation.

For many buildings, improving energy efficiency is a process that goes hand in hand with asset management plans, i.e. as air-conditioning and heating equipment fails, it is replaced with better equipment. Therefore, targets that fit into a regulatory trajectory will help uptake.

This trajectory could be supported by sectoral energy efficiency targets, with relevant incentives and requirements with timelines and effective support. This could be based on industry types, function types or building types (parking garages, apartments, office buildings, hospitals, etc.). This could enable a pathway to regulate minimum performance standards. Extending NABERS to provide tools for all building types will help this, and then using NABERS rating requirements to signal efficiency pathways.

From our consultation there were some clear comments around the need to have clarity, targets and standards:

‘Mandating minimum standards of efficiency for new development and for renovations’

‘I am in an apartment. Need ... government to set targets for building owner.’

‘Legislating for total energy ranking with minimum required before being able to rent...’

Comments made by residents of the City of Melbourne in the Nov 2022 consultation on the zero-carbon building discussion paper.

Effective energy performance targets for the commercial building sector is heavily reliant on good data of the energy performance for these buildings. The Commercial Buildings Disclosure (CBD) Act has established a good foundation but needs to be expanded and strengthened in order to be most effective. The City of Melbourne recommends that the CBD program be expanded to all NABERS rateable buildings, move from disclosure at point of sale/lease to periodic disclosure and reduce the floor area threshold for commercial office buildings from 1000m² to 500m².

What is the most appropriate methodology for designing and implementing a target that effectively drives demand side action towards Australia’s overall net zero target?

The City recommends a focus on emissions intensity and emission productivity, holding informed discussions and building on best practice to determine targets while demonstrating how they can be achieved with early adapters. There should be a clear direction set, with a target supported by education and incentives to empower implementation.

Focusing on buildings, NABERS sets clear efficiency levels for many building types, providing design and performance metrics. In the consultation process with Melbourne stakeholders late in 2022, there was strong support for clear definition of a zero-carbon ready building, with efficiency measured through a well-respected tool (NABERS), and an ambitious but achievable timeline underpinned by a potential emission cap.

How should progress towards an energy efficiency target be measured?

There should be a national target that is locally applied, relevant to each sector with regular reporting, review and adapting of the targets. For buildings, an energy efficiency target using tools such as NABERS will give an appropriate measure, and metric to work with.

Furthermore, the amount and type of data collected to measure progress against targets must be appropriate to resources and skill levels available to the types of organisations or sectors that the targets apply to. For example, many CitySwitch program participants are small-medium enterprises (SMEs) that very often do not have a staff member dedicated to sustainability performance within the organisation. Complicated and time consuming reporting is a big disincentive to small businesses trying to make progress towards their emissions reduction goals. This is why the CitySwitch, as a voluntary program, has a streamlined emissions reporting framework, with many educational resources on how to report correctly.

The City of Melbourne recommends looking at ways to report beyond emissions intensity and emission productivity. Energy efficiency is not just about reducing the carbon intensity of living, working and playing. There are other human aspects that could be 'measured' and used to inform success such as productivity improvements, health data and stories of improved outcomes that are locally inspiring.

3. Residential Buildings

General

What are the key opportunities to improve the energy performance of new and existing residential buildings?

The key opportunities to improve the energy performance of new and existing residential buildings are summarised below, with more detail below from the recent zero-carbon building consultation (The City of Melbourne, 2022) were:

1. Enablers through appropriate funding
2. Advice and support through a trusted one stop shop
3. Understanding through education
4. Lever through better standards
5. Clarity around practical electrification pathways

1. Enabling funding

Most respondents to the Zero Carbon Buildings for Melbourne consultation emphasised the importance of access to funding support purchasing energy efficient and low carbon technology, e.g. retrofits, glazing, appliances, electric vehicles, solar PV panels, insulation, and seeking professional expertise.

2. A 'one stop shop' for advice and information

The City of Melbourne receives many questions from residents for help with advice, the recent consultation reinforced that. One of the main barriers to action is feeling that there is authoritative advice and the products needed to invest in increasing the efficiency of homes. For example, from a resident:

'... remove the noise and confusion of all the various options out there. It's too overwhelming, even for some experts I speak [to]'

Anonymous comments from City of Melbourne resident in response to Zero carbon buildings for Melbourne discussion paper.

3. Education on effective efficiency pathways

The City of Melbourne advocates for educating and connecting its residents to the city. Specifically in the quotes below the residents are looking for not just pragmatic information but also examples of how it is put into practice. This also relates to the one stop shop above. For example:

'Understanding better the day to day issues that I can contribute to.'

'Education! Provide multiple examples in all areas of how we can reduce CO2 emissions.'

Anonymous comments from City of Melbourne resident in response to Zero carbon buildings for Melbourne discussion paper.

4. Better standards

The City of Melbourne has advocated (see NCC 2022 submissions) for higher energy efficiency standards in new buildings. The Council believes this also needs to also be translated into higher standards for existing homes. This is echoed by our residents, for example:

'Better planning of apartment/residential buildings to begin with. This means higher building standards instead of this insanity of approving whatever developers submit. We have decades of apartment building debt clogging up our city that will be hard to retrofit with green solutions.'

Anonymous comments from City of Melbourne resident in response to Zero carbon buildings for Melbourne discussion paper.

5. Electrification

As the City of Melbourne is aiming to support the decarbonisation of the grid by 2030, this means that electrification will support the reduction of impact of energy use on Climate Change. In electrification initiatives there is the opportunity to also support improving energy efficiency. The process of electrification provides a clear acupuncture point to inform and support better more efficient technology. The need to support electrification both in new and existing homes is something that residents are advocating for:

'Ban future installation of gas reliant appliance[s].'

'I live in a large multi-residential apartment building. I'd love to see Council support for a long-term electrification strategy for these buildings, better use of rooftops around the city for solar, and consideration of neighbourhood/district scale batteries.'

Anonymous comments from City of Melbourne resident in response to Zero carbon buildings for Melbourne discussion paper.

Low-income households

What actions should be prioritised to assist low-income households to improve energy efficiency in their homes?

The City of Melbourne advocates for safe homes, where poor social housing is upgraded to become comfortable refuges. The focus of assistance to low-income households should be on passive upgrades first, before active systems are added. Critical to this is an education program on how to manage homes to be safe and collaborating with local governments to implement it.

The City of Melbourne supports the position of The Victorian Council of Social Services (VCOSS) on position on fair and fast action for a safer climate. VCOSS advocates for (VCOSS, 2022):

- Expand the Social Housing Energy Efficiency program to include all public housing.
- Require air conditioning in rental properties.
- Provide cash grants so low-income earners can afford energy efficient products.
- Make all public housing fully electric.
- Offer financial assistance for upgrades and rewiring.
- Abolish gas disconnection fees.
- Fund local resilience programs.
- Create a network of heat refuges.
- Fund the Multicultural Emergency Management Partnership (MEMP).

Renters

How can the energy performance of homes be made more transparent to prospective tenants?

Mandatory disclosure of energy use and costs of all rentals is critical to enable consumers to be part of the energy efficiency journey. This will help with two things drive demand for more efficient homes and enable residents to relate their own behaviour to the expected performance.

How can governments and private sector support renters to improve energy performance?

The City of Melbourne, through their recent consultation, heard from stakeholders that governments and private sector can support renters to improve energy performance by three mechanisms, these are extended below:

1. Better tools/incentives/programs to enable renters and building owners to work together
2. Change the energy efficiency narrative to the renter's rights to live in safe healthy homes
3. Disclosure of energy performance and improvement potential

The three suggestions centre on the role of those who own the apartments and the related management associations.

1. Better tools/incentives/programs to enable renters and building owners to work together

To support better collaboration one of the main issues is that there is a sense of “us and them” in the rental sector. Therefore, any energy efficiency measures require trust building. For example, two renters said:

‘Prevent body corporates from stopping residents from improving energy efficiency of units, such as bans on curtains, restrictions on the types of blinds that can be installed’

‘As a current resident of an apartment, the biggest challenge will be to convince the owners corporation that it is important to initiate onsite energy generation AND energy efficiency measures’

Comments made by resident of the City of Melbourne in the Nov 2022 consultation on the zero-carbon building discussion paper.

2. Change the narrative from energy efficiency as the focus to renter's rights to live in safe healthy homes

Rights to safe healthy homes is a stronger framing than energy efficiency for renters and owners, this could be the mechanism used to work through the best approach.

Current rental processes and the legacy of poorly built homes means that without agency to change things, renters feel a lack of agency to live comfortably in many instances. The City of Melbourne feels all our citizens have the right to live in safe and healthy homes, this requires effective standards for the energy efficiency and comfort of homes. In the quote below one resident mentioned being a 'hostage' to their poorly performing, uncomfortable home:

'Tax free and grants offered for thermal renovation performance and going electric. This way renters won't be hostage of bad building stock using too much energy or being uncomfortable'

Comment made by resident of the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

The issue of heat stress came through from the recent work of City of Melbourne initiative, CityLab. The lab looked at the impact of heat stress on vulnerable households within public housing towers, this speaks to the need to provide better performing homes and incentivising or regulating for energy efficient cooler homes, able to respond to summer extremes. The work showed the economic and health impacts of heatwaves, as Australia's most deadly natural hazard (The City of Melbourne, 2022)

The 2014 Melbourne heatwave showed city businesses lost an estimated \$37 million in revenue over the four days. Put into context, climate change expectations show that for Melbourne there are currently an average 11 days greater than 35 degrees. By 2050 we will experience an average of 16 days greater than 35 degrees. In parallel it is expected that the population will grow to eight million over the next 20 years. Capital city residents such as Melbournians are more impacted because of density and the urban heat island (The City of Melbourne, n.d.).

Further renters in high rise buildings and public housing are disproportionately impacted:

"The windows are fixed and no way to open the windows during the hot days. There is no ventilation" - Kensington towers resident (87 yrs)

"I had an a/c installed in my flat last year so put that on. I worry about the cost every time I turn it on though" - Kensington towers resident

Comments by resident in CityLab research 2022

3. Mandatory disclosure of energy performance to prospective tenants

The City of Melbourne advocates for the development of a national method to disclose energy use to prospective renters. Though the below quote mentions the NatHERS rating, this being a design rating, it would be good to also have disclosure of actual performance. If a home is designed for a high star rating and is performing at a low star rating this provides valuable information for future action:

'For house-hunters / renters: domain and real estate are required to list NatHERS star rating of every property and average energy costs.'

Anonymous comments from City of Melbourne resident in response to zero carbon buildings for Melbourne discussion paper.

How can governments support better energy performance in apartments and similar dwellings?

The City of Melbourne, through their consultation with stakeholders have heard 6 ways that governments can support better energy performance in apartments and similar dwellings through (City of Melbourne 2022). The issues are complex, and with that comes risk, most of these suggestions are around reducing this sense of risk, they are summarised in the list below and extended on below:

1. Appropriate incentives such as funding
2. Addressing systemic industry issues
3. One stop shop, education and authoritative information
4. Electrification
5. Standards and disclosure
6. Piloting Innovation

1. Appropriate incentives such as funding

Apartments are a complex mix of owners, renters and building management associations. This means that it is difficult to introduce effective energy efficiency mechanisms. Stakeholders of the City of Melbourne suggest that incentives are needed such as funding, but also support to reduce the risk of investments:

‘Support for body corporates to install batteries or renewable energy, support for energy efficiency upgrades like insulation, double glazing, etc.’

‘Rebates for building Passive and High Performance homes.’

‘I am on the Owners Corporation Committee of a 140 unit residential building in Carlton. We have a large roof space that we would like to use to convert from gas/solar hot water panels to PV panels and closed system electric hot water. We have had a consultant provide us a design and quotes. However, it is incredibly complex and an upfront outlay of \$600k of unscheduled plant, which is huge amount for an [owners’ corporation] and a lot of risk...’

Comments made by residents of the City of Melbourne in the Nov 2022 consultation on the zero-carbon building discussion paper.

2. Addressing systemic industry issues

As alluded to above, apartments are complex ecosystems of stakeholders, from the developers to the owners, managers, tenants and energy service industry, alignment needs to be created through better standards, incentives, de-risking, information and collaboration. The quotes below speaks specifically to the issues of electrification, sense of powerlessness and choice:

'...energy companies currently provide and own the gas plant and metering service. There is little incentive for energy companies to provide a hot water solution for apartment buildings based on rooftop PV, as they are all tied up in offering and making profits from gas.'

'my body corporate couldn't be LESS interested in investigating [energy efficiency]'

'We ... have an embedded electricity network so we currently have no choice in provider. I'd like to have access to exclusive renewable energy and/ or access to battery stores for electricity supply.'

Comments made by residents of the City of Melbourne in the Nov 2022 consultation on the zero-carbon building discussion paper.

3. One stop shop, education and authoritative information

As with comments to the City of Melbourne from homeowners, apartment owners have also suggested the need for better support through providing the right information, incentives and advice:

'Rebates and education'

'[owners' corporations] require access to technical expertise, grants and funding initiatives in order that they can make sound technological and financial decisions that reduce emissions, protect/add to the building value/amenity and are fiscally sound.'

Comment made by an owners corporation operating in the City of Melbourne in the Nov 2022 consultation on the zero-carbon building discussion paper.

"I would like to see targeted guidance/advice/assistance for low density buildings to transition to green energy. I am the Chair of my buildings Owners Corporation Committee and this is something I'd like to put on our agenda"

Comment from the Power Melbourne Consultation October 2022.

4. Electrification

As the City of Melbourne is aiming to support the decarbonisation of the grid by 2030, this means that electrification will support the reduction of impact of energy use on Climate Change. In electrification initiatives there is the opportunity to also support improving energy efficiency. The process of electrification provides a clear acupuncture point to inform and support better more efficient technology. The need to support electrification is something City of Melbourne residents are advocating for, for example:

'Regulation and funding to replace gas devices (esp. cooktops and water heaters with electric alternatives (e.g. induction cooktops, heat pump heaters)'

Comment made by resident of the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

5. Standards and disclosure

The City of Melbourne has advocated (see NCC 2022 submissions) for higher energy efficiency standards in new apartments. The Council has also developed the C376 amendment to support this, but this is only for new and significant alterations. It is important that this is further translated into higher standards for existing apartments. This is echoed by our residents, for example:

'I am in an apartment. Need ... government to set targets for building owner.'

'Legislating for total energy ranking with minimum required before being able to rent...'

Comments made by residents of the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

6. Innovations

As Government looks to support energy efficiency in apartments, it would be worth looking at ways to innovate to shift away from some of the current practice that is a cause of the lack of momentum. For example, one of the respondents to the recent Zero Carbon Building consultation suggested looking at different ways of creating service agreement:

'Look at BZE's Million Jobs Plan. The Managed Energy Service Agreement model is fascinating. Making this work could be a game changer for many households...'

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

4. Commercial Buildings and Tenancies

What are the key opportunities to improve the energy performance of new and existing commercial buildings and operations? (For building OWNERS)

From the 2022 research and consultation on zero carbon buildings, the City of Melbourne suggests that some of the key opportunities to improve the energy performance of new and existing commercial buildings and operations are:

1. Setting clear standards, goals and pathways
2. Creating an ecosystem of opportunities to improve energy efficiency (zero carbon lease, periodic disclosure, one stop shop, long term cross sector collaboration through aggregation or teams, financial incentives (e.g. rates) and clear signals on end point (e.g. emissions cap or similar)

The above suggestions are extended on below, with quotes from stakeholders received through the consultation.

1. Setting clear standards, goals and pathways

See our recommendations from Section 2 Governance.

2. Creating an ecosystem of opportunities to improve energy efficiency

Extensive literature and practical guides already exist to help implement the most effective energy performance opportunities and support all-electric net zero ready technologies for new buildings (Australian Sustainable Built Environment Council, 2016). Retrofitting existing commercial buildings for improved energy efficiency and implementing energy performance improvements in business operations present more of a challenge.

The City of Melbourne welcomes the broadened mandate (Australian Renewable Energy Agency, 2022) of the Australian Renewable Energy Agency (ARENA) to include support for energy efficiency and electrification technologies.

In the zero-carbon building discussion paper (The City of Melbourne, 2022) the City of Melbourne suggested seven initiatives that could help with creating this ecosystem.

The City of Melbourne received survey responses and written submissions in response to the commercial aspects of the Zero carbon buildings for Melbourne discussion paper. Together the organisations the Council received submissions from represent over 3 million square meters of property and 2100 individuals, organisations or experts. Responses to the discussion paper (The City of Melbourne, 2022) showed strong support for the following measures to support increased energy performance and reduced carbon emissions:

1. Zero carbon building lease

There is a need for an Australia wide method to set up contractual carbon performance agreements. This would drive an energy efficiency upgrade industry for commercial buildings to attract tenants and avoid stranded assets.

'We need a clear framework for agents and tenants to engage with - and assign value to - zero carbon buildings.'

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

2. Incentives for periodic commercial building disclosure

Incentives would provide commercial building owners without the capacity and capital to carry out NABERS ratings to be on the front foot with ratings and disclosure.

'Periodic reporting of a building's NABERS rating will assist owners and tenants in the buildings, as often tenants actively seek a higher NABERS rating as it is aligned to their company values. This in turn will incentivise owners of those lower-class assets to upgrade them and support high transparency levels of the classes of building in the market.'

Comment made to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

3. Need for a "one stop shop"

As with other building typologies in this submission, the stakeholders responded that they wanted authoritative, one stop shop source of information. One international responder said:

'On joint procurement, several cities have a "one stop shop" type approach that building owners can approach to support them with either complying with legislation or just to carry out a retrofit. They don't necessarily do joint procurement, but do bring service providers together with building owner and some allow building owners to share knowledge and good practice in retrofitting'

Comment from the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

4. Zero carbon retrofit teams

A process is needed to address the current barriers of the building industry to develop longer-term relationships with service providers, creating long-term decarbonisation plans that align with building management plans to provide a trajectory of decarbonisation with a team of people to deliver it. Though seen as challenging and the need to be further developed and piloted, respondents said for example:

'Having people responsible and accountable for commercial building retrofits over a longer time period is essential to ensure progress is made, corporate knowledge is retained and good communication occurs in organisations.'

'Retrofit teams will be a great way to share what works best and what can be achieved in retrofitting older buildings.'

Comments made by responders to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

'The ... supports this strategy as more collaborative, relational way of working that is more likely to achieve efficiencies in work and provide practical guidance to building owners of all sizes and sophistication. It will assist the industry to have a central point of contact to seek appropriate guidance and information, while still retaining flexibility for owners to pursue their own building strategies should they see fit.'

Comment made to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

5. Rates incentives for building owners

This proposed initiative would be a 'rates in the dollar' reduction in rates over a fixed period if building's energy efficiency is improving. Respondents to the discussion paper supported this incentive saying for example:

'This is the best and most innovative of all the ideas here. This aspect could be a game changer nationally as it is something other local governments of cities could also take up.'

'This model could offer "carrots and sticks" that combine to act as a strong incentive, as well as provide funding for energy upgrades. This is a great initiative that provides some real financial incentive to reduce emissions.'

'The ... strongly supports this strategy, which has been part of our Every Building Counts platform since it was launched in 2018 to actively and immediately incentivise investment in buildings.'

Comment made to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

6. Emission caps

This would be a clear regulatory framework such as Local Law 97 in New York City, that would put in place an emissions cap (tonnes of carbon dioxide equivalent per square metre) for decarbonising building stock. There would be dates to meet a specific tonnes per square metre levels, with clear timeframes, support to meet them (education, finance, skills, technology), and effective fines. There was a majority support for this initiative, though some stakeholders were cautious or not supportive. What came through strongly though is the clarity of a cap, and how enabling it would be proving both 'carrots' and 'sticks':

'It is vital to give industry a clear target and a clear pathway and timeframe to drive investment. This aspect of the package does all these things. It also rewards leaders and provides an effective stick to laggards.'

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

What are the key opportunities to improve the energy performance of new and existing commercial buildings and operations? (For building TENANTS)

The City of Melbourne has a history of working with existing buildings and tenants. Operations is a key opportunity to engage and empower tenants to realise savings through energy performance operations. The Council sees four enablers, extended on below:

1. Tenant support programs such as CitySwitch.
2. Addressing barriers to decarbonisation – e.g. business size and heritage.
3. Collaboration.
4. Consistency.

1. Tenant support programs such as CitySwitch

The City of Melbourne (in partnership other capital city councils) also supports businesses to improve their energy performance and reduce carbon emissions in their operations through the voluntary and free CitySwitch program (CitySwitch, n.d.). CitySwitch provides resource guides, workshops and networking events to support the uptake of energy performance measures in office-based businesses and organisations.

CitySwitch participation covers an estimated 5 million square meters or 19 per cent of all office space in Australia, with another 200,000 square meters signing up to the program in 2021 (CitySwitch, 2021). In 2021, the Energy Efficiency Council (EEC) identified (Energy Efficiency Council, 2021) with primary data sourced from CitySwitch participants, the following opportunities for office-based businesses to increase their energy performance:

- Upgrading low-performing lighting to LEDs. Lighting is the single largest opportunity to improve energy performance in office tenancies.
- Improving sub-metering of supplementary HVAC to identify areas for improvements.
- Move as many servers as possible to high-efficiency off-site data centres.
- Ensuring office-based businesses use only high-efficiency office equipment, especially monitors and computers.
- Use environmental upgrade finance to upgrade lighting and HVAC within office tenancies.
- Use of energy efficiency obligation schemes to upgrade monitors and equipment within office tenancies.

2. Barriers to decarbonisation – size and heritage

Feedback from CitySwitch participants and submissions to the Zero carbon buildings for Melbourne discussion paper align with the challenges presented within the National Energy Performance Strategy consultation paper for small-medium enterprises. The City of Melbourne heard that small building owners and tenants feel unable to participate in the energy retrofit space because of lack of funds, expertise, and capacity.

Additional barriers to decarbonisation the city identified were:

Business size: The issues raised related to time and costs to implement decarbonisation activities for small businesses.

'It should be considered how and/or if this will be used by organisations - who if they are small, do not have the time to use and then implement the results.'

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper

Occupying buildings that have heritage overlays

Heritage overlays may limit the ability to implement energy performance retrofits.

'We are in a heritage building with a body corporate so changes are really difficult. The building is old and needs lots of work. Zero carbon issues are just not on the agenda for anyone in this building.'

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper

The City of Melbourne's consultation with our community, aside from the above, indicated that they would like support to overcome these barriers to decarbonisation in the following ways:

3. Collaboration

Facilitate small building owners and/or tenants to join together in aggregate. Teaming up with others in the same geographical regions will help small businesses improve their access to energy efficiency, electrification retrofit technologies and affordable renewable energy. Support for this initiative was especially strong when integrated with government supported public realm activation, greening and place making.

'Joint procurement of zero carbon retrofitting for multiple buildings is a positive initiative. Addressing the issues of smaller buildings through an aggregated approach may help to overcome some low and mid-tier barriers.'

Comment made by the Retrofit Lab, University of Melbourne, to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper

4. Consistency

Collaboration and consistency across all levels of government is key to overcoming barriers to enabling energy efficiency, as put by a responder to the Zero Carbon consultation:

"Momentum to achieve zero carbon buildings is growing. Smart Local, State and Federal governments must act to achieve zero carbon buildings as soon as viably possible. Strong leadership needed, with holistic vision."

Comment made by responder to the City of Melbourne in the Nov 2022 consultation on the zero carbon building discussion paper.

5. Supply chain and workforce

What are the most critical supply issues hindering energy efficiency action?

Through the zero carbon buildings for Melbourne consultation work, the City has identified that there is:

- a shortage of skilled labour for energy efficiency and electrification retrofits, and
- an affordable supply of electrification and energy efficient technologies.

These are critical human and technological barriers to energy efficiency action. There is the need for significant investment in manufacturing and research into Australian capacity to support energy efficiency. There is a need for electrification and building transition specialists, who are able to problem solve and adapt buildings effectively.

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