Fair Energy Futures

A study into combatting energy hardship and climate vulnerability in high rise apartment communities

June 2025

Acknowledgement of Traditional Owners

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 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.

Acknowledgements

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Fair Energy Futures A study into combatting energy hardship and climate vulnerability in Melbourne apartment communities **3**

1. Summary

Purpose of this document

This document seeks to improve understanding of energy hardship and climate vulnerability in high rise communities and identify potential strategies to address these complex and interrelated sets of issues.

It is intended as a guide for the City of Melbourne and other local and state governments, community services organisations, researchers, practitioners, and community members working to deliver policy, programs, and initiatives for high rise residents to address energy affordability; within the broader context of enabling inclusive climate action, community resilience and a just transition.

Using City of Melbourne as a case study, the aim of this document is to provide insights that are relevant and applicable across Victoria and Australia in jurisdictions with a high proportion of people living in apartments.

Developed through engagement and co-design with community members and informed by analysis of available literature and City of Melbourne datasets, this document provides insights into the drivers of energy hardship, its intersection with climate-related vulnerability, and the lived experiences of people confronting these challenges.

In response to the issues identified through the *Fair Energy Futures* research program, and co-design with affected communities, this document presents a range of potential policy and programatic responses for consideration and implementation across the local government sector.

What do we mean by energy hardship?

As identified by the Brotherhood of St Laurence, energy-related hardship has been labelled and measured in different ways in Australian and internationally – including energy poverty, energy stress, energy hardship and energy insecurity[1].

For the purposes of this report 'energy hardship' is broadly defined in line with the definition provided by Chandrashekeran et al. and refers to '*a general situation where people struggle financially to achieve an adequate level of energy services in their home' – or where achieving this level leads to financial stress'* and/or deprivation of other essential goods and services.[2]

Why focus on apartments?

Energy hardship and climate vulnerability cannot be effectively addressed in the City of Melbourne without delivering solutions for the apartment sector. The overwhelming majority of City of Melbourne residents (97%) live in apartment buildings, with apartments accounting for 89% of residential dwellings in the municipality.[3] The number of people living in the City of Melbourne is expected to increase by 65% by 2043. Approximately 37,000 new dwellings must be built to house this population, most of which will be apartments.[4]

Apartments disproprtionately house populations that are most vulnerable to energy hardship, including low income households, renters, younger people and culturally and linguistically diverse communities. Although the reported rates of energy hardship are higher for detached and semi-detached dwellings, a substantial proportion of residents living in apartments report experiencing energy hardship in

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[1] Bryant et al. (2022), See
https://library.bsl.org.au/bsljspui/bitstream/1/13115/1/Bryant_etal_Power_pain_energy_stress_in_Australia_2022.pdf
[2] Chandrashekeran et al. (2023), p3. See
https://library.bsl.org.au/bsljspui/bitstream/1/13361/3/BSL_LCC_Enabling_electrification_2023v3.pdf
[3] City of Melbourne (2025a), see https://profile.id.com.au/melbourne/dwellings
[4] City of Melbourne (2023), see https://www.melbourne.vic.gov.au/population-estimates-and-forecasts

municipality. The size of the apartment sector in the City of Melbourne therefore presents the greatest opportunity to alleviate energy hardship at scale. Further, many existing apartment buildings are ill-equipped to withstand current and growing climate-related pressures, making a substanitial proportion of the City's population vulnerable to heat and other climate-related risks.

To date, government interventions to address energy hardship and improve the performance of residential buildings have been primarily targeted at standalone buildings. However, apartment communities face a particular set of challenges related to their built form, complex governance and regulation, financial and information barriers, as well as cultural norms. A robust evidence base is therefore required to inform fit-for-purpose policy and programmatic interventions that are targeted at the apartment sector.

Drivers of energy hardship

Our research has found that households in the City of Melbourne experience energy hardship due to multiple intersecting factors including household income, the cost of accessing energy, and the amount of energy needed to meet their needs.

Energy costs and income

Energy prices have increased significantly in recent years along with other cost of living pressures. This has increased the number of households that are struggling to keep up with their energy bills. Households on low and fixed incomes have been particularly vulnerable to changes in energy prices, along with those who have high energy needs, including people living with a disability.

Energy market complexity

Most households in Victoria are paying more for energy than they need to. However, many lack the information required to understand their energy bills, compare offers, and switch to a better deal.

Poor quality housing

Exposure to energy prices is exacerbated by the low quality of Australia's homes, which are energy inefficient and perform poorly in hot and cold weather. A reliance on gas for hot water, space heating and cooking further exposes Victorian households to energy market volatility and prevents them from accessing the benefits of more efficient electric appliances.

Limited agency

Many of the households most vulnerable to energy hardship have limited control over the quality of their housing and how they access energy. For example, vulnerable cohorts are more likely to rent and are disproportionately represented in apartment buildings. These households' energy choices can be substantially constrained by rental restrictions, power imbalances between landlords and tenants, and a lack of trusted information on their rights and opportunities to reduce energy costs. Those living in apartments face particular limitations due to building rules, shared utilities and embedded network conditions.

Barriers to energy upgrades

There are significant barriers to improving energy efficiency and driving the electrification of Melbourne's residential buildings. This includes a lack of trusted information on the most cost-effective interventions, cost barriers and split incentives between landlords and tenants. The apartment sector faces particular challenges, including a complex governance and regulatory framework, an historical lack of policy focus and support for the sector, and insufficient information, guidance and proven examples of the best approaches for multi-unit residential buildings.

How is energy hardship experienced in the City of Melbourne ?

Energy hardship is a significant issue within the City of Melbourne and is experienced to a varying degree among certain populations. For example:

- More than half of City of Melbourne residents surveyed in 2024 reported experiencing some degree of energy hardship, with 27% of survey respondents reporting having trouble paying energy bills, 44% rationing their energy consumption and 39% reducing spending on other essentials to afford their energy bills.

- Renters are disproportionately experiencing energy hardship, however a significant proportion of homeowners with mortgages (45%) are impacted.

- Residents on lower incomes are more likely to experience energy hardship than those on higher incomes, with income inversely correlated to reported experiences of energy hardship.

- A higher proportion of women (50%) report reducing their energy consumption to inadequate levels due to cost compared to men (40%).

- Younger people are more likely to experience energy hardship, with those aged 18-44 reporting the highest levels of all age groups.

- Culturally and Linguistically Diverse (CALD) residents (45%) are more likely to report experiencing energy hardship than residents who speak English as first language (40%).

- Energy hardship is unevenly distributed between suburbs, with residents in Melbourne City (Central Business District), Docklands and Carlton reporting the highest rates.[5]

Energy hardship is experienced differently by individuals depending on the complex interactions of multiple social, economic and housing factors. However, our community engagement identified that there common ways in which people's lives are being impacted by energy hardship and the need to manage exposure to heat and cold in the City of Melbourne. These include:

- Financial stress, including debt and unpaid bills.

- The need to limit energy use by restricting the use of appliances, heating/cooling and devices.

- The need to spend extensive periods outside of the home to stay warm or cool.

- Necessary changes to behavior and lifestyle including taking on additional work, limiting social interaction, and avoiding the use of rooms within the home that cannot be adequately heated or cooled.

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[5]City of Melbourne (2024a), see https://data.melbourne.vic.gov.au/explore/dataset/social-indicators-for-city-of-melbourne-residents-2023/information/

Programmatic responses for local government

The research and co-design process identified important opportunities for the City of Melbourne to address the root causes of energy hardship and build adaptive capacity within the community through locally delivered programs. Key opportunities for programmatic intervention include:

1. **Empowering residents to get the best energy deal** by providing an energy bill service to help residents understand their energy bills and switch to better value offers.

2. **Providing targeted support to vulnerable populations**, such as renters, apartment residents and culturally and linguistically diverse communities. These cohorts have a need for relevant, timely advice delivered through trusted channels. Council is well placed to help these communities understand their rights and opportunities to reduce their energy costs, and to access effective and affordable energy products.

3. **Facilitating community connection and capacity building** by promoting education and awareness, hosting events and building networks of champions within diverse communities. There is a strong will within the community to take action on energy hardship and community connection is a critical enabler of effective change.

4. **Supporting owners to undertake home and building upgrades** by providing advice on how to electrify and improve thermal efficiency, including the most cost-effective approaches. This advice should be tailored to different building types and supported by connecting owners with trusted advisors, suppliers and state and federal government funding programs.

5. **Building the capacity of apartment communities to deliver energy programs** by facilitating tailored information, advice, training and support. A model based on the City of Melbourne's Business Concierge would be an effective way of establishing a single point of contact between Council and apartment communities, and provide an effective channel for mutual capacity building.

6. **Lead innovation and demonstrate what works** by working with apartment building owners to catalyse whole-of-building energy upgrades and promoting case studies of successful projects.

Priority policy responses

In addition to local programs, there is a clear need for the City of Melbourne to advocate on behalf of its community to address energy hardship through legislative change, policy intervention and market reform at the state and federal level. This research identifies that policy advocacy by Council should include focus on:

1. **Improvement of building quality and efficiency through regulation** including national mandatory disclosure of energy efficiency for all residential buildings, minimum energy efficiency standards for rental properties, strengthening of the National Construction Code and the regulated phase-out of gas in residential properties.

2. **Equitable support for energy upgrades** through a national energy upgrades program, with a focus on ensuring low-income households are prioritised.

3. **Empowerment of apartment communities** to deliver energy upgrades through reform of the Victorian Owners Corporation Act, the establishment of a Strata Commissioner and the establishment of targeted state and federal government support apartment owners, especially those with low-income tenants.

4. **Strengthening of energy consumer choice, awareness and protections** through energy market reforms, including better access to energy concessions and improved conditions for residents in embedded networks.

1. Introduction

Access to affordable energy is a fundamental pre-determinate of health and wellbeing. In 2024, a significant proportion of City of Melbourne's residents reported that they were having trouble paying their energy bills (27.5%), and even more (43.3%) were reducing their energy consumption to inadequate levels to afford them[6].

Energy hardship adversely affects health and wellbeing outcomes for vulnerable groups and is often intertwined with other social and economic factors such as poverty, employment, housing insecurity and climate change, which can amplify existing inequalities.

In responding to these issues, the City of Melbourne – with funding support from the Carbon Neutral Cities Alliance, and in collaboration with the Brotherhood of St Laurence – undertook to investigate the systemic causes of energy hardship, and to better understand its intersection with climate-related vulnerability such as heat health risk, through in-depth engagement with affected communities.

The purpose of this investigation was to generate insights to inform development of potential policies, programs, strategies and supports to address the issue of energy hardship, which may additionally also help to build community resilience and adaptive capacity to climate-related impacts.

A co-design approach was taken to understand the lived experience of people in energy hardship - including particular international students, culturally and linguistically diverse (CALD) communities, older people, and people living with chronic health issues and/or disability.

Recognising that 97%[7] of City of Melbourne residents live in medium or high-density dwellings, and of those 60%[8] are renters living in either private rentals, social housing or student accommodation, this investigation and co-design centred on apartment residents and the particular interventions best able to support them.

Despite the high number of residents living in apartments within City of Melbourne and across Australian capital cities, there is a lack of awareness and information about how apartment communities can retrofit their homes to reduce their energy bills, maintain thermal comfort, health and wellbeing; and keep themselves safe in the event of climate-induced shocks and stressors such as extreme weather events or emergencies such as energy blackouts. For a combination of reasons, standard residential energy programs and energy solutions don't work in an apartment's context, where a lack of agency for renters and people in student accommodation, complicated strata governance, shared infrastructure, and the nature of the built form intersect to create enormous complexities.

Given the relevance of factors such as housing type, energy infrastructure, appliances, and access to clean energy technologies; the scope of this project included consideration of energy efficiency and electrification strategies as possible solutions to the issue of energy hardship.

Additionally, systemic and structural factors were also considered to understand the drivers of energy hardship and climate-related vulnerability. These included building design and performance standards, housing quality, tenure type, rental standards, and level of community awareness and access to information resources, supports and concessions.

The findings from this research, engagement and co-design process are produced here to support policy and system change; and assist local, state and federal governments, regulators, community

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[6] City of Melbourne (2024a), see https://data.melbourne.vic.gov.au/pages/home/
[7] See City of Melbourne (2025a), see https://profile.id.com.au/melbourne/dwellings
[8] Ibid, see https://profile.id.com.au/melbourne/tenure

organisations, the broader energy industry and anyone interested in developing policy and program interventions to address energy hardship, energy equity, and community resilience.

2. City of Melbourne and Victorian context

The City of Melbourne municipality comprises 11 unique neighbourhoods – Carlton, Parkville, East Melbourne, West Melbourne, North Melbourne, Kensington, Docklands, South Yarra, Southbank, Fishermans Bend, and the CBD Hoddle Grid – that people from many cultures call home.

The City of Melbourne is the gateway to the state of Victoria and a major centre for business, administration and culture. It includes the seat of the Victorian Government, along with many diverse local, national, and international companies, peak bodies, and government and non-government agencies.

The municipality also includes major sporting venues, parks and gardens, cultural and educational institutions and plays a crucial role in shaping the state's economy, identity and social life.

Neighbourhood map
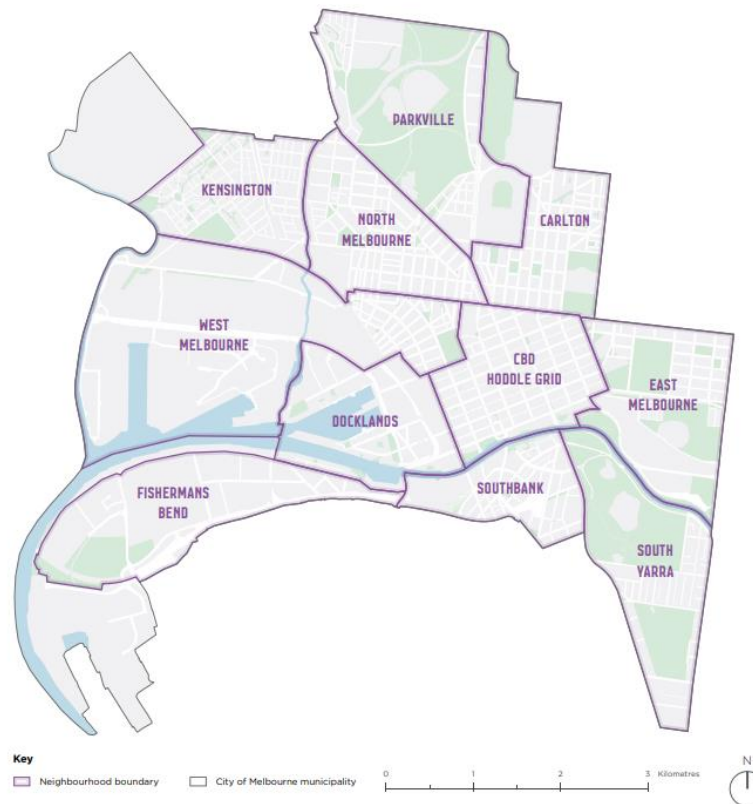
Figure 1 - Map of City of Melbourne municipality and neighbrouhoods

City of Melbourne residential population and dwellings profile

The resident population of City of Melbourne in 2024 was 189,381 - a rapid 26.6 per cent increase since 2021[9].

Analysis of the types of dwellings in the City of Melbourne in 2021 shows that 1.8% of all dwellings were separate houses (1,871); 12.2% (12,617) were medium density dwellings, and 85.3% (87,918) were in high density dwellings, compared with 65.1%, 21.6%, and 12.8% in the Greater Melbourne respectively[10].

Medium density' includes all semi-detached, row, terrace, townhouses and villa units, plus flats and apartments in blocks of 1 or 2 storeys, and flats attached to houses. 'High density' includes flats and apartments in 3 storey and larger blocks, including the new categories for 4-8 storeys and 9 storey or more.

189,381 residents	**55%** born overseas	**97%** Medium (12%) or high density (85%) dwellings
63% aged under 35	**46%** speak a language other than English at home	**63%** renting
503,020 workers	**40%** lone person households	**1.7%** live with a disability
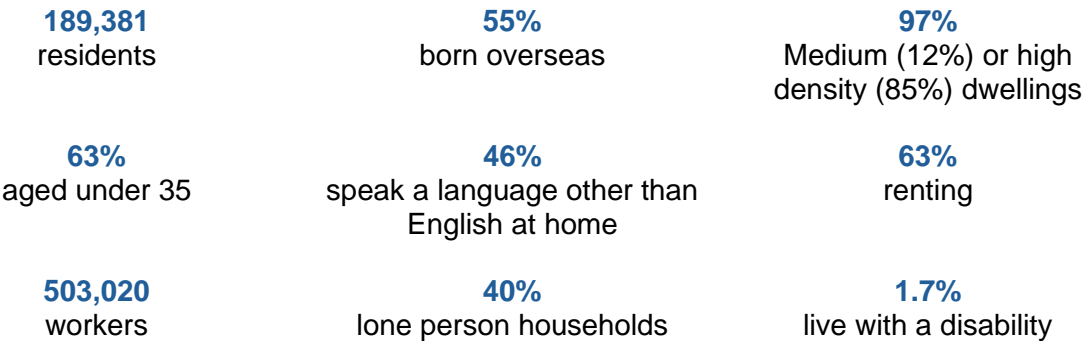
Figure 2 - City of Melbourne municipality data and statistics[11]

Residential accommodation is the largest space use within the City of Melbourne, followed by office and public open space[12]. As of 2023, it has grown to 9.79 million square meters, representing a 184 per cent grown in the past 20 years[13]. The proportion of high density apartment buildings in the City of Melbourne is far higher than the average for Greater Melbourne[14].

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[9] See Estimated Resident Population (ERP) | City of Melbourne | Community profile
[10] See Dwelling type | City of Melbourne | Community profile
[11] See Home | City of Melbourne | Community profile
[12] See https://www.melbourne.vic.gov.au/census-land-use-and-employment-clue
[13] See https://www.melbourne.vic.gov.au/census-land-use-and-employment-clue
[14] See Dwelling type | City of Melbourne | Community profile
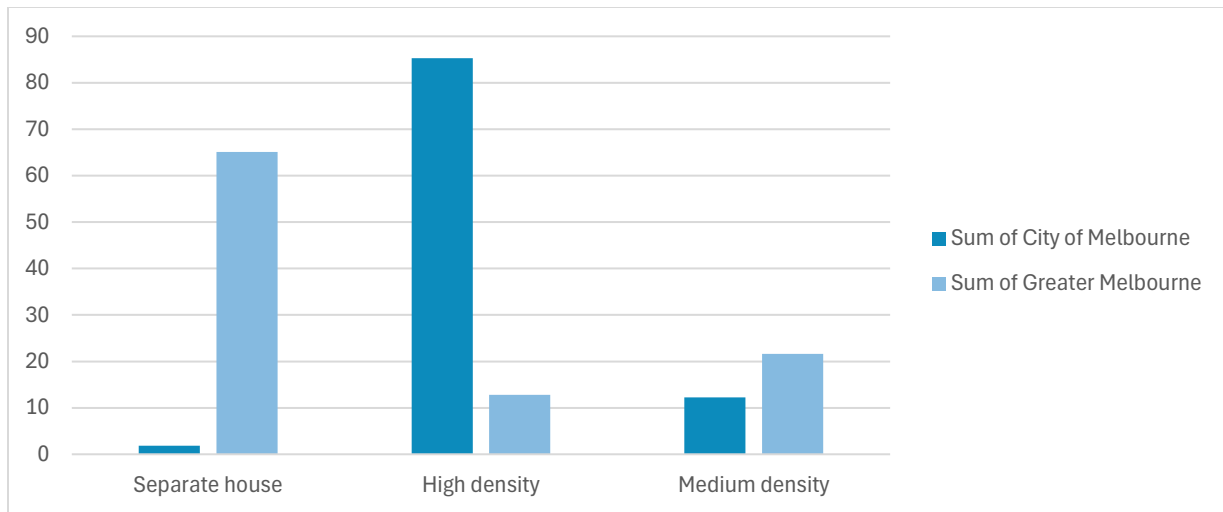
Figure 3 - City of Melbourne dwellings, 2021[15]

Profile of apartment residents across Victoria

Across Victoria, Census data reveals the residential profile of apartment residents to be considerably diverse across the dimensions of age, country of birth, language spoken and housing tenure.

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[15] See Dwelling type | City of Melbourne | Community profile

IN VICTORIA WHO LIVES IN APARTMENTS?

Source: 2024 Australasian Strata Insights, UNSW City Futures Research Centre and SCA

8% of the population live in an apartment

6,503,491 VIC residents

→ 501,781 apartment residents

Country of birth

- Australia **47%**
- China **6%**
- India **6%**
- Other **41%**

Less than half of all apartment residents are born in Australia

Language spoken

- English **56%**
- Mandarin **8%**
- Cantonese **2%**
- Other **34%**

More than half of all apartment residents speak English at home

12% of households live in an apartment

2,507,636 VIC households

→ 291,899 apartment households

Tenure

- Rented **45%**
- Unoccupied **21%**
- Owned mortgage **16%**
- Owned outright **11%**
- Other **7%**

More apartment households rent than are owner-occupied

Age

- 20-39 **55%**
- 40-59 **20%**
- Over 60 **15%**
- Under 20 **10%**

More than half of all apartment residents are 20-39 years old

Household Type

- Lone Person **46%**
- Couple - no children **24%**
- Couple - with children **8%**
- Group house-hold **8%**
- Single Parent **5%**
- Other **9%**

Figure 4 - Who lives in apartments in Victoria[16]

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[16] Esthope et al., 2024, see https://cityfutures.ada.unsw.edu.au/2024-australasian-strata-insights/

3. Understanding energy hardship

Many households in Australia find it hard to afford the energy they need in their daily lives to support their comfort, health, wellbeing and participation in social and economic activities. Households experiencing energy hardship often need to make difficult choices about how and when they use energy; reducing their usage to inadequate levels and cutting back on other essentials to keep up with their energy bills. For many, this means living in homes that are too cold in winter and too hot in summer or spending large amounts of time outside of their homes to keep comfortable. Energy hardship can have significant negative impacts on peoples' lives, including through financial stress, physical and mental health impacts, and exclusion for social and economic activities.[17]

Australia's transitions to a decarbonised energy system presents opportunities to address energy hardship by supporting access to affordable renewable energy sources, improving the energy efficiency of homes and accelerating electrification. However, a failure to adequately address the systemic causes of inequality presents the risk of entrenching disadvantage if households continue to face barriers to accessing the benefits of this transition —for example if they cannot afford to install efficient appliances[18].

What do we mean by energy hardship?

As identified by the Brotherhood of St Laurence, energy-related hardship has been labelled and measured in different ways in Australian and internationally – including energy poverty, energy stress, energy hardship and energy insecurity[19].

In this project, City of Melbourne has opted to use the term 'energy hardship' over other terms such as 'energy poverty' as for the everyday person, the term 'poverty' can feel stigmatising and imply blame. During the delivery of community engagement for this project, City of Melbourne used the term 'energy hardship' to convey an empathetic approach toward an individual's experience of what is predominantly a systemic and structural issue.

The term 'energy hardship' is broadly defined here in line with the definition provided by Chandrashekeran et al. and refers to '*a general situation where people struggle financially to achieve an adequate level of energy services in their home' – or where achieving this level leads to financial stress'* and/or deprivation of other essential goods and services.[20]

Measuring energy hardship

There is no single agreed definition or measure of energy hardship, and the issue is typically assessed through a combination of absolute measures of financial hardship; consensual or subjective reflections of individuals own lived experiences; and reported circumstances where individuals or households limit their energy use for normal daily activities[21].

City of Melbourne has sought to measure the incidence of energy hardship in its municipality through its annual Social Indicator Survey (CoMSIS)[22], employing questions aligned to the 'consensual' or subjective approach based on people's reflections on their lived experiences.

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[17] Bryant et al. (2022), see
https://library.bsl.org.au/bsljspui/bitstream/1/13115/1/Bryant_etal_Power_pain_energy_stress_in_Australia_2022.pdf
[18] ibid
[19] Bryant et al. (2022), See
https://library.bsl.org.au/bsljspui/bitstream/1/13115/1/Bryant_etal_Power_pain_energy_stress_in_Australia_2022.pdf
[20] Chandrashekeran et al. (2023), p3,
https://library.bsl.org.au/bsljspui/bitstream/1/13361/3/BSL_LCC_Enabling_electrification_2023v3.pdf
[21]Moore et al. (2020) See https://www.ahuri.edu.au/sites/default/files/migration/documents/PES-FR338-Daniel-1E.pdf
[22] City of Melbourne (2024a), see https://data.melbourne.vic.gov.au/pages/home/

In 2024 over 1,200 respondents were asked to rate their level of agreement – from strongly agree, agree, neither agree nor disagree, disagree, strongly disagree - with the following statements:

Thinking about the past 12 months:
- o I have had trouble paying energy bills
- o I have intentionally reduced my energy consumption to inadequate levels due to costs
- o My energy bills have taken up a disproportionate amount of my household budget reducing my ability to cover other essential expenses

These three questions asked in the survey provide insights into different aspects of energy hardship – payment difficulty, energy rationing, and reduced spending on other essentials.

Combined, these aspects have significant implications for an individual or household's heath and wellbeing outcomes, their capacity to withstand climate-related impacts such as extreme heat, or indeed their ability to respond to persistent coldness exacerbated by buildings that are poorly designed buildings and thermally inefficient.

Taken together, an individual's responses to these statements and their self-reported perceptions of their own lived experience provides valuable and credible insights into the reality and incidence of energy hardship across the municipality.

4. Drivers of energy hardship

Energy hardship is the outcome of multiple inter-related factors that impact each household differently. However, there are a number of key drivers that are relevant to the City of Melbourne context. These drivers can be broadly categorised as being related to household income, the cost of accessing energy, and the level of energy consumption required to meet a household's needs.[23]

Structural and systemic root causes

Household income

Household income is a key determinant of energy hardship, with those on the lowest incomes most vulnerable to shifts in energy prices. The lowest 20% of households by income have experienced the greatest increase in hardship in recent years, with the rate growing by 8% amongst this cohort from 2008-2017. This contrasts to those in the top 60% of income, who's rates of energy hardship rose by just 3% over the same period. Closely linked to this is access to paid work, which is highly correlated to rates of energy hardship. [24] Similarly, those reliant on government income support experience energy hardship at high rates and are highly sensitive to changes in energy prices due to fixed incomes, which have not increased in line with the cost of living in recent years.[25]

Rising energy prices and a complex energy market

Gas and electricity prices have increased significantly over recent years, outpacing steep growth in cost of other household essentials.[26] This has resulted in more customers experiencing financial stress, failing to make payments and taking on debt to keep up with energy bills.[27]

Victoria has a privatised energy retail market with dozens of retailers offering hundreds of retail electricity plans on any given day.[28] Changing retail plans is an effect way for households to reduce their energy costs, with households on older retail plans more likely to pay significantly higher prices than those who have recently switched. The Victorian Essential Services Commission has found that 66% of Victorian electricity customers could save money if they switched to their retailer's best offer. Customers who have not changed plans for 10 years or more could save the most (up to $950 per year), while those who have not changed plans for two years or more could achieve up to $410 per year.[29] However, many households face barriers to switching, such as the market's complexity; lack of time; or limited numeracy, literacy or technology access. [30] Some households cannot practically switch energy offers, including residents of embedded networks (present in some apartment buildings) and many people in debt to their energy retailer. Further, consumer research has identified the complexity and inconsistency of energy bill structures as a key barrier to household's understanding their energy consumption, ability to compare retail offers and switch to a better value plan.[31] Inability to switch may exacerbate energy hardship by exposing households to high prices.

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[23] Bryant et al. (2022)

[24] Ibid

[25] ACOSS (2023), see ACOSS-cost-of-living-report2-March-2023_web_FINAL.pdf.pdf

[26] Australian Energy Council (2022)

[27] Essential Services Commission (2023), see Victorian Energy Market Report | Essential Services Commission

[28] Essential Services Commission (2025a), see Energy market dashboard | Essential Services Commission

[29] Essential Services Commission (2025b), see https://www.esc.vic.gov.au/media-centre/customers-older-plans-significantly-better-their-retailers-best-offer

[30] Department of Premier and Cabinet, 2021, see Energy bill contents and bill requirements: Literature review

[31] Ibid

Lack of awareness and access to financial support

Support is available to vulnerable households to assist them with the cost of energy; however, access is constrained and vulnerable households are falling through the cracks. For example, concession card holders in Victoria can receive a 17.5% discount on their energy bills by notifying their retailer of their concession status.[32] However, a 2022 study found that 7% of concession card households did not receive a concession on their electricity bill, while 12% miss out on concessions on their gas bill.[33] This has been attributed primarily to consumers' lack of awareness regarding their eligibility and how to access this benefit.[34]

Residents are currently able to access energy invoice assistance via the Victorian Government's Energy Assistance Program (EAP) which provides free, one-on-one support to help households experiencing energy hardship. The energy experts at EAP assist eligible residents with understanding bills, accessing concessions and grants, resolving billing issues, and finding more affordable energy deals. Between 2021 and 2025, EAP conducted in-person outreach at high-rise public housing estates within the City of Melbourne focusing on helping concession card holders get access to the energy concessions they are entitled to. Victoria also has Utility Relief Grants of up to $1,300 over 2 years to help pay overdue energy or water bills, which have broader eligibility than concessions. Over 44,000 URGS for electricity were distributed in FY 22-23.[35]

Poor building quality and energy efficiency

Victorian homes perform poorly when it comes to thermal quality and energy efficiency. This exposes households to high energy costs and difficulties in maintaining thermal comfort. The Victorian Government has identified 40% of homes in the State as achieving a 'poor' or worse thermal standard, meaning that they have a maximum of two thermal features such as insulation, draught proofing, thick curtains or double glazing. Only 13% of Victorian homes are identified as achieving a 'good' standard. Despite a warming climate, Victorian homes rely heavily on heating, which represents over 40% of the average Victorian household's energy costs. However, a significant and growing proportion of households also rely on air conditioning to cope with increasing heatwaves. [36] This demonstrates the need to improve thermal performance and upgrade to efficient heating and cooling appliances.

Minimum energy efficiency standards were introduced for new or significantly renovated buildings in 2003, with these buildings now required to meet a minimum 7 stars under the Nationwide House Energy Rating System (NatHERS). However, this standard remains well below international best practice. Further, with most existing homes built before 2003 the overwhelming majority do not perform to the current standards. The 2024 Australian Housing Conditions Dataset survey found that over 70 per cent of Australian houses have an energy rating of three stars or lower. It is estimated that there will still be seven million pre-existing homes in 2050 that don't meet housing energy standards if no change is made to current policy settings.[37]

Reliance on gas

Victorian homes remain highly reliant on gas, exposing them to rising energy costs and excluding them from the benefits of electrification. Victorian households have the highest gas usage in the country, with almost 90 per cent reliant on gas appliances. Gas is mostly used in Victorian homes for cooking (68%), heating (51%) and hot water (61%).[38] This dependence makes Victorian households vulnerable to gas prices, which increased by 22% between 2022-23.[39] The Victorian Government's Gas Substitution

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[32] DFFH (2025), see Annual electricity concession - DFFH Services
[33] Hobbs (2022)
[34] Bother et al. (2024)
[35] DHHS (2025)
[36] Sustainability Victoria (2024)
[37] Daniel et al (2024)
[38] Sustainability Victoria (2024)
[39] Dufty and Johnston (2023)

Roadmap identifies that converting an existing home with solar panels from gas to electricity can reduce energy bills by around $2,000 a year.[40]

High risk exposure and limited agency among renters

Renters face the twin challenges of being more exposed to energy hardship and having less ability to respond to it than owner-occupiers. Both private renters and those renting public housing are more likely to experience energy hardship than people living in other housing tenures. Many population groups that are most vulnerable to energy hardship are also more likely to live in rented accommodation, such as single people, young families, people on low incomes, the working poor, culturally and linguistically diverse groups, and people living with a chronic illness or disability.[41]

Rental properties are typically less efficient than owner occupied properties. A recent study found that energy costs for Australian rental properties were 8% higher than non-rental households.[42] The Victorian Government has identified that 64% of renters live in homes with poor thermal quality, compared to 30% of homeowners. Renters are also twice as likely to temporarily leave their homes during extreme weather events such as heatwaves.[43]

The capacity of renters to improve their thermal comfort and reduce their energy costs is limited by their lack of agency over interventions within their home. For example, many thermal upgrades such as insulation and draught proofing are not available to renters except by request or negotiation with landlords. Under current policy settings, landlords are insufficiently compelled to make investments energy efficiency and thermal performance improvements that are perceived to deliver the most benefit to building occupants rather than the building owner. In many cases, the appliances that renters are able to choose are inferior and more expensive to run than the alternatives available to owner-occupiers, such as efficient fixed heating and cooling appliances. Further, policy interventions to improve residential energy performance and support electrification have been disproportionately directed to owner-occupiers, such as advice, financial support and access to discounted products like solar panels and efficient heating and cooling.[44]

Drivers of energy hardship in apartments

Apartment communities are subject to particular drivers of energy hardship and face complex barriers to improving energy performance, affordability and thermal comfort.

Energy and climate vulnerable populations

Apartment buildings are home to a high proportion of communities that are vulnerable to energy hardship. For example, 65% of all apartments in Australia are rented. They are also more likely to house migrants (57%), people who speak a language other than English at home (50%) and single-person households (35%).[45]

Poor building energy performance

Like other residential building types, many apartments in Australia perform poorly when it comes to energy efficiency and comfort. High rise apartments are particularly large consumers of energy, using 38% more energy per square metre than low or mid-rise and 25% more than a detached dwelling.[46]

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[40] Victorian Government (2024), see https://www.energy.vic.gov.au/renewable-energy/victorias-gas-substitution-roadmap/gas-substitution-roadmap-update-2024.pdf
[41] Moore et al. (2020)
[42] Ibid
[43] Sustainability Victoria (2024)
[44] Moore et al. (2020)
[45] Easthope et al. (2023)
[46] City of Sydney (2015)

Energy is consumed in both individual apartments and common areas. Common areas can account for up to 60 percent of energy use, with heating and ventilation, air conditioning and pumps being the biggest energy users.[47]

The Victorian State Government has a number of programs that provide support for energy efficiency and rooftop solar upgrades, such as the Victorian Energy Upgrades program, an obligation on energy retailers that provides households and businesses with discounts on energy efficiency measures; and Solar Victoria which includes rebates for rooftop solar and heat pump hot water systems. Both programs are available to apartment owners and tenants, and there are some provisions in Solar Victoria program to specifically enable apartments to participate.

Governance and regulatory barriers to upgrades

Significant improvements can be achieved by upgrading apartment buildings, however energy upgrades can be more challenging for apartment communities than for standalone homes due to a number of hurdles including physical constraints, governance, decision-making and financing.

Governance and decision making related to building upgrades are governed by the Victorian Owner's Corporation Act. The Act establishes that the Owners Corporation (OCs), made up of all apartment owners in a residential apartment building, is responsible for the common property of the building. OCs and their nominated committee members are required to make important decisions regarding the management, maintenance and improvement of the building. OCs commonly lack the knowledge and capacity to deliver complex energy upgrades and are not compelled by the Act to plan for electrification or sustainability energy upgrades in building maintenance plans and budgets. Such interventions rarely succeed without strong support, capacity and commitment within the OC.[48]

Many upgrades need to meet a high threshold of agreement from the OC, commonly needing 75% of owners to vote in their favour. This is the case for common area upgrades and many upgrades relevant to individual apartments. For example, the installation of solar panels, heat pump water heaters and air conditioners, double glazed windows and even window shades and curtains may require approval from the OC.[49]

The Victorian Owner Corporation Act does little to actively support energy and sustainability upgrades. While it does prohibit OCs from unreasonably preventing the installation of 'sustainability items' such as solar panels and hot water systems, it does not require OCs to consider sustainability in their planning and reporting processes, which is the case in some other jurisdictions.[50]

Renters are not addressed in the current Victorian Owners Corporation legislation and are generally excluded from decision making processes within apartment buildings. Their access to energy improvements is further hindered by exemption in Victoria's minimum rental standards, which enable a rental provider to avoid installing energy efficient heating if the cost of installation would be significantly higher than the average cost in a domestic apartment building; the Owners corporation rules prohibit it; or compliance with any other Act or local law makes the installation cost prohibitive.[51]

A lack of relevant information and policy support

Policies and programs related to energy efficiency and electrification have historically focussed on standalone homes, rather than apartment buildings. Many of the supports that are offered under such programs are not suitable to apartment communities. Targeted support is therefore needed to facilitate the improvement of apartment buildings. This includes case studies of successful projects, financial

[47] Brand, A, Corcoran, J, McLean, J, Nicolazzo, K (2025)
[48] ibid
[49] ibid
[50] ibid
[51] ibid

support, guidance and connection to suitably qualified service providers that have experience working with apartment buildings.

Embedded networks

The prevalence of embedded networks in apartment buildings presents significant barriers to accessing affordable and sustainable energy and serves to exacerbate and entrench energy hardship.

Embedded networks are privately owned and managed electricity networks that supply all the premises within a building or area. They can also be used in apartments to distribute other services like gas, hot water and heating. Embedded networks Owners and/or Operators buy energy from a retailer and then on-sell it to customers inside their network.

In theory, embedded networks ought to enable lower energy costs by allowing electricity to be purchased at wholesale rates for the building to be passed through to residents in the building. In practice however, they tend to produce the opposite; with evidence suggesting embedded network customers generally pay higher electricity prices than non-embedded network customers[52].

Embedded networks customers are effectively locked in and cannot readily switch to a different retailer, meaning they are unable to access the same competitive retail energy offers from the market in the same way as other customers[53].

A Victorian Government review of the embedded network regime acknowledged a range of negative issues experienced by many people living within embedded network regarding fairness, consumer protections, and inability to access competitive retail energy offers. [54] The Victorian Government Response to the Embedded Network Review[55] was to introduce a new licensing regime requiring new embedded networks to meet higher consumer protections and provide customers easier access to on-market retailer offers, as well as to meet a 100% renewable electricity requirement (5% onsite) from 2023.

Legacy embedded networks however, will not be transitioned to this new regime until 2027 at the earliest. While the changes are a positive development, the slow phase-in of these reforms and potential for the renewable energy requirement to lead to increased costs for residents, suggests embedded networks may continue to be a driver of energy hardship in apartment communities for some time to come.

Within the City of Melbourne there are approximately 168 residential apartment buildings with embedded networks, covering around 65,000 dwellings[56].


[52] Victorian Government (2022a)
[53] Ibid
[54] Ibid
[55] Victorian Government (2022b)
[56] City of Melbourne (2024b), see https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/2024-11/buildings-energy-use-and-emissions-study.pdf

5. Data on energy hardship in the City of Melbourne

The City of Melbourne Social Indicator Survey (CoMSIS)[57] collects data annually about the state of health, well-being, participation and connection of communities in the City of Melbourne Local Government Area.

Recent (unpublished) CoMSIS data from 2024 reveals that **55%** of City of Melbourne residents surveyed reported experiencing some form of energy hardship.

55%

City of Melbourne residents report
experiencing energy hardship
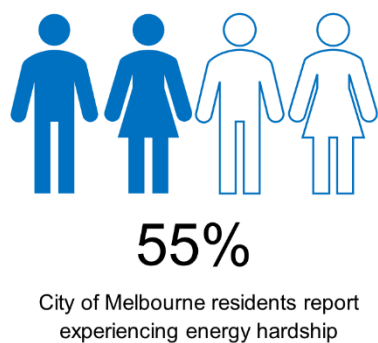
Of the three questions asked of the more than 1,200 respondents, 27% reported having payment difficulties, 44% reported energy rationing, and 39% reported reduced spending on other essentials.
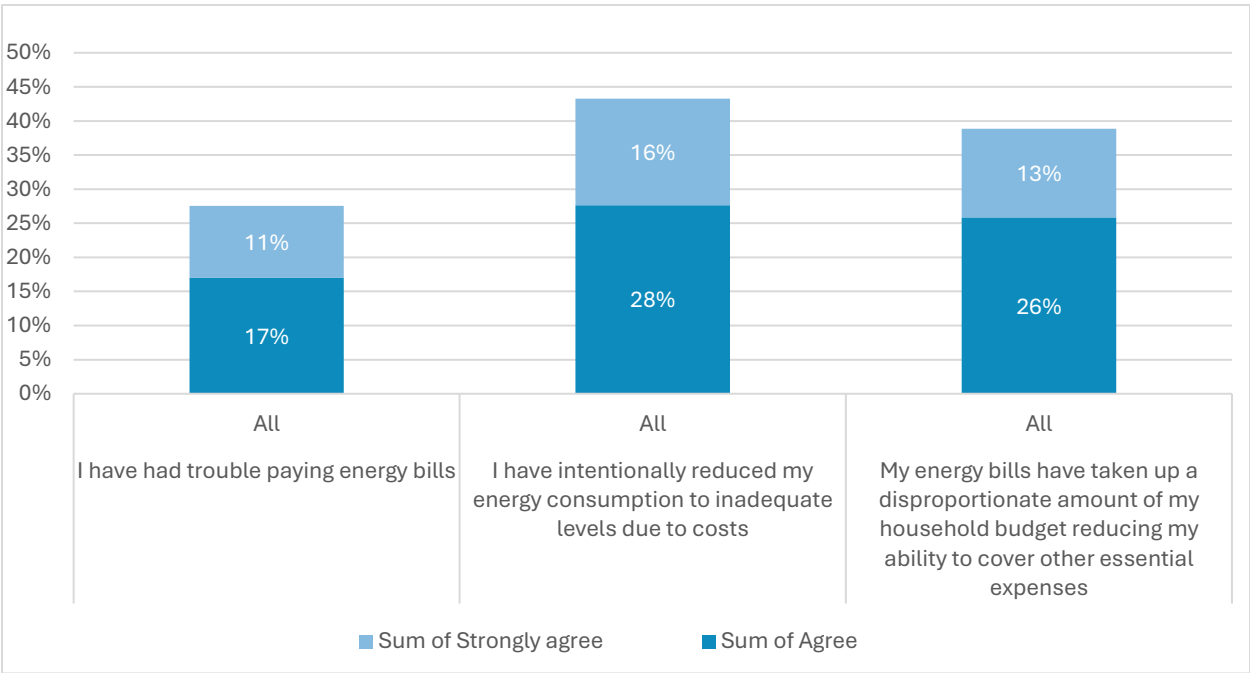
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[57] City of Melbourne (2024a), see https://data.melbourne.vic.gov.au/pages/home/

What the data tells us about who is experiencing energy hardship in the City of Melbourne

An analysis of the 2024 CoMSIS data provides insights into which cohorts within the municipality are facing this challenge. Key insights are outlined below.

Renters are disproportionately experiencing energy hardship however some owners with mortgages are also suffering

Renters are disproportionately experiencing payment difficulty compared to people with mortgages and people who own their own home. Of these, renters in public housing report a higher incidence (41%) than those in the private market (32%).

Interestingly, owner occupiers with a mortgage are forgoing spending on other essentials (43%) at a similar level to private renters (41%). The fact that apartment owners are required to pay for both their own energy bills but also a share of the building's common area energy bills, is a possible factor playing into their experience of having to forgo spending on other essentials.
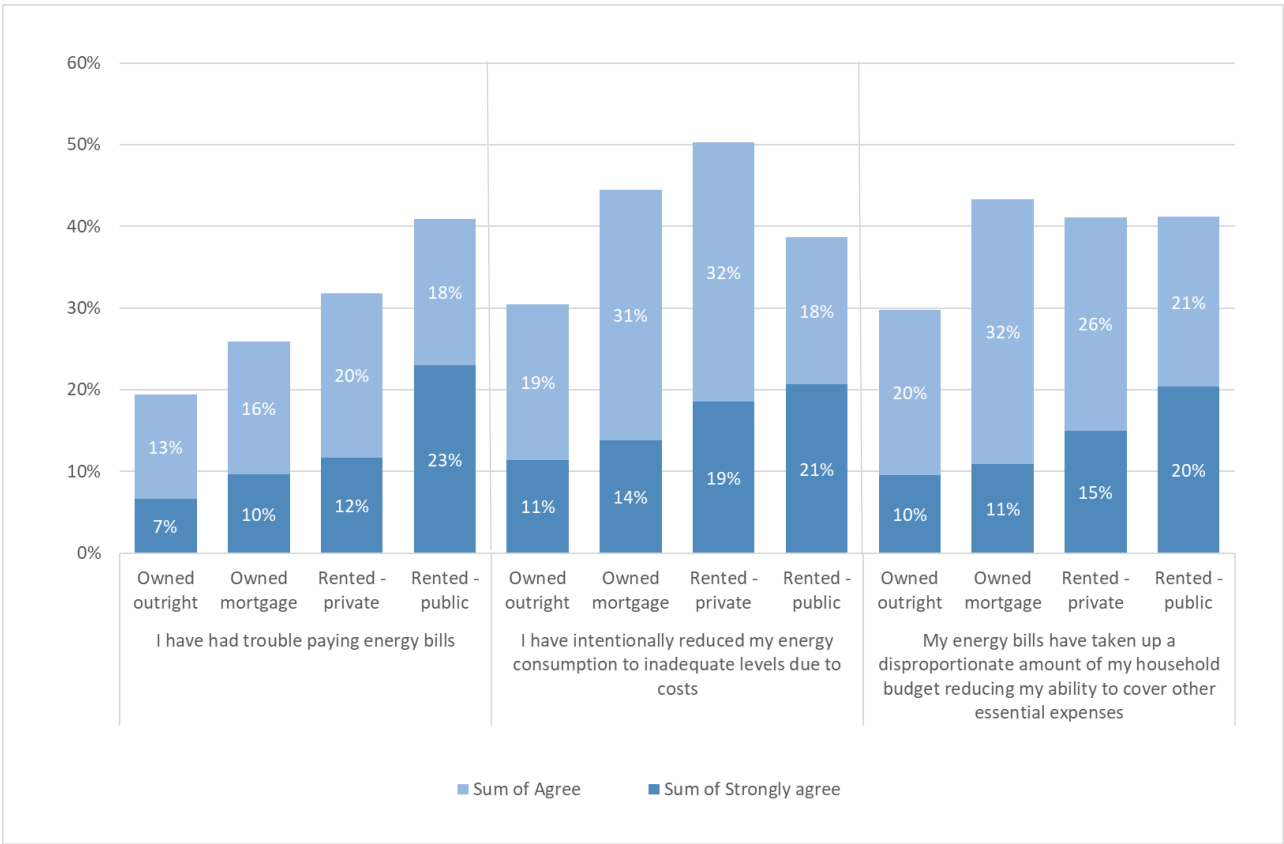
Figure 6 - Incidence of payment difficulty by housing tenure

Low incomes exacerbate hardship but middle-income households still report feeling the pinch

Income is inversely correlated to reported energy hardship. The higher the income, the less energy hardship reported.
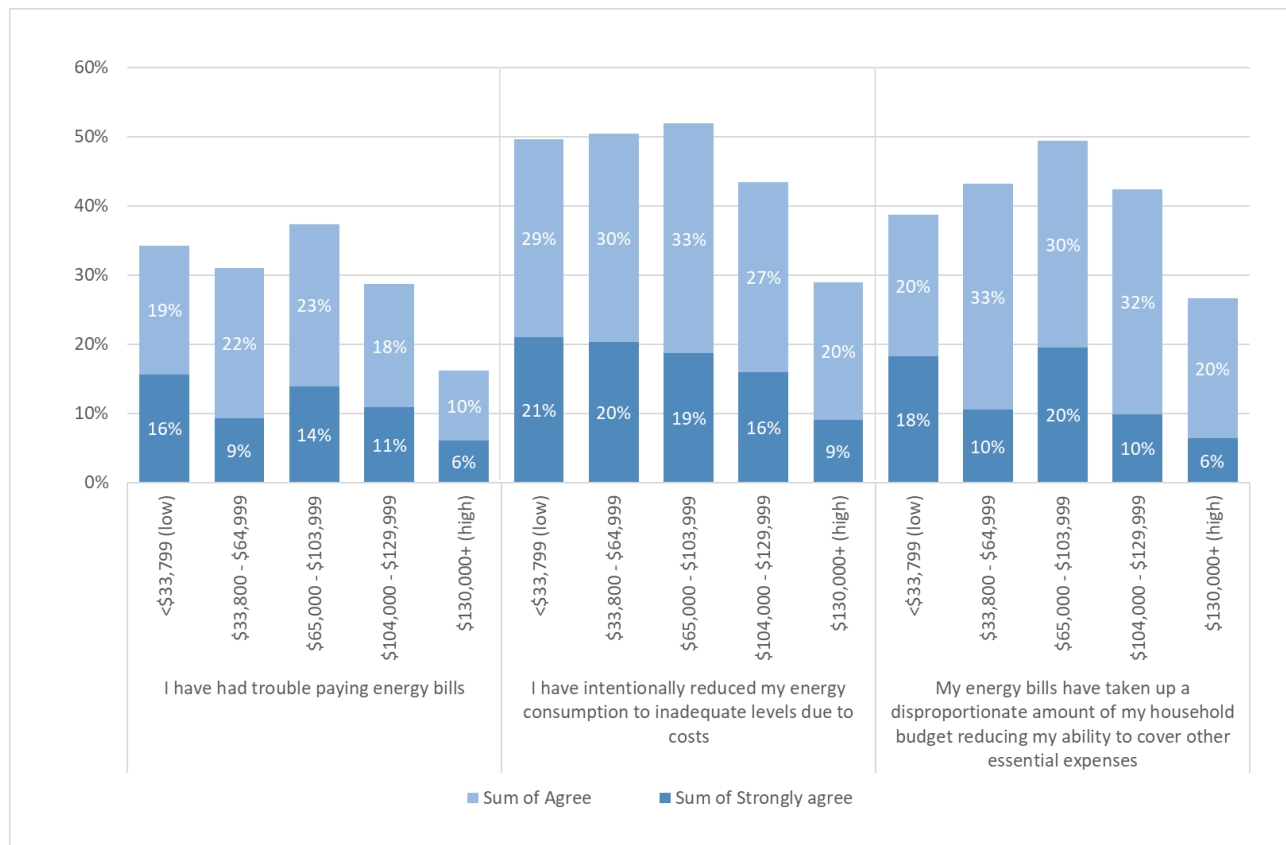
Figure 7 - Incidence of payment difficulty by household income

Younger people are more likely to experience energy hardship

People aged 18-44 reported the highest levels of energy payment difficulty, followed by people aged 55-64 years. When it comes to energy rationing, the younger the person, the more likely they were to report energy hardship, with 48% of people aged between 18-24 years of age reporting energy rationing compared to 23% of those over 65. Similarly, those aged 18-44 years were more likely to report reduced spending on non-energy essentials.
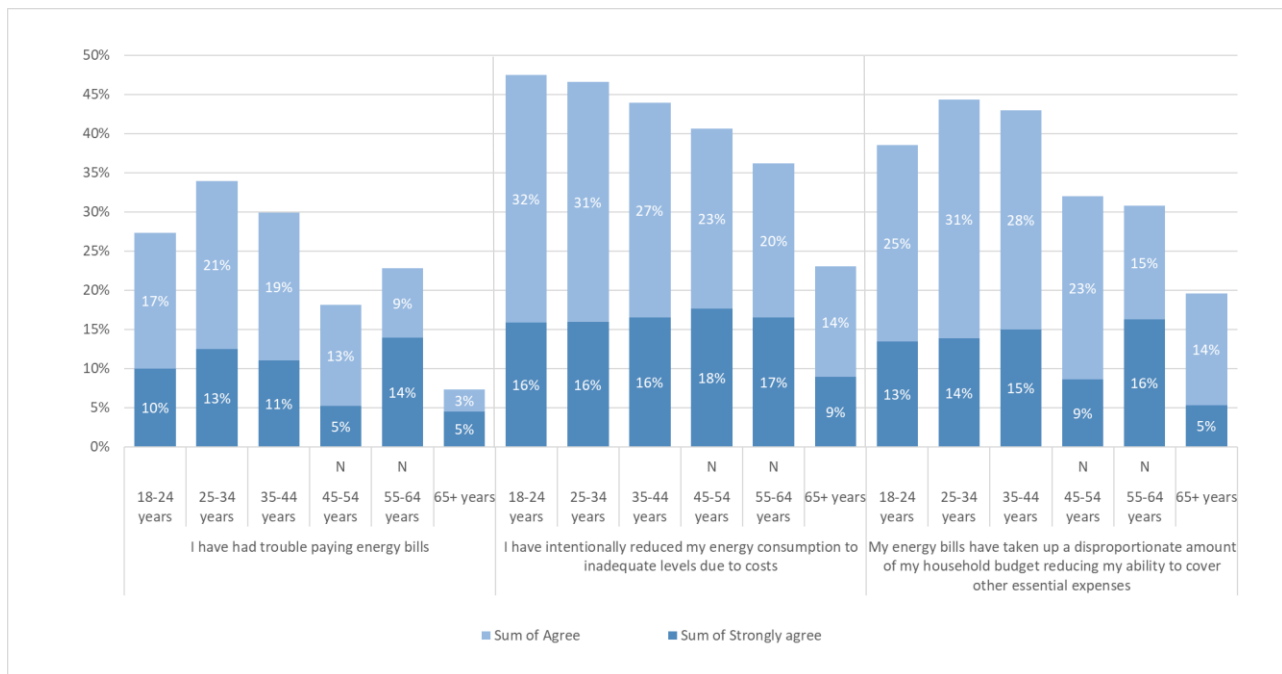
Figure 8 – incidence payment difficulty by age group. Note: 'N' represents a non-significant number of respondents.

Students are more likely to report hardship than non-students

Students are more likely to report energy hardship than non-students. Local students reported higher rates of energy hardship compared to international students. Further research is required to investigate the factors contributing to this result. Potential areas for investigation are housing type, housing density, and financial background.

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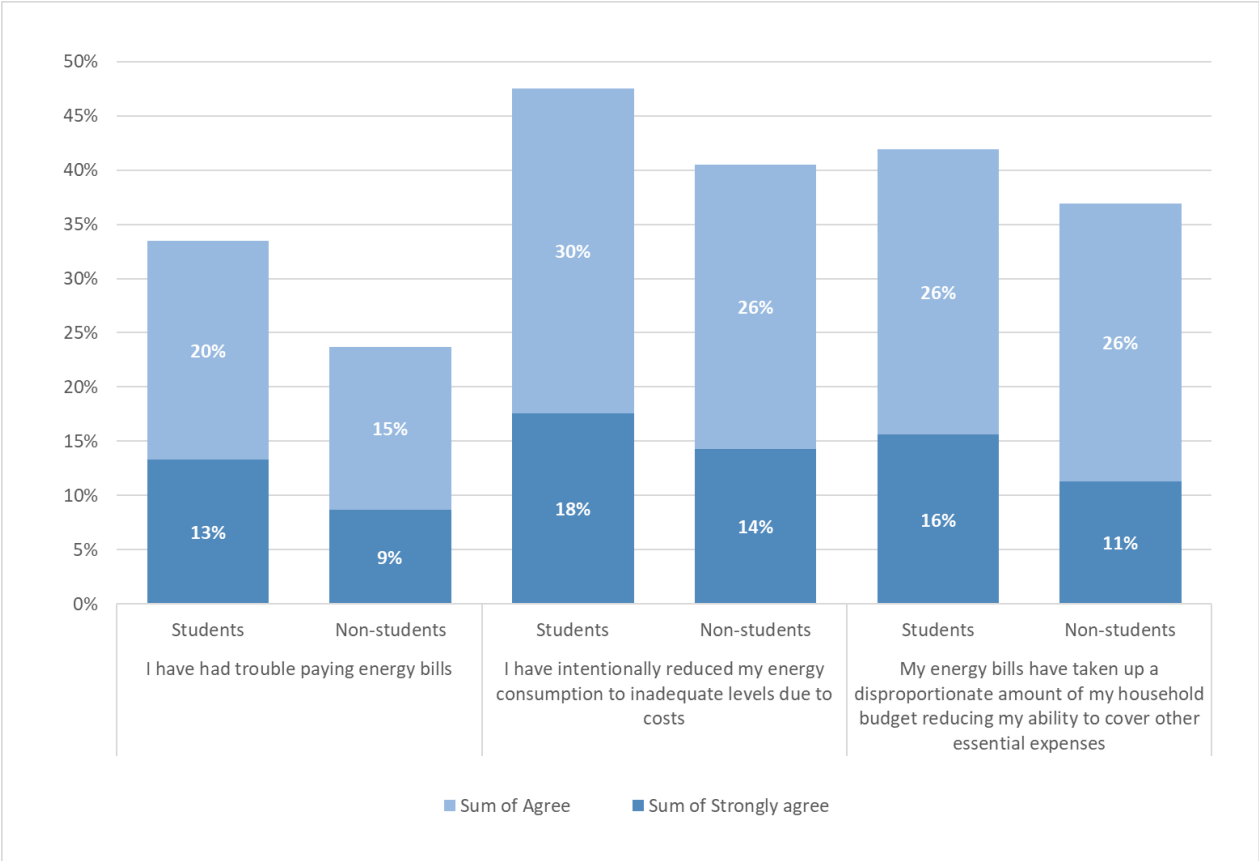
Figure 9 - incidences of energy hardship reported by student versus non-student.
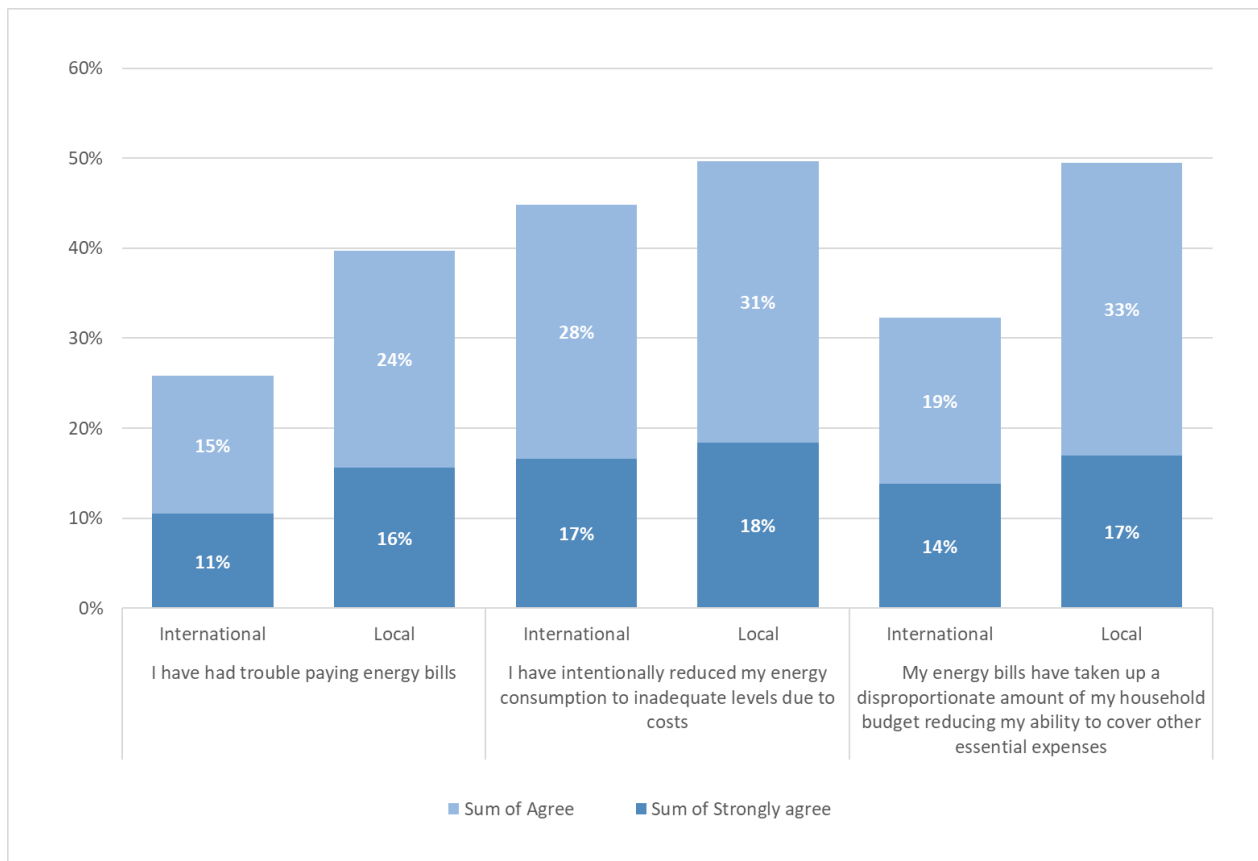
Figure 10 - incidences of energy hardship reported by student type

Women report higher levels of energy hardship than men

Around 50% of women reported reducing their energy consumption to inadequate levels due to concerns about cost, compared to 40% for men.
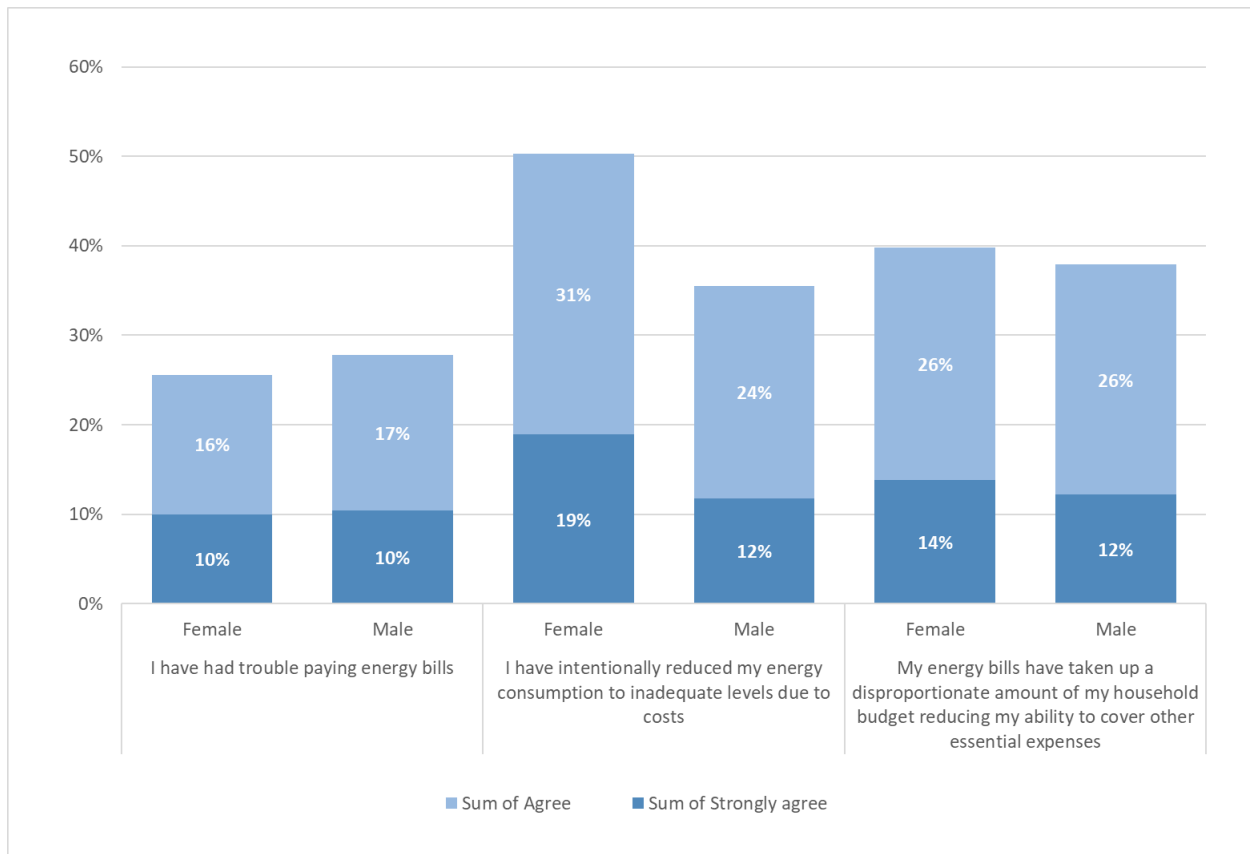
Figure 11 - incidences of energy hardship reported by gender.

Multicultural communities are more likely to experience hardship

Culturally and Linguistically Diverse (CALD) residents are more likely to report energy hardship than English speaking. For example 46% of CALD residents report energy rationing compared to 41% of English speaking households.
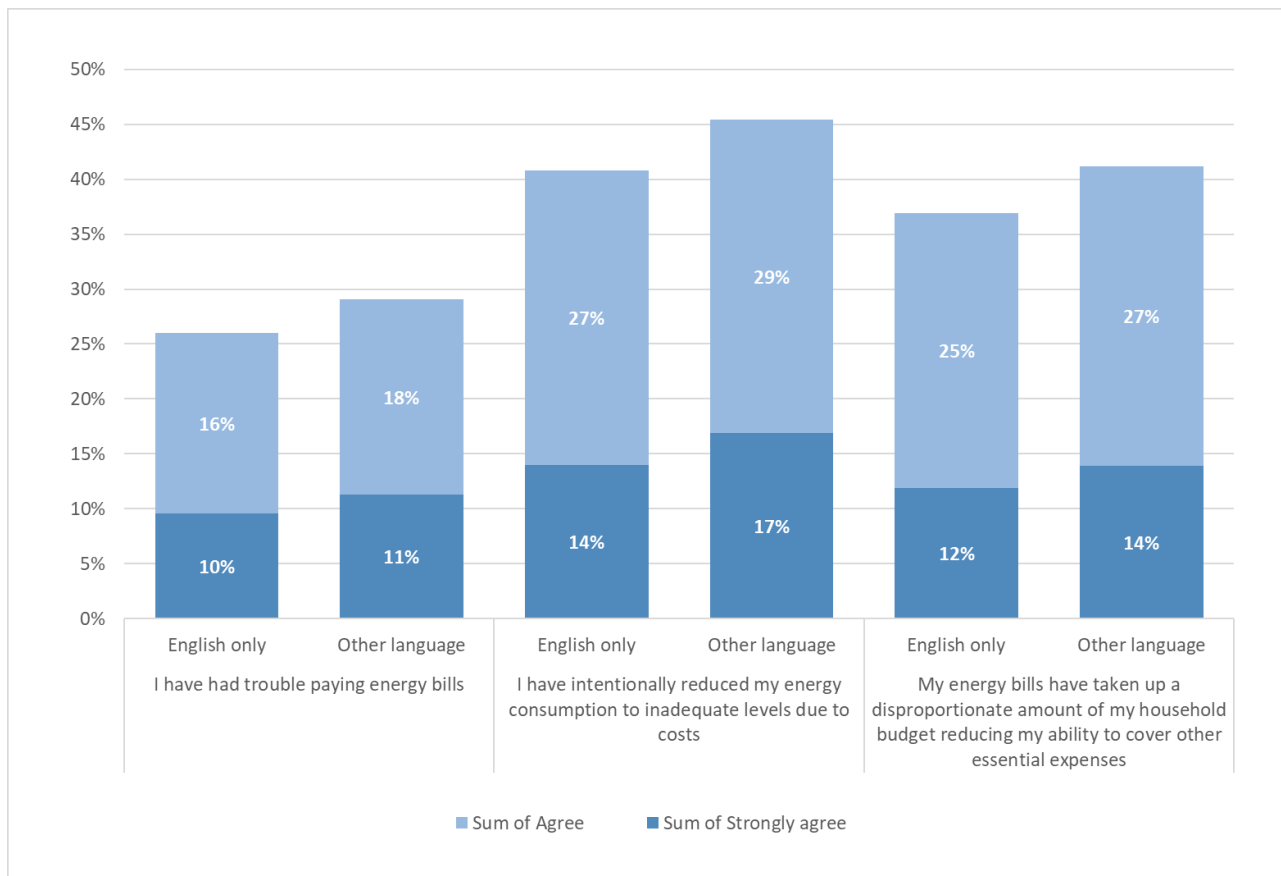
Figure 12 - Incidence of energy hardship among CALD communities

Where energy hardship is occurring in the City of Melbourne

City of Melbourne, Docklands and Carlton had the highest reported rates of energy hardship amongst all participants.
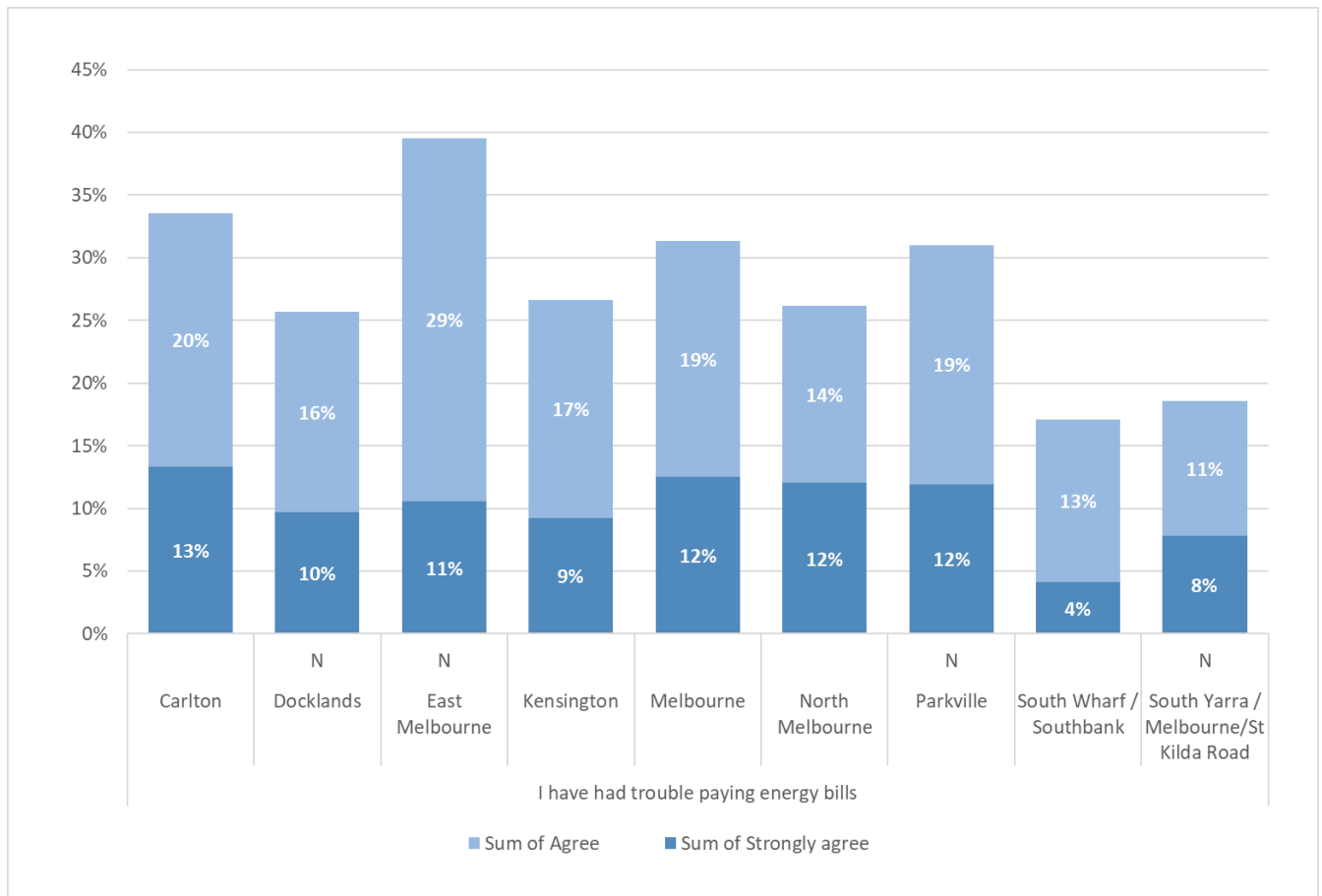
Figure 13 - incidence of payment difficulty by neighbourhood. Note: 'N' indicates a statistically non-significant number of respondents.
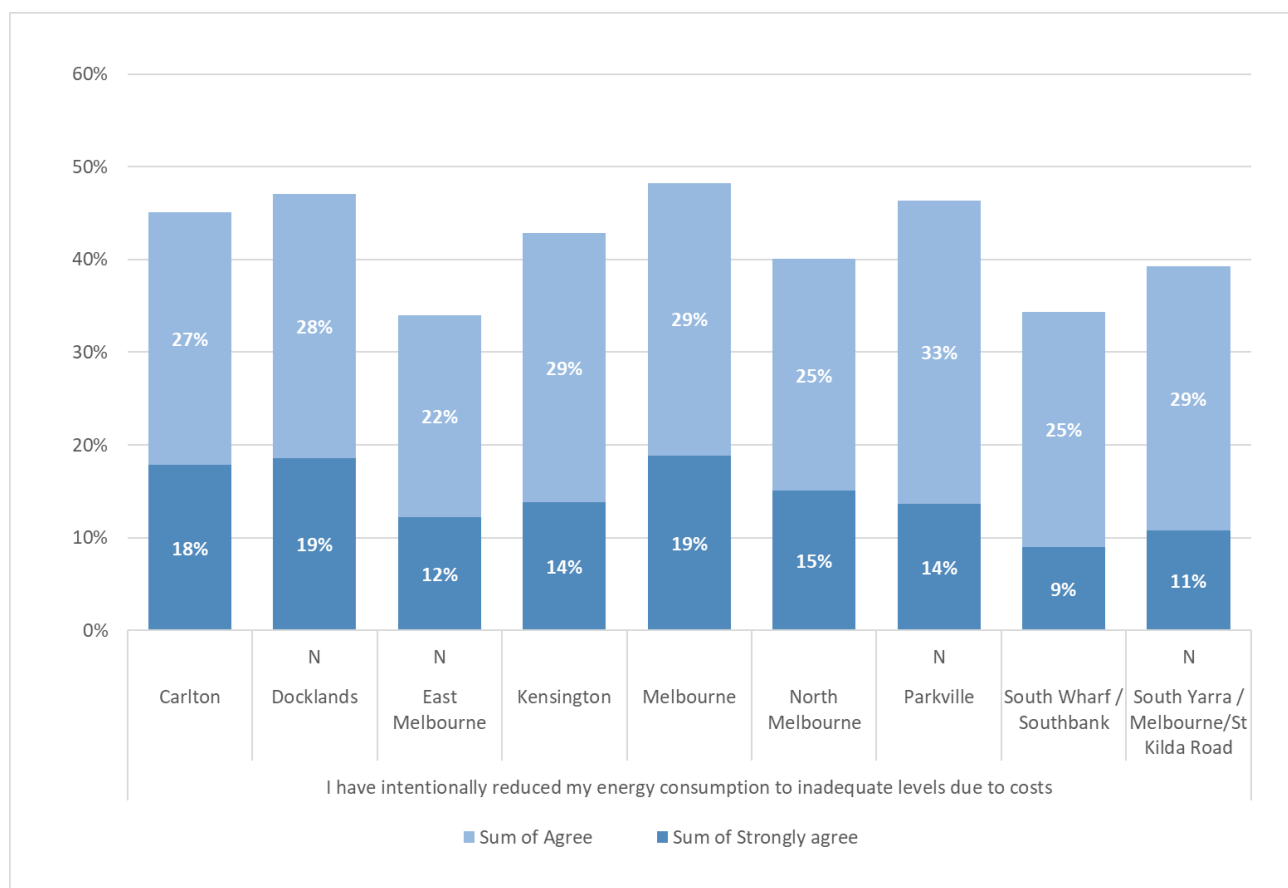
Figure 14 - Incidence of energy rationing by neighrbourhood. Note: 'N' indicates a statistically non-significant number of respondents.
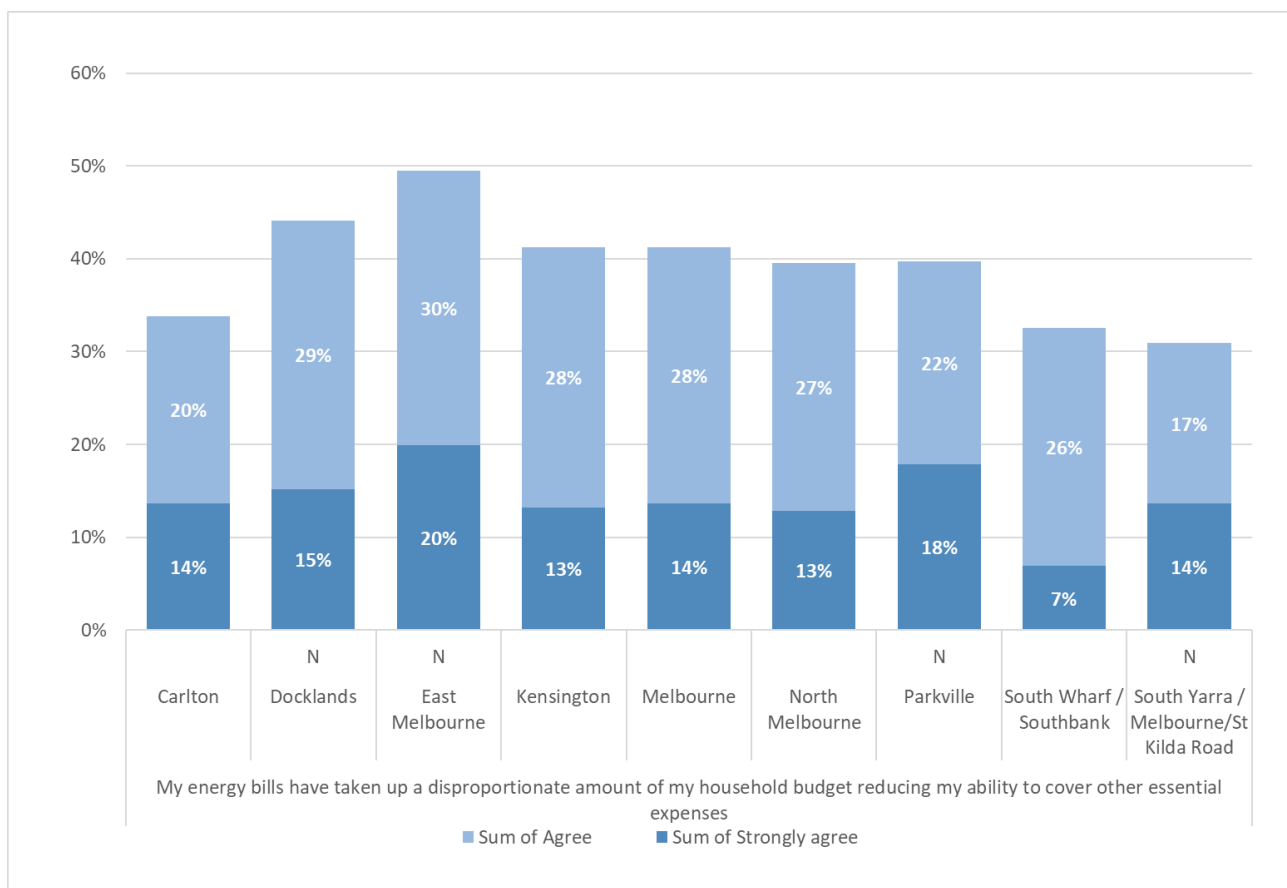
Figure 15 - Incidence of reduced spending on non-energy essentials by neighbourhood. Note: 'N' indicates a statistically non-significant number of respondents.

The relationship between building type and energy hardship

People in apartments are less likely to be in hardship than people living standalone or semi-detached houses

The data reveals that apartment residents experience energy hardship at lower rates than people in other housing types. In the case of payment difficulty, 23% of apartment residents are struggling compared to 30% of semi-detached and 37% of standalone houses.

When it comes to energy rationing, the rates are higher for all housing types - apartments (41%), semi-detached (49%), standalone (47%) - however the difference between housing type is smaller.

Modelling of building energy use by land use type produced for City of Melbourne[58] helps shed light on these figures, as standalone and semi-detached houses typically have larger floor areas and energy use per square meter. This suggests that standalone / semi-detached houses may be harder and more

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[58] City of Melbourne (2024b), see https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/2024-11/buildings-energy-use-and-emissions-study.pdf

expensive to heat and cool. Given building energy and thermal performance standards tend to be low across all building types[59], this seems plausible.

Despite apartment residents experiencing lower rates of hardship, given the vast majority of City of Melbourne residents live in apartments (97%)[60] it remains a significant issue across the municipality.
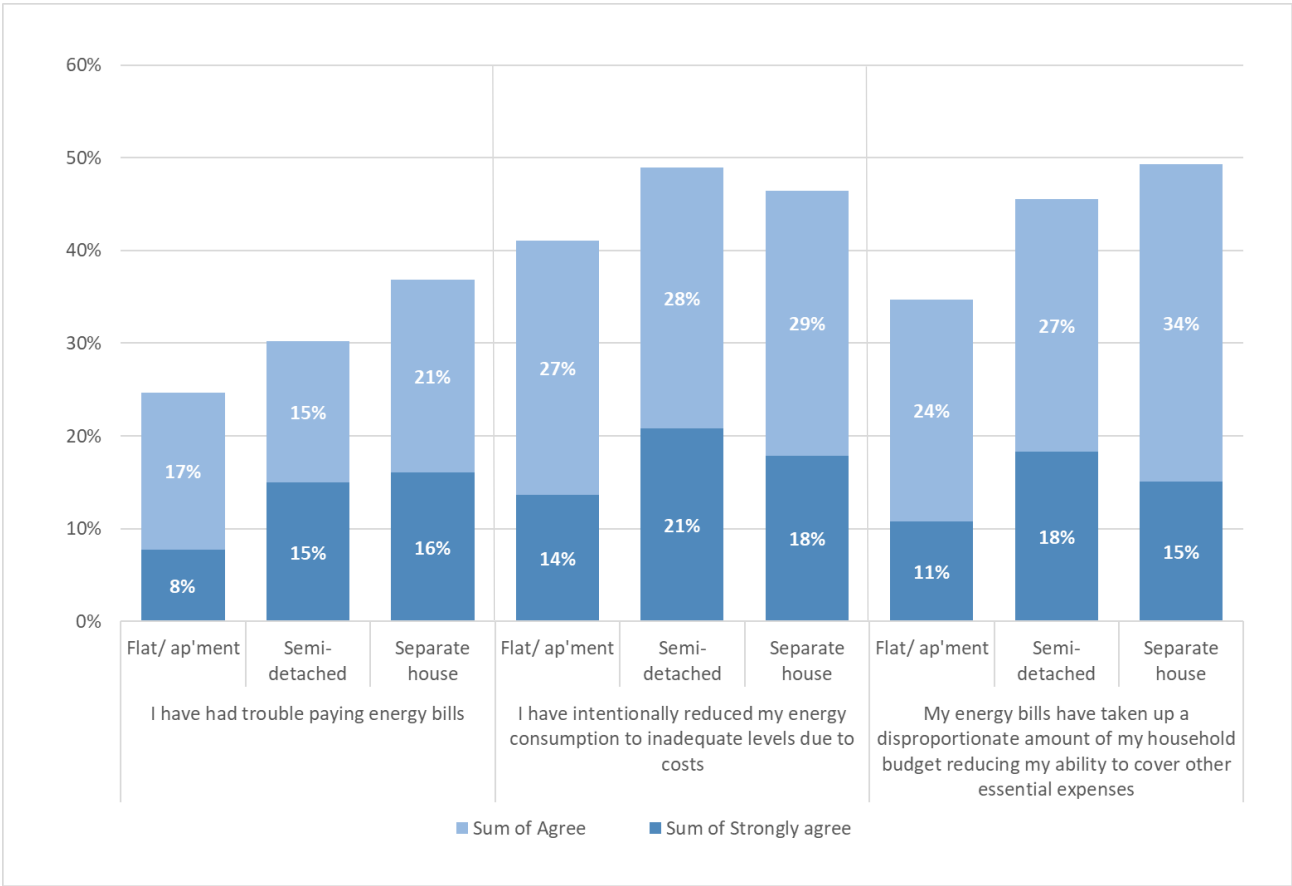
Figure 16 - Incidence of payment hardship by housing type

City of Melbourne's Buildings Baseline Study (2024)[61] revealed that Townhouses/Terraces (Semi-detached) and Standalone Houses (Separate houses) have a larger floorspace per dwelling and consequently consume significantly more energy per dwelling. There is a strong correlation between dwelling floorspace, energy consumption per dwelling and reported rates of energy hardship.

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[59] City of Melbourne (2025a), see https://profile.id.com.au/melbourne/dwellings
[60] Ibid, see https://profile.id.com.au/melbourne/tenure
[61] City of Melbourne (2024b) https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/2024-11/buildings-energy-use-and-emissions-study.pdf
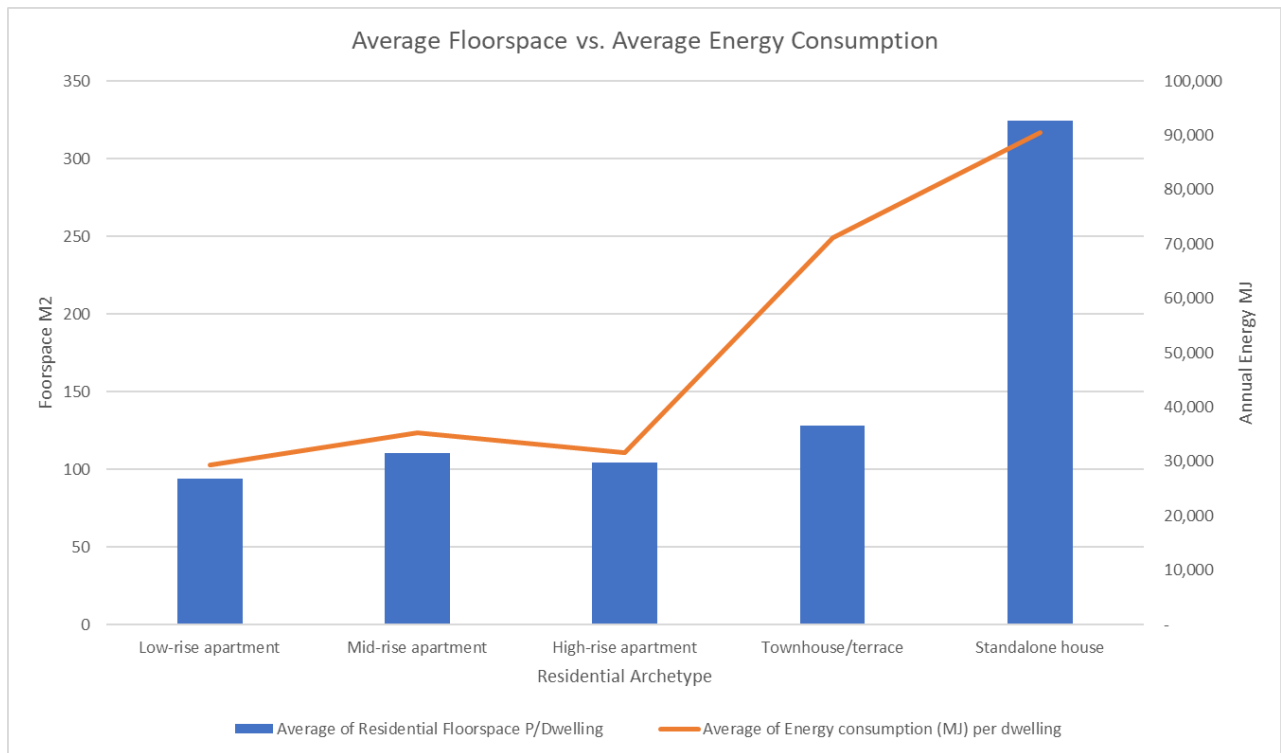
Figure 17 – Average residential floorspace and average energy consumption per dwelling type in City of Melbourne.

The vast majority of residential dwellings in the City of Melbourne are in apartment buildings, with 89% of the total residential dwellings and 83% of the total floorspace being residential apartments.
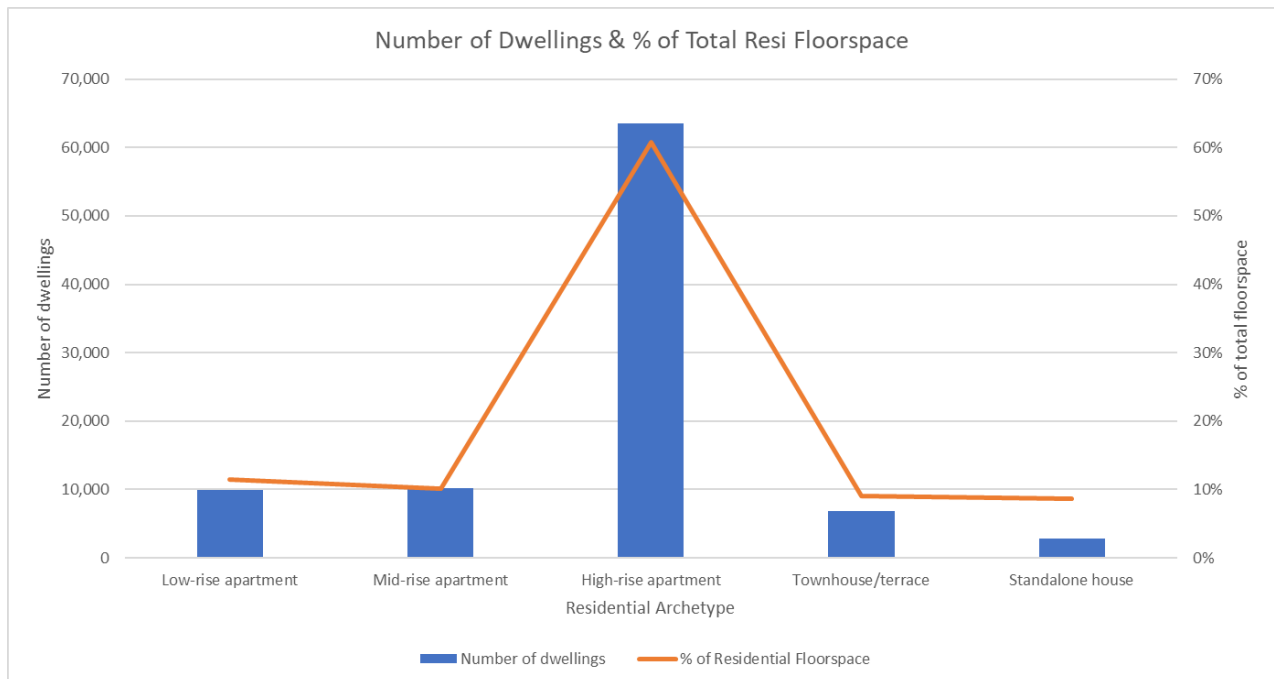
Figure 18 – Number of dwellings and % of total residential floorspace by dwelling type in City of Melbourne.

Residents in low (1-3 storeys) and mid-rise (4-8 storeys) experience energy hardship at higher rates
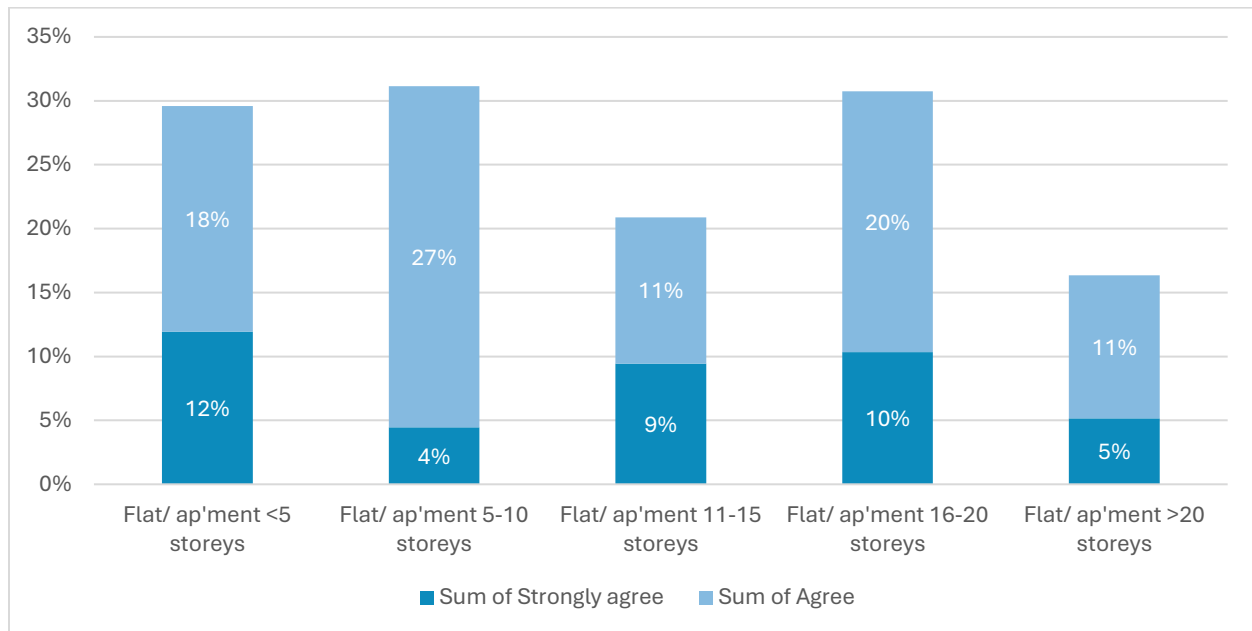
Figure 19 - Incidence of payment difficulty by housing type
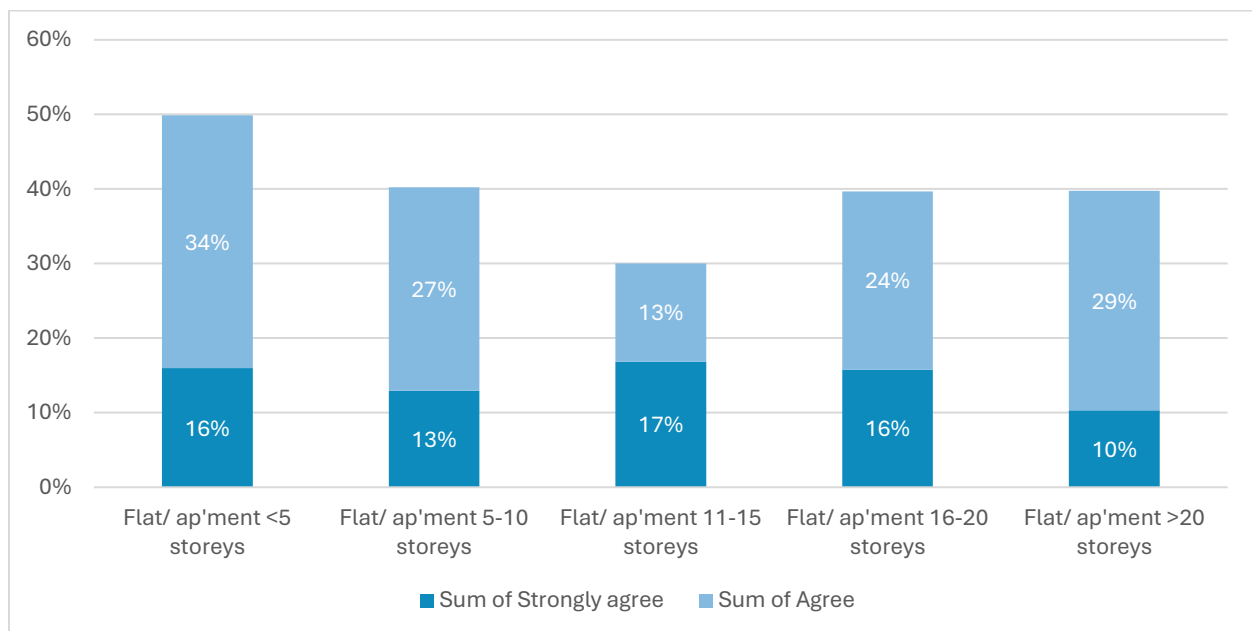
Figure 20 - Incidence of energy rationing by housing type
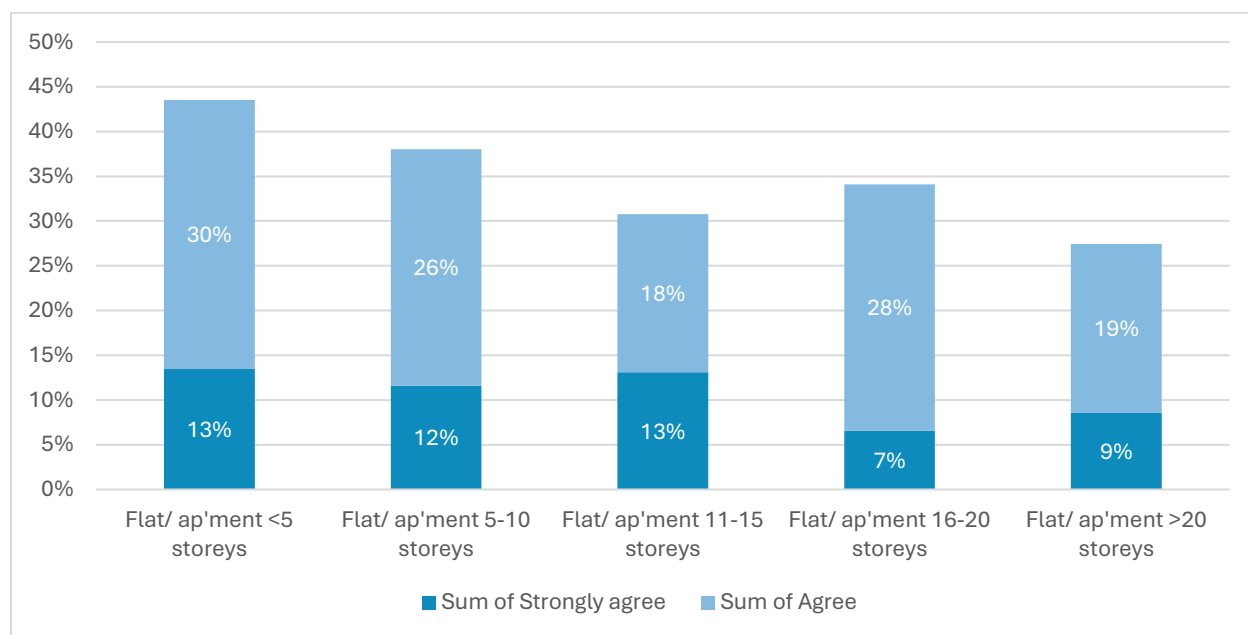
Figure 21 - Incidence of reduced spending on other essentials by housing type

6. Apartments, energy hardship and climate vulnerability

A complex inter-relationship exists between living in apartment buildings, climate vulnerability, and energy hardship. Living in an apartment building can increase vulnerability to climate risk[62], and those experiencing energy hardship, underlying disadvantage or health vulnerabilities face even higher expose to climate hazards. During heatwaves for example, being able to afford mechanical cooling helps to safeguard health and wellbeing, while an inability to afford air-conditioning can exacerbate health impacts. In this way, energy hardship is an amplifier of climate vulnerability.[63]

Climate risks facing apartment residents

As Melbourne's climate changes the increase in weather extremes, especially heat, is expected to have significant negative impacts on comfort for existing apartments[64]. Residents in apartments are exposed to a wide array of climate-related heath risks (see figure below).

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[62] Chatterton (2024), see https://ocn.org.au/wp-content/uploads/2024/06/Strata-Disaster-Report-V10_interactive.pdf
[63] Jessel et al. (2019)
[64] https://msd.unimelb.edu.au/__data/assets/pdf_file/0003/3040095/Living-Well-Report-Final-for-issue-080317.pdf
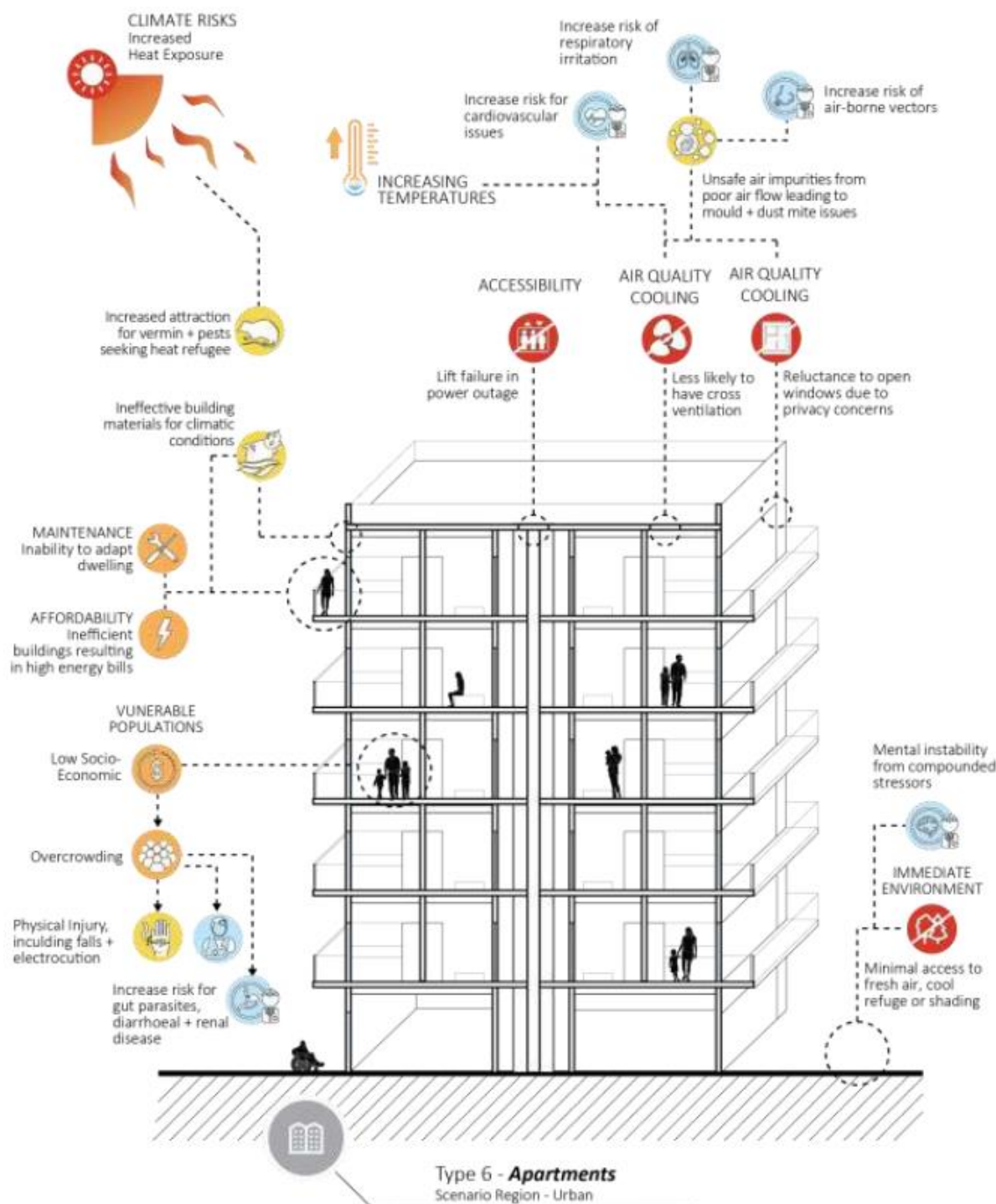
Figure 22 - Climate-related health risks of apartments[65]

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[65] Melbourne School of Design (2017)

Heat-health risk for apartment residents and renters

Extreme heat is Australia's deadliest environmental disaster and directly affects many communities in Victoria, especially our most vulnerable and marginalised community members, including older people, people with disabilities, people with chronic illnesses and babies and small children[66].

Renters face a higher risk of heat-related health impacts due to often living in homes without adequate insulation or air conditioning. Renters are more likely than homeowners to experience poor mental health, which is exacerbated by living in dangerously hot homes.[67]

Building standards and climate vulnerability

Poor apartment energy performance increase climate vulnerability and energy demand

Many existing apartment buildings are ill-equipped to withstand current and growing climate-related pressures. Australian building standards lag behind international best practice[68] for sustainability and climate resilience. Research indicates that less than 5 per cent of new apartment buildings exceed the minimum standards, with many older buildings falling well short.[69]

Apartment communities are vulnerable to heat and other climate-related risks. For example, poor design means that many apartment buildings rely on mechanical air conditioning to keep apartments cool during hot weather. Research by the University of Melbourne has found that many apartments in Melbourne would fail to meet international standards for maintaining safe indoor temperatures if power blackouts were to occur during extreme heat events.[70] These conditions expose residents to the risk of heat stress, which can worsen pre-existing health conditions including asthma, cardiovascular disease, diabetes and mental health conditions[71]. This highlights the risk for apartment residents who are not able to afford the use of air conditioning.

Energy consumption required for heating and cooling is heavily influenced by the thermal quality of the building envelope[72] as well as the orientation of dwellings on a site and the location of apartments within the building. [73] Poorly positioned thermal mass and glazing orientation are the main elements that determine peak temperature during a heat wave, although thermal mass can be effective in reducing peak internal temperatures and provide benefits for the retention of heat in colder weather.[74] While standards for new apartment buildings have strengthened since 2017, they are still not robust enough to adequately address these issues[75], and more can be done to support the retrofitting of existing apartment buildings[76].

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[66] Department of Health (2025)

[67] Dignam and Barret (2022)

[68] Solomonsz and Armstrong (2023)

[69] Easthope et al. (2023)

[70] Melbourne School of Design (2017)

[71] WHO (2025), see https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health

[72]Daniel et al. (2020)

[73]Barnett et al (2013), see https://nccarf.edu.au/wp-content/uploads/2019/03/Barnett_2013_Climate_adapted_low_income_housing.pdf

[74] Hernandez (2019), See Heat Waves, Heat Stress, and underperforming apartments

[75] Pears (2023) , See The nightmare apartments – we need to do much better before we rush to more rental housing | Housing | The Fifth Estate

[76] See https://www.melbourne.vic.gov.au/retrofit-melbourne

Energy use in apartment buildings

Characteristics of apartment sector energy consumption

Total energy consumption attributable to residential accommodation in City of Melbourne, including associated shared spaces, student accommodation and institutional accommodation totals 4,608 TJ, with electricity constituting 46.6% and gas representing 53.6%[77].
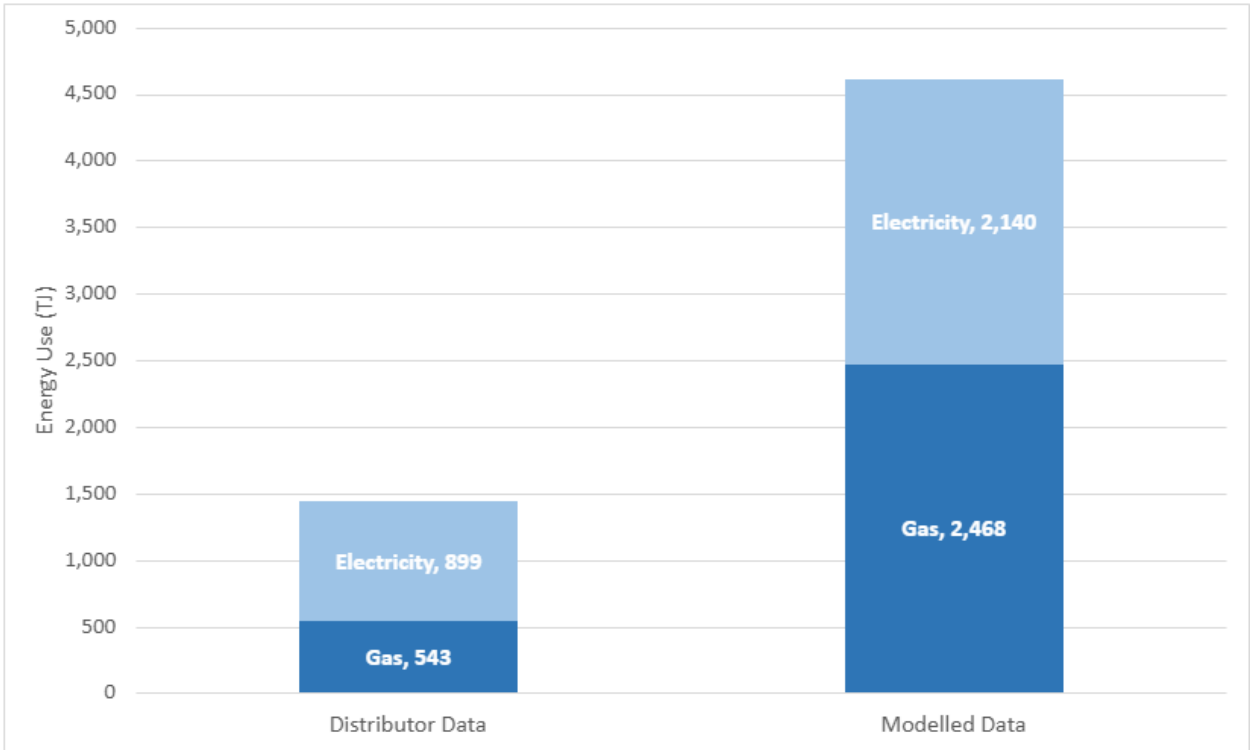
Figure 23 - Total residential energy consumption (TJ) by fuel type, Distributor v Modelled data, City of Melbourne, 2024 [78]

City of Melbourne's Building Baseline Study (2024) revealed a positive correlation between the height of apartment buildings and the size of shared services energy costs they incurred. This was particularly true for electricity costs. Common areas and shared services floorspace represent a greater percentage of total floorspace in mid and high-rise apartment buildings. In addition, the energy (mostly electricity) costs for those areas represent a higher proportion of the total energy costs for apartments in mid and high-rise apartments resulting in higher energy consumption per meter squared in those dwellings.

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[77]City of Melbourne (2024b), See https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/2024-11/buildings-energy-use-and-emissions-study.pdf

[78] Note - energy data from distributors under-reports energy consumption of the accommodation sector by misallocating apartment building consumption as 'commercial' due to the high volume showing at the meter. Accounting for shared services and embedded networks, actual residential sector energy use is much higher. See Buildings energy use and emissions study (2024) https://mvga-prod-files.s3.ap-southeast-4.amazonaws.com/public/2024-11/buildings-energy-use-and-emissions-study.pdf
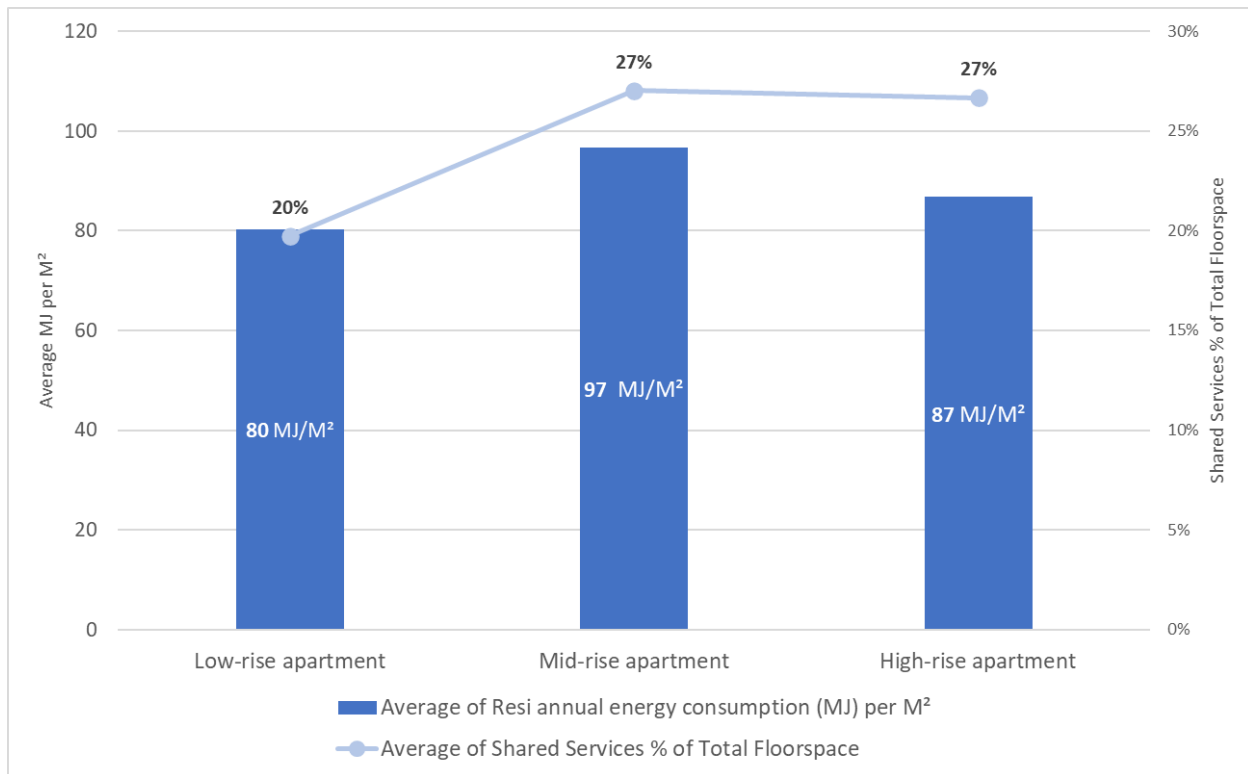
Figure 21 - The correlation between larger shared services areas and higher energy consumption in apartnents.

There is significant complexity and cost involved in retrofitting mid and especially high-rise apartments for energy efficiency (as compared to low-rise), especially when it comes to building envelope and thermal upgrades. As such, the higher the apartment building, the higher and more entrenched are energy costs and exposure to climate induced heat hazards.

Energy interventions and outcomes for affordability and health

Simple energy saving measures can reduce cost and enhance comfort

A Victorian-based study found a higher prevalence of perceived difficulty in heating their home among renters (50%) compared to owner-occupiers (30%), with tenants citing draughtiness and lack of insulation as significant challenges. Research indicates that retrofits can deliver benefits to cost and comfort in all housing types, including small retrofits like draught sealing and installing ceiling fans.[79]

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[79] Daniel et al. (2020)

7. Engagement approach

The engagement and evaluation program consisted of community conversations, a co-design workshop with residents experiencing energy hardship, pre and post surveys, trial interventions of energy saving products, 1-1 interviews and a focus group.

Aims

The aim of the engagement program was to inform the development and delivery of support programs, policies and advocacy that local governments could take to tackle the issue of energy hardship, alleviate cost of living pressures, accelerate electrification, address climate vulnerability, and build adaptive capacity for vulnerable people living in apartments.

Through engagement with vulnerable populations and understanding the lived experience of effected people, the project aimed to co-design potential program interventions and develop effective strategies and policies.

The near-term and longer-term objectives of the engagement program were:

Near-term

- Identify communities experiencing energy hardship and climate vulnerability

- Gain insights into the causes and lived experiences of energy hardship

- Understand relationships between lived experiences and personal circumstance, structural and socio-economic factors, energy hardship and climate-related vulnerability

- Engage marginalised groups in co-designing interventions that are fit-for-purpose in addressing energy hardship within target cohorts

- Develop effective models of intervention that could be replicated and scaled by local governments

- Evaluate the impacts of the enagement program and trial interventions on participants

Longer-term

- Develop new energy policies and programs for City of Melbourne

- Share findings and insights from the research and enagement with key stakeholders (local, state, national governments, regulators, community organisations, and insdustry) to build knowledge and capacity to scale effective policy and programatic responses.

- Reduce energy hardship and enhance climate resilience in vulnerable populations

Theory of Change

A Theory of Change (ToC) is a tool to help describe how and why a desired change is expected to happen in a particular context[80]. Understanding that change is rarely linear, a ToC explains how activities are understood to produce a series of results that contribute to achieving a final intended goal[81]. The following articulation of goal, outcomes, grounding truths and strategies form the ToC for the project and co-design process.

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[80] See https://www.theoryofchange.org/what-is-theory-of-change/
[81] See https://www.westyorks-ca.gov.uk/media/12617/ecorys_wyvrp-toolkit_section-2-toc.pdf

Goal

Effective interventions that address the intersecting factors contributing to energy hardship and climate vulnerability are identified and once implemented, prevent future energy hardship and climate vulnerability.

Outcomes

Short-term

- Increased understanding of the lived experiences of energy hardship.
- Increased understanding of which interventions work for who and in what context, and how people would prefer to access them
- Increased understanding of the barriers and motivators to change

Medium-long term

- Fit-for-purpose interventions are identified to effectively address energy hardship and climate vulnerability within the target cohort.
- Local government capability is strengthened to effectively address immediate experiences of energy hardhip and climate vulnerability.

Grounding truths

Table 1. Project Theory of Change- Grounding truths

GROUNDING TRUTHS	DESCRIPTION
Melbourne's energy context	- There is a high incidence of energy hardship in the Melbourne municipality - Apartment residents face higher barriers to reducing energy costs due to their built form, governance structures, and personal circumstances. - Existing apartment buildings, are not ready to withstand current and growing climate-related pressures. - Local governments have a strong connection with the community, which can be leveraged to engage residents. - Local governments have existing data that can be leveraged for to identify those in need and tailor services to them.
The varied roles and actors	- Local government's role is to coordinate and support community efforts but is limited in its capacity to influence regulation and legislation. - State government oversees building standards and regulations. - Homes Victoria provides housing for people on low incomes. - Building owners, student accommodation providers. - Community and support services - There is a lack of a coordinated response across all the actors that people have to navigate (people have to go to many different service for help but energy is cross cutting)
Hidden energy hardship	- Energy hardship is often invisible and does not always show up in the statistics. - There are hidden layers of energy hardship in Melbourne, where people may be struggling but not accessing the support they need.

		• The high rental prices in Melbourne, combined with a growing number of short-term rentals contributes to the affordability crisis. • Food security is closely tied to financial insecurity, and people often reduce spending on food to save money for energy costs.
There are varied energy needs		• Energy usage requirements vary across different groups. For example, people living with disabilities may need additional energy for medical devices or air conditioning.
Language and accessibility challenges		• Energy usage terminology (e.g., kWh, MWh) can be difficult for many people to understand, making it harder to manage energy costs effectively. • Culturally and linguistically diverse (CALD) communities may struggle to understand all the requirements, making it too challenging to access support.
Housing and energy accessibility		• Energy hardship is a growing issue, particularly among renters who may not have the flexibility or resources to address their energy needs. • Poor renter rights is a challenge, contributing to housing insecurity and economic hardship. • Landlords are not adequately incentivised to make improvements that will deliver energy cost savings to tenants. • Renters can face limitations in changing energy providers, which means they are unable to seek better deals or more affordable energy options – this is particularly an issue for those in embedded networks. • Many people live alone in private rentals, which can be particularly isolating and financially strained.
Services and coordination		• Community services are limited in their reach and do not fully support all groups, especially international students or those who are pre-pension age. • There is a lack of coordinated response across the agencies that individuals must navigate. People are required to approach multiple services for help, despite energy being a cross-cutting issue.

Strategies

Several strategies emerged for the project and are described below.

- Investigating the root causes of energy hardship
- Research and data analysis to identify which cohorts are experiencing energy hardship
- Engagement with people with lived experience of energy hardship
- Implementing and testing interventions agreed upon in the engagement.

Methodology

Community Conversations

City of Melbourne and engagement consultant's Capire hosted community conversations at existing community events to learn more about the experience and causes of energy hardship, what people are doing to combat energy hardship and some of the barriers and enablers to adaptation and improvement.

The community conversations served as an outreach approach, engaging people in familiar, comfortable settings to discuss energy hardship. The engagement also supported recruitment for the co-design workshop. The project team encouraged community conversation participants to complete an Expression of Interest form to participate in the co-design workshop.

The conversations were guided by a set of structured questions within a Conversation Toolkit, which also included tips on conducting discussions and capturing the conversation. The key questions were:

1. How does energy stress affect day-to-day life?

2. What are some of the things that you have done to feel more comfortable (warmer/ cooler) or to reduce your energy bills?

3. What challenges or obstacles do you encounter when you are trying to reduce energy use?

4. What might support you to address energy stress? What would help you or stop you from taking up these supports?

5. Is there anything else you would like the City of Melbourne and the lived experience co-design group to consider about preventing and reducing energy hardship?

Table 2 outlines the details of the two community conversation sessions. Note, demographic data was not collected at the events due to the conversational approach.

Table 2. Community Conversation engagement details

Event	Number of conversations (approx.)
Chatty Café, Kensington Neighbourhood Centre Thursday 10 April 2025, 1.30pm-3pm	25
Local Lunch Club, Kathleen Syme Library Saturday 12 April 2025, 12.30-2pm.	15

Co-design Workshop

A co-design process shares decision-making power between communities and stakeholders, providing the people impacted by those decisions with a voice in the process. Incorporating a variety of tools and methods, the purpose of co-design is to find solutions that have been designed with communities, not for them. The result is a program, policy or service suited to the needs of recipients and designed within the constraints set by stakeholders.

> *Co-design brings together lived experiences, lived expertise and professional experience to learn from each other and make things better – by design[82].*

Co-design is an adaptable process that can be identified by its core principles, as outlined in Table 3 below.

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[82] See What is co-design, www.beyondstickynotes.com

Table 3. The co-design approach built on the co-design principles identified by the NSW Council of Social Services[83].

CO-DESIGN PRINCIPLES	DEFINITION
Inclusive	The co-design process involves representatives from all stakeholder and user groups, from beginning to end.
Respectful	Co-design values input from participants with different lived experiences and expertise, helping to inform a richer outcome. Potential or perceived inequality among participants is mitigated using different strategies.
Participative	The process is built on active participation, whereby trust, openness and empathy foster meaningful dialogue and interaction.
Iterative	Participants continually experiment with ideas, insights, and solutions with a willingness to take risks and explore.
Outcomes focused	Co-design is used to create end services, programs or policies. It should achieve real change through its ability to test solutions and scale results.

The co-design workshop brought together a diverse group of City of Melbourne residents with lived experience of energy hardship, along with council officers and Brotherhood of St Laurence researchers. The workshop took place on Saturday 3 May, 11am – 3pm at the Multicultural Hub, Melbourne.

Together, participants built on the insights from the community conversations to define the problem of energy hardship in Melbourne. Through divergent thinking, the group explored a wide range of potential solutions and collaboratively prioritised ideas, combining lived insights with professional expertise. A select number of ideas were identified for further development and user journey mapping for each of these selected ideas.

The figure 1 below shows the design thinking stages the partcipants journied through within the session while Table 4 outlines the session objectives and the key activities.

Problem: Defining the problem – drawing on review of literature and participant lived experience

Possibilities and prioritising: Encouraging divergent thinking and then working together to prioritise ideas for further development

Planning (prototyping): Bringing the idea to life

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[83] See https://www.ncoss.org.au/wp-content/uploads/2017/06/Codesign-principles.pdf

Figure 1 - Design thinking stages undertaken in the co-design engagement

Table 4. Co-design workshop objectives and activities

Session objectives	Activities

Co-design members will:
 	
• Explore a shared definition of energy hardship
 	
• Reflect on the insights from fellow residents (community conversation data)
 	
• Ideate potential intervention ideas: brainstorm potential ideas, iterating with other participants to identify preferred ideas that would be most effective for the most people in our community
 	
• Consider the effort required of Council vs the benefit to community for preferred ideas selected
 	
• Design selected ideas, including mapping a user journey.
	• Design-thinking energiser
	• Introduction to the concept of energy hardship and high-level data on experience of energy hardship within the municipality (delivered by Council)
	• Presentation on the insights and findings from the Community Conversations (delivered by Capire)
	• Think, Pair, Share
	  - Think – individual brainstorm of possible interventions and solutions
	  - Pair – share ideas with a partner and build on each other's ideas
	  - Share – converge ideas as a group, and prioritise the most beneficial and impactful ideas
	• Effort vs Benefit Matrix
	  - Prioritised ideas mapped against the amount of effort to implement by Council (time, money, resources), and the benefit to community (the most impact to the most amount of people experiencing energy hardship in the City of Melbourne)
	• Group discussion on the positioning of ideas and the extent of effort vs benefit
	• Identification of preferred ideas for further design in small groups
	• Expanding selected ideas
	  - Using a worksheet to further design one idea and consider the user experience, exploring key elements of the idea, its use and its impact.

Pre and post survey

Participants completed a survey prior to attending the co-design workshop and again two weeks after the workshop, following their trial of the products and advice. Participants answered the same questions in the pre and post survey. It asked participants to self-report their adaptive capacity (resources, information, community connection) to withstand extreme weather events like heat waves and cold snaps. The purpose of the survey was to assess changes in participants' self-perceived energy hardship and climate adaptive capacity and aimed to evaluate the impact of the products and advice provided. A total of 16 participants completed the baseline survey and 12 completed the post-workshop survey. Baseline survey and workshop evaluation questions are listed in Appendices 1 and 2.

Intervention Trial

A collection of energy saving heating, cooling and cooking products and information resources were provided to each of the participants that attended the Co-Design workshop (n=17). An energy bill tariff review service was also offered to participants.

Accompanying the Energy Efficiency and Comfort Kits was a booklet with simple information to help participants get the most for the items in the kit, cut energy costs and stay comfortable. An overview of what was in the Kits and a sample of the information in the booklets is provided below.

Energy efficiency thermometer
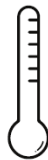
Use your energy efficiency thermometer to help you set the right temperatures for your space heating and cooling, hot water, fridge and freezer. Look for the labels on the side to find the best temperature settings

Heated throw rug

Warming your body directly is much more efficient than heating the air around you. This heated throw rug is a great way to keep warm when you're sitting on the couch or at a desk. Plug it in and set your preferred temperature. Follow the instructions provided for use and cleaning.

Door / window perimeter seal

This perimeter seal can be easily installed on doors or windows to close gaps that let air in and out of your home. Simply cut to size, clean the surface and stick the seal to the door/window frame.
https://ecomasterstore.com.au/pages/emv-slim-line-door-perimeter-seal-how-to
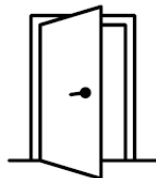
Door snake

Door snakes are a great way to block cold draughts. Place the door snake at the bottom of any door with a gap, especially doors that let air in from outside. For helpful videos on how to seal draughts visit
https://www.greenityourself.com.au/

Removable window shade
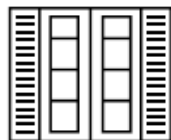
Use the removable window shade to cover windows that get the most sun in summer. Remove it in winter to let the sunlight in. This window shade reflects up to 85% of solar heat, helping keep your home cooler in summer without blocking all your natural light or view. It's a great way to shade windows that get too much sun on hot days. It can be easily installed and removed using the velcro stickers provided.

Cool kit

The Cool Kit is designed to keep you cool and healthy in hot weather. It includes a hand-held fan, cooling necktie, Hydrolyte, water bottle, sunscreen, hat and information on how to stay safe in hot weather.
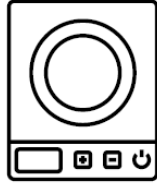
Induction cooktop		An induction cooktop is a highly efficient way to cook and can be up to three times more efficient than using a gas stove. Cook and boil water on the cooktop instead of a gas stove to avoid the harmful emissions caused by burning gas in the home, which can cause respiratory illnesses. Please read the user instructions provided with the stove before using it.

Interviews

Participants were invited to participate in 30-minute one-on-one interviews to gain deeper insights into their experience and behaviour change post receiving the products and advice. The purpose was to gain more qualitative insights and to explain and validate the quantitative survey data. A total of 9 participants took part in the interviews.

Focus group

Interview participants were invited to participate in the 90-minute 'stories of change' focus group. Each participant was invited to share a story about the most significant change they experienced since participating in the trial. The purpose of stories of change focus group was to capture rich, qualitative narratives that illustrate the personal and practical impact on participants' climate adaptive behaviours and attitudes.

The focus group was designed to complement the survey and interview data by giving participants an opportunity to interpret their own experiences and explain why certain changes were meaningful to them, rather than having these interpretations made solely by the evaluators. A total of 7 participants took part in the focus group.

Limitations

All research methods and evaluations have inherent biases and limitations, while interviewees and facilitators also bring their own personal and professional biases to any process. Acknowledging and documenting known and potential biases is a critical part of transparent evaluation. The following limitations were identified for the evaluation.

- **Short timeframe**: Due to the short timeframe of the project, availability sampling was used. While the participant selection was based on identified demographics to reflect those experiencing energy hardship, it was drawn from an expression of interest (EOI) and given the timeframe it is unlikely that the EOI opportunity would have reached all relevant cohorts across the municipality, thus affecting the diversity of perspectives captured. The timeframe also limited the extent of time participants had to test and settle into their products, which means the most recent information or experience could have a greater influence on feedback and insights (recency affect).

- **Small sample size**: The sample size was affected both by the available project resources and timing. While the trial did not intend to discover generalisable findings, rather to explore lived experience, the findings will not represent the unique experiences of the full range of people experiencing energy hardship in the City of Melbourne.

- **Timing and weather**: Data collection occurred during a cold snap in Melbourne, soon after participants received their products. Consequently, mostly 'warming' products were trialled by participants while 'cooling' products were not.

- **Potential biases**: Due to the nature of the project, providing 'free' goods to people that may be experiencing vulnerability, participants may have unintentionally skewed data due to various factors. Some of the biases or effects to be considered are:

  - **Social desirability bias:** Participants may have given answers they think are more socially acceptable or favourable, rather than being honest.

  - **Cultural bias:** Cultural norms can shape how comfortable people feel discussing certain topics or using specific language, which affects data accuracy.

  - **Interviewer bias:** The interviewer's tone, phrasing, body language, or reactions can subtly influence how participants respond.

  - **Demand characteristics:** Participants may have altered their responses based on what they think Council or Capire expects or wants to hear.

  - **Novelty affect:** Participants may have responded more positively (or differently) to a product simply because it's new or unfamiliar, not because it's genuinely better or effective in the long term**.**

  - **Recency affect:** Participants may remember events or items that occurred more recently than those that occurred in the beginning or middle sequences.

Participant recruitment

Thirty three EOI forms were received for the workshop. A total of 22 residents were invited to participate in the co-design workshop, with a target of 20 attending the workshop. Over-recruitment was used to allow for some drop-off. A total of 17 participants attended the co-design workshop.

Participants were selected based on demographic criteria drawn from Council's understanding of those experiencing energy hardship within the municipality. The criteria ensured that the co-design workshop brought a range of lived experiences and perspectives, and that the communities most impacted by energy hardship in the City of Melbourne were represented. Participant criteria included:

- Age

- Gender

- Concession card holders

- Culturally and linguistically diverse (CALD) people

- Students (both domestic and international)

- Housing tenure

- Building type

- Experiencing energy hardship.

Final participants reflected the range of communities affected by energy hardship in the city including international students, migrants, older and younger people, renters, and homeowners.

Participants were notified of their selection via email in April 2025, with follow-up phone calls to some participants to confirm their participation, provide information, discuss support needs, and build trust ahead of the first session.

17 City of Melbourne residents with lived experience of energy hardship

3 staff from City of Melbourne
2 staff from Brotherhood of St Laurence

3 facilitators from Capire Consulting Group

Figure 24 - Participants represented lived expeirence, professional expertise and facilitators.

People participating in the co-design workshop were incentivised and compensated for their time with a stipend that includded a $150 gift voucher, ~$175 worth of energy saving products (ie. Energy Efficiency and Comfort Kit), and the offer of financial support to cover childcare and travel expenses. Participants in the interviews and focus group were recognised with a further $100 gift voucher. Translation services were accounted for into the project delivey program but ultimately were not required.

8. Baseline survey results

Participants rated their level of agreement with a series of statements designed to measure their self-perception of their ability to cope during extreme weather events like heat waves and cold snaps. These statements were assessed before the workshop to gather a baseline of the adaptive capacity of participants.

Adaptive capacity to deal with extreme weather events

- Most people are worried about keeping their homes warm and cool during extreme weather

- Most are worried about keeping warm at home during winter (81.3% strongly agree or agree)

- Most are worried about keeping cool at home during summer (81.3% strongly agree or agree)

- Most people do not have access to the resources (money, technology or information) needed to reduce their energy bills or make their home more comfortable (56.3% strongly agree or agree)

- Most do not have access to people or organisations to support them to reduce energy bills or make their more comfortable (81.1%)

- Most feel their wellbeing is negatively impacted during hot and cold weather (68.8%).

These results indicate that participants generally reported having a reduced adaptive capacity to withstand extreme weather conditions prior to the workshop.

Understanding of electricity and gas bills

- Most people do not understand how to read energy bills or know how to get the best deal available to them.
- Most people are not confident in understanding energy bills (62.5% strongly disagree or disagree)

- Most people do not know how to get the best deal on their electricity (75% strongly disagree or disagree)

- Most people do not know how to get the best deal on their gas (68.8% strongly disagree or disagree).

- 25% reported that knowing how to get the best deal on their gas is not applicable. There may be several reasons for this reporting, including that their house may not use gas, or that they do not pay the gas bill.

These results indicate that participants generally had low confidence in their ability to understand energy bills and know they are getting the best deal.

9. Insights from the engagement and co-design

Findings from the community conversations, co-design workshop, interviews and focus group shed light on the lived experience of people experiencing energy hardship and provide insights for the development of energy-related support programs with potential to alleviate cost of living pressures, accelerate electrification, improve energy efficiency, comfort, health and wellbeing, and build adaptive capacity of residents living in apartments.

Key insights are summarised and grouped into three themes: Challenges communities are facing, how people are currently adapting, and the types of support communities want to better manage and overcome energy hardship.

Challenges communities are facing

Significant and rising energy costs: Communities are facing significant energy costs, including rising energy bills and the high expense of energy-efficient upgrades and appliances.

Limited control: Some community members have limited control over their energy use or provider due to factors like embedded networks, rental restrictions, and building constraints.

Confusing information: Information about energy bills and energy efficiency is often confusing and inaccurate. This makes it hard for people to understand their energy use, leading to confusion, and some to disengage from managing their bills or energy choices.

Distrust: There is a lack of trusted sources of information (energy providers, landlords, and real estate agents are not trusted), leaving people unsure where to turn for reliable, helpful information about their energy use and rights.

One of many challenges: Energy hardship is just one of the many issues that community members are dealing with. Housing and wellbeing challenges affect comfort, social connection, and overall quality of life for many people.

Building challenges: Heritage and older buildings often limit what modifications residents can make, leaving homes cold, drafty, and energy inefficient.

How people are adapting to energy hardship

Limiting energy use: Many people avoid using appliances like air conditioning and heating, and make a habit of turning off all devices, to avoid energy costs.

Spending extensive periods outside the home: To manage unaffordable heating and cooling costs, some people go to public spaces like libraries, shopping centres, McDonalds or friends' homes to stay warm or to keep cool.

Behavioural changes: To stay comfortable while managing energy costs, some people adjust their behaviour, such as using fans instead of air conditioning, putting on more clothes during winter, exercising to stay warm, and using electric blankets or staying in just one area of the house like a bedroom. In the summer, some sleep in cooler areas of their homes, such as the living room.

Home modifications: To reduce energy use, many people make small modifications to their homes, such as switching to energy-efficient light bulbs, using timers, adding draught stoppers, and closing blinds.

Lifestyle changes: To cope with rising energy bills, people are adjusting their lifestyles (including taking on extra work and cutting back on socialising to afford bills).

Supports needed to assist with energy hardship

Trusted advisors: Community members want trusted advisors who can offer personalised advice on understanding energy bills, reducing consumption, understanding rebates, and making informed choices about energy providers.

Trusted information: Community members want clear, trusted information on how to save energy use and money.

Home modification assistance: Community members want assistance with home modifications including solar (home installation and access to community solar), retrofitting old homes, trials of affordable and energy-efficient appliances.

Co-design workshop outputs

Ideation

Co-design participants were invited to brainstorm and discuss as many ideas as possible for solutions and interventions to assist community members experiencing energy hardship. The table below presents a summary of the ideas under key themes.

Table 1 - Co-design workshop ideation and key themes

THEMES	IDEAS
Council as a source of trusted information and advice	- On energy efficient and affordable appliances and modifications - On energy efficient upgrades, costs of different options, the process, including government agency that is responsible - Information in multiple languages and ensure advice and information targets multicultural groups - Trusted advisor to provide tailored energy bill review and advice on specific circumstances - Advice to help read an energy meter and estimate bills to avoid bill shock - Advice for renters to understand their rights in relation to energy use and energy efficiency in homes - Getting off gas - provide home inspections and advice on electrification (e.g. cooking utensils) - consider barriers (e.g. non-English speaking) - demonstrate products that work (e.g. induction woks)
Council to deliver public health campaigns and build community capacity and understanding of energy-efficiency	- Council to provide workshops on understanding energy basics, energy use and energy charges, including options and how to read energy bills - Train, mentor and pay community champions to advocate and educate their community (across different language) - Information and education for children about energy saving e.g. develop a module on energy efficiency for school students

	• Public health campaign about keeping warm in the winter (like Council does for heat in summer), link to low cost / free ideas and Council offers.

Council to support the energy efficiency of all households	• Provide energy monitoring tools (e.g., usage meters, in-home tracking) to identify high-consumption appliances and areas
	• Provide energy efficient modifications (e.g. energy efficient light bulbs, shower heads, draught stoppers, renter-friendly shading)
	• Discounts on energy-efficient appliances, specifically for students
	• Develop a program for retrofits and requirements for new buildings
	• Incentivise household batteries
	• Community energy grants:
	    o % allocated for apartments based on the ratio of apartments in the municipality
	    o provide grants and subsidies for international residents not just Australian citizens.

Council to support energy efficiency modifications for owners	• First installation of electric water heaters to replace gas • Solar panel installation • Information for Owners Corporations and buildings; best options for building modifications (e.g. solar); How to find and access grants for owners corporations (e.g. solar, energy efficient appliances, lighting, common areas (lighting and powering common areas is very costly), sensors and controls • Incentivise landlords to make improvements to tenanted homes, which can result in savings for residents and the owners.
Targeted support for apartment residents	• Help apartment residents get out of embedded networks • Work with whole buildings rather than resident by resident to supply and install of energy-saving devices and appliances (LED bulbs, shower heads) • Ensure devices are appropriate for apartment residents and renters
Targeted support for students, specifically international students	• Provide discounts on energy-efficient appliances to students • Deliver workshops for the community • Deliver education campaigns to raise awareness of how to save energy and lower their bills, make the help line more accessible and promote it as much as possible • Subsidies for everyone, especially international students (who are facing significant hardship)
Council to support upgrades to energy-efficient public spaces that support climate-adaptive capacity	• Extending access to community facilities and public spaces (like libraries and centres) that are climate-controlled all year round and during extreme heat or cold • Improve green infrastructure in the city, including green walls and urban greenery, to reduce the heat island effect • Install solar panels across all buildings and implement a citywide virtual power plant to distribute affordable solar energy, especially for low-income residents
Council to advocate for City of apartment residents	• For tenants to have the right to choose their energy providers

	For more renter rights regarding energy efficiency • For energy upgrades to public housing • For better coordination between energy providers and government for better outcomes for residents • For improved consumer education • For apartment builders and developers to access loans and investments for discounts on energy-efficient design and appliances • For improved regulation for energy-efficient design requirements for new builds (e.g. facades and insulation) • To standardise bills – for energy retailers to adopt the same breakdown and communicate daily and hourly use • For universal basic income- if people simply cannot pay their bills no level of adaptation or support will help • For transparency for renters about how Body Corporate or Owners Corp decides who the energy retailers are for embedded networks • For improved rental standards for international students • To expand energy concessions for visa holders
Strategic and policy focus	• Set energy efficiency targets for the municipality • Set energy efficiency targets for all new buildings • Ensure sustainable and energy efficient building design for all new buildings, including social housing

Expanded ideas

Participants were invited to select one preferred idea that they wanted to design further. In small groups, participants explored the idea in detail using a worksheet, describing what the idea was, how users would experience it, and the change (or outcome) achieved if the idea was realised. Each expanded idea is presented below.

Table 2 - Co-design workshop expanded idea #1

ENERGY SAVING EDUCATION		
THE IDEA	**Description** • Leaflets, posters or online resources with simple tips for saving energy, keeping cool and keeping warm • Competitions and family challenges • Quizzes, colouring booking, easy to understand	**Users** • Children, parents, households • Future generations
THE EXPERIENCE	**How to promote** • The materials could be distributed in schools, libraries, community centres • Teacher can share resources in classes • Colour competitions for children	**Barriers to take-up** • Complex information • Not visually attractive • Not user friendly • Not well promoted

	• Visual demonstrations including installations for families at libraries	
THE CHANGE	**How I have benefitted** • People learn energy saving techniques without high costs	**The outcome** • Increase knowledge and behaviour change of energy saving • People feel more comfortable at home without significant costs

Table 3 - Co-design workshop expanded idea #2

COLLECTING COMMUNITY VOICES		
THE IDEA	**Description** • Events and workshops that capture community lived experience are spaces for people to share ideas and learn from others how to manage and handle energy issues • The program can leverage other, existing council, programs	**Users** • All City of Melbourne residents, including students, renters, owners, apartment residents, older populations, families
THE EXPERIENCE	**How to promote** • Promote through schools, existing community groups (clubs, religious groups, student bodies), and social media	**Barriers to take-up** • Time • Limited technology access • People don't know where to start Lack of feedback channels (sharing findings with the community) **Overcoming barriers** Leverage existing networks to promote (universities, schools, public spaces, clubs, religious and cultural events
THE CHANGE	**How I have benefited** • Tips and knowledge about how to save energy (what others are doing and experiencing) • Support the community • Awareness of energy-efficient products	**The outcome** • Lowered energy bills • Higher quality of life and mental well-being • Increased community connection and engagement

Table 4 - Co-design workshop expanded idea #3

COMMUNITY ENERGY CHAMPIONS (LOCAL ENERGY SAVERS)		
THE IDEA	**Description** • Local network of trained champions who can represent their community to government, educate the community about	**Users** • Multicultural groups • Social housing residents • Council

	energy, guide them to resources and information in a culturally sensitive way • Local champions can be mediators between council and community	
THE EXPERIENCE	**How to promote** • Letter box drop for new residents to inform them • Advertising in buildings • Emails • Promote through existing networks (i.e. WhatsApp groups) • Community social housing development officers • Social media • Religious groups (key touchpoint for WhatsApp groups) • Imagery and branding • Cultural festivals • Libraries and council groups	**Barriers to take-up** • Commitment required by champions • Older people may be limited by technological • Younger people may be limited by time • Trust – gaining trust from the community • Needs good promotion by council • Finding and defining community' could be problematic **Overcoming barriers** • Pay the champions • Enable overlapping groups • Promote and advertise the program • Train champions
THE CHANGE	**How I have benefitted** • Save money on bills • Make smarter choices (save energy, retailers) • Feel more connected and empowered • Greater sense of belonging • I know where to go	**The outcome** • Survey on benefits • Less stress • Measure number of people reached • Increase in reports of awareness

Table 5 - Co-design workshop expanded idea #4

ENERGY SAVING FOR INTERNATIONAL STUDENTS		
THE IDEA	**Description** • Information for international students including energy efficient appliances, how to read and understand energy bills, help and advice to get the best energy deals	**Users** • International students
THE EXPERIENCE	**How to promote** • University websites	**Barriers to take-up** • Knowledge about the service

	• Orientation week • Notice boards • Student union weekly events • Social media	• Different modes of engagement • Language barriers • Cost **Overcoming barriers** • Different modes of engagement (in person, email, phone) • Employ over 55s to help international students (also addresses loneliness)
THE CHANGE	**How I have benefitted** • Economic freedom • Improved mental health • Freedom to choose • More autonomy • More informed	**The outcome** • Reduced energy bills • More options to choose from • Better informed when choosing appliances • Improved mental health

Insights

Insight: Community connection strengthens adaptive capacity

We heard that there is a strong need for community connection and a desire to learn from others within the Melbourne community.

Community connection was the most consistent theme across all ideas. Whether that be through peer-led programs like community champions, group workshops or 1:1 opportunities, people want the opportunity to connect and learn from others in the Melbourne community. These connections will also build social capital – an important factor for increasing climate adaptive capacity and decreasing energy hardship[84].

Council could leverage existing networks and communities (e.g. schools, religious groups, cultural organisations) to deliver information and services in ways that are trusted, culturally relevant, and community-led.

Insight: International students slip through the gaps of energy support

We heard that international students are particularly vulnerable to energy hardship, often slipping through the cracks. Council can play a critical role in filling this gap by providing targeted, accessible support to international students living in the City of Melbourne.

International students often fall through the cracks of existing support systems due to several key barriers:

• ineligibility for energy concessions

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[84] Drennan, L & Rasheed, A., 2020, Determinants of adaptive capacity for climate change adaptation: Considerations for regional Victoria. Griffith University, Brisbane.

- limited choice of energy providers or billing arrangement (many sublet rooms, or bills are inclusive)

- lack of local knowledge, networks and awareness of available supports.

To address issues of energy hardship for international students, Council can help through a culturally appropriate service that is accessible and impactful. This may include:

- **A dedicated energy support program** that is culturally responsive and proactively reaches students through trusted university channels and in multiple languages.

- **Clear, trustworthy information** delivered through familiar and accessible platforms such as university websites, orientation sessions, noticeboards, student union events, and social media — all in languages spoken by the student community.

- **Through channels that they already use** (university website, during orientation, notice boards, student union events, social media) in languages

- **Trusted advisors** to provide guidance on accessing energy and support services, and information about the best appliances and best energy deals.

- **Trusted community connections** – many of the international students were interested in opportunities to connect with other people in person, including through Council supported workshop to share knowledge and learn from others.

Insight: Trusted and accessible advice

We heard that people need clear, trusted, and accessible energy information delivered through the right channels.

We heard that many people feel overwhelmed by complex or unclear energy information. While it can be challenging to read and understand energy bills, there is also distrust in those providing information, whether that be the energy providers, owners corporations, or landlords.

There's a strong desire for simple, easy-to-understand information, using plain English, visuals, and trusted sources, to explain how to reduce energy use, read energy bills, change energy providers, and find better energy deals.

We heard that different communities engage in different ways. While some prefer face-to-face contact, others prefer digital or phone-based support. To be effective, information must be simple and relevant. It must also come through existing, trusted community networks and communication channels.

Co-designed council program and core elements

Based on the findings from the community consultation and co-design process, the recommendation of the engagement consultants was for local governments to explore the development of a cohesive, inclusive energy support services for apartment residents experiencing energy hardship, with particular focus on renters, international students, and culturally and linguistically diverse (CALD) communities.

Program concept

A trusted, multilingual, council service that partners with community to reduce energy hardship and improve household energy resilience.

The service, developed in collaboration with communities experiencing and at-risk of energy hardship, would aim to combat energy hardship and build long-term climate-adaptive capacity for apartment residents. The components of the service would need to be scaled to the council's available resources.

Core elements

The components included below have been drawn from the co-design participant's ideas:

Trusted energy advice and support hub, featuring:

- **Multilingual energy advice line & digital hub**
  - Easy to navigate, have inclusive branding and visuals
  - Multilingual, accessible information and resources in plain language including videos and visual guides.
  - Bill comparison tools / services
  - Clear and easy feature to request a home visit or consult.

- **Tailored energy consultations**
  - In-person, phone, or virtual
  - Bill reviews, meter reading help, appliance selection and use guidance.

- **Home energy assessments**
  - Free for those experiencing or at-risk of energy hardship
  - Focus on low-cost or no-cost efficiency gains.

- **Specialist renters' support**
  - Understand your rights
  - Help communicate with landlords
  - Portable/renter-friendly solutions
  - Advise on exiting embedded networks.

Education, outreach and empowerment, featuring:

- **Workshops**
  - For understanding how energy operates, energy use, reading bills, usage estimates and switching providers.
  - With existing community groups and where people gather such as libraries, community centres, and markets.
  - Provide hands-on demos (e.g. induction cooktops, LED lighting) and on-the-spot advice, bill comparison and applications for grants.
  - Demonstrations and guidance on electrification and reducing gas use in the home, particularly for renters and CALD communities.

- **Energy literacy campaigns**
  - Plain language energy education (in-person, printed, digital).

- Children's education through schools & libraries.
- **Community Energy Champions**
  - Train and pay multilingual community leaders.
  - Focus on outreach to multicultural, student, and low-income groups.
- **Public health campaigns**
  - *"Stay Warm This Winter"* and "Stay Cool this Summer"– low/no-cost tips and appliance advice.
  - Promote accessible warm and cool spaces in libraries and public buildings.
  - Distribute energy-saving kits in winter and in summer.

Practical tools and upgrades for households, featuring:
- **Free or subsidised products and retrofits**
  - Draught stoppers, weather strips, LED bulbs, shower heads
  - Induction cooktop kits for renters
  - Free or discounted usage meters
  - Appliance discount program for students and concession card and visa holders.
- **Energy Resource Library**
  - Borrow energy usage meters, thermal cameras
  - Rentable portable cooktops for trial before purchase.
- **Retrofit and electrification support**
  - Target gas-to-electric switch for hot water and cooking
  - Landlord incentives (rebates if they upgrade for tenants)
  - Facilitate building-wide improvements (LEDs, solar, timers)
  - Fund shared batteries and solar systems for low-income housing.
- **Grants**
  - Simplify grant access for Owners Corporations
  - Allocate based on apartment density and ensure a percentage of all grants goes to apartment residents
  - Include non-citizens in grant eligibility.

The council energy service would ensure ongoing relevance and continuous improvement through a robust monitoring and evaluation framework, seeking community feedback, tracking impact for specific key target groups, e.g. international students and renters, and monitoring indicators such as, number of households supported, participant energy use, resident money saved and community sentiment.
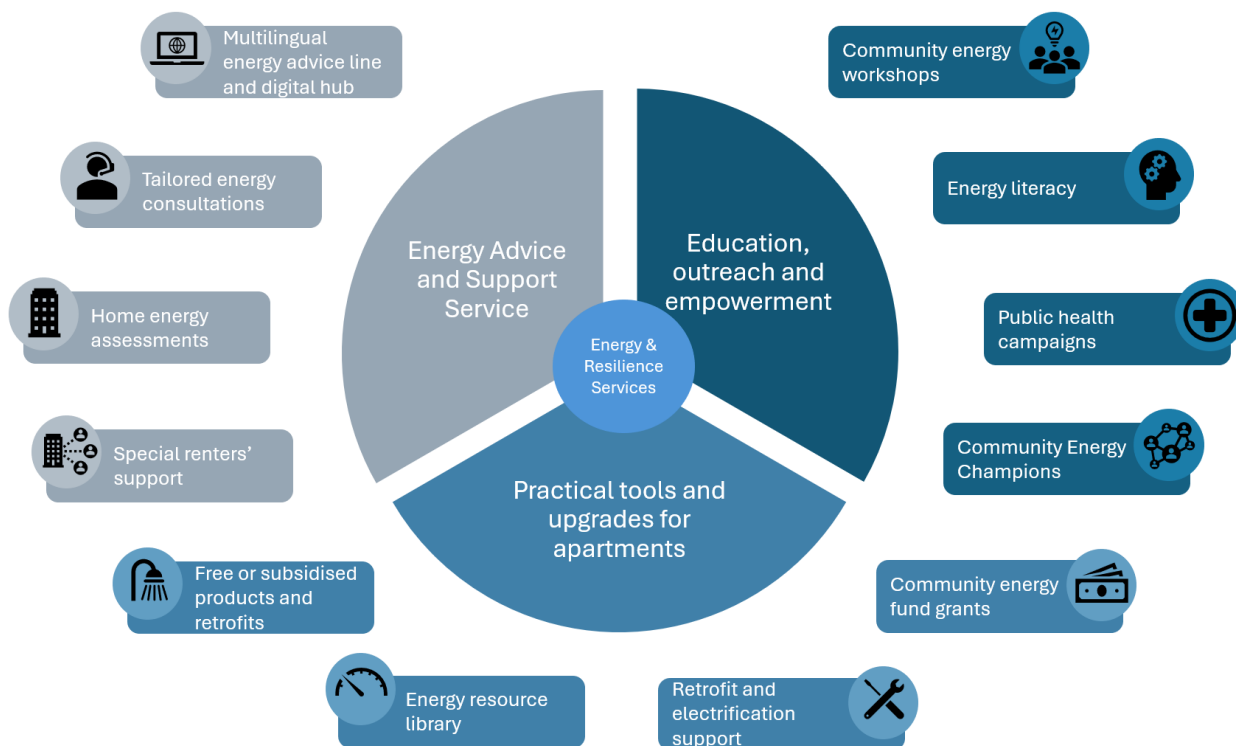
Figure 25 - Core elements of a local government energy and resilience service, co-designed through this engagement

Local government policy and advocacy

To reinforce the local government energy and resilience service, a policy and advocacy framework is recommended, with continued advocacy to other levels of government, local policy development and input into state and national policy on behalf of apartment residents. Advocacy for renters and international students was highlighted by many engagement participants. Participants also highlighted the need for higher efficiency standards in planning and building permits, and policies that support owners, landlords and owners corporations to make energy efficiency modifications to existing buildings.

10. Evaluation of engagement and intervention trial

This section presents an evaluation of the engagement and intervention trial with participants.

Evaluation of co-design workshop

Post co-design workshop survey

Participants were invited to complete a survey at the end of the workshop, to share their feedback on the co-design experience and their trust in the process with Council. The post-workshop reflections and survey results aimed to understand the extent to which the codesign process achieved the following outcomes for participants:

- A sense of empowerment: Feeling heard and can influence positive change

- A sense of respect: Feeling respected and valued for their expertise

- Increased awareness of the issue of energy hardship and climate resilience

- Improved access to resources to reduce energy hardship.

Key findings included:

- One of the most significant benefits of the workshop was the community connection. When asked what they enjoyed most about the workshop, 75% of respondents provided comments relating to community connection and learning from others. 12.5% related to being provided information about energy sharing and 12.5% related to the facilitation and delivery of activities.

- When asked what they would change about the workshop, 12.5% of respondents said nothing, 10% reported more diversity of participants, and 10% reported wanting a report back of the workshop emailed to them.

- Almost all participants felt safe and encouraged to share their experiences (94% strongly agreed or agreed that they felt it was a respectful and inclusive process, and 94% strongly agreed or agreed that they felt encouraged to share their opinion).

- Most people learnt something new about combatting energy hardship (88% strongly agreed or agreed)

- 94% strongly agreed or agreed that they believe their opinions mattered in the process.

The survey results are illustrated in the figure below.
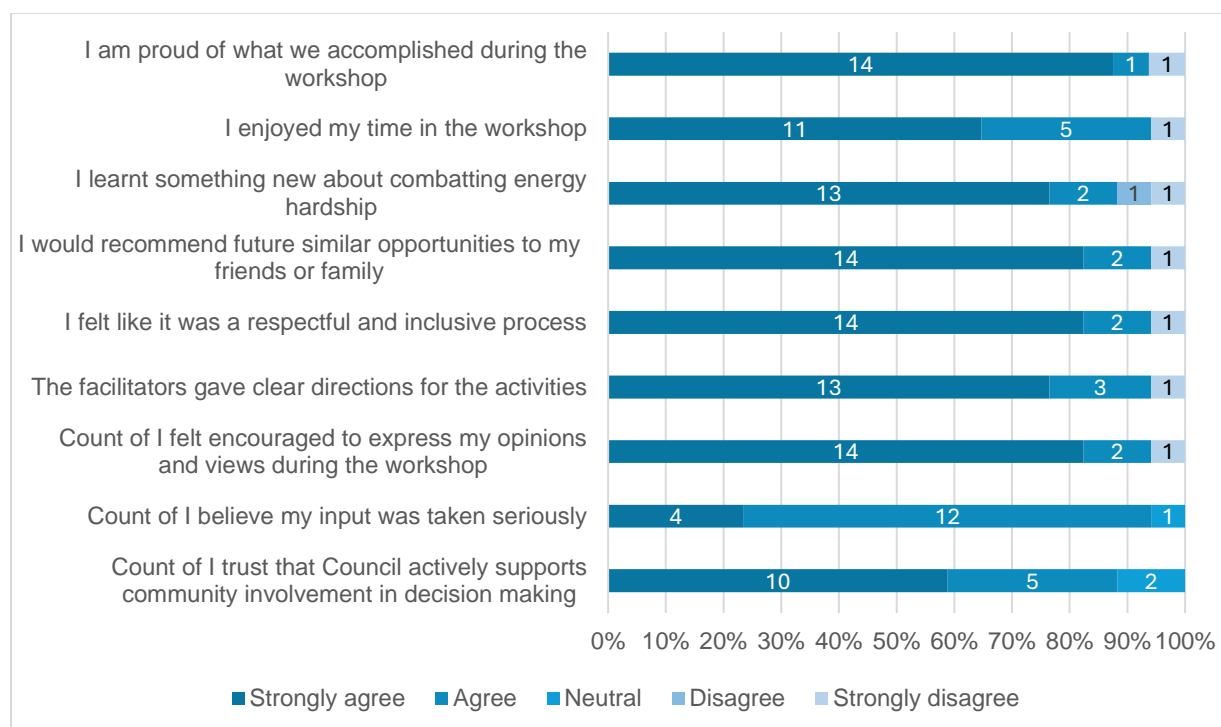
Figure 26 - post workshop survey results

These results suggest that the post-workshop outcomes for participants, including a sense of empowerment and respect were achieved in the workshop process. Notably, an unanticipated outcome and one of the most significant benefits of the workshop was the opportunity for community connection. The benefits of sharing knowledge and building connections with other community members were as beneficial as sharing information about combating energy hardship.

Co-design session reflections

Participants were asked to share one word that described their experience of the co-design workshop. Feedback gathered during the activity, as well as from individual participants via email and post-session conversations, indicates that the co-design process successfully achieved its intended outcomes. These include participants feeling empowered, respected, and valued for their expertise; gaining greater awareness of energy hardship and climate resilience; and improving their access to resources to address energy hardship. The figure below presents the participants words, captured verbatim, at the end of the workshop.
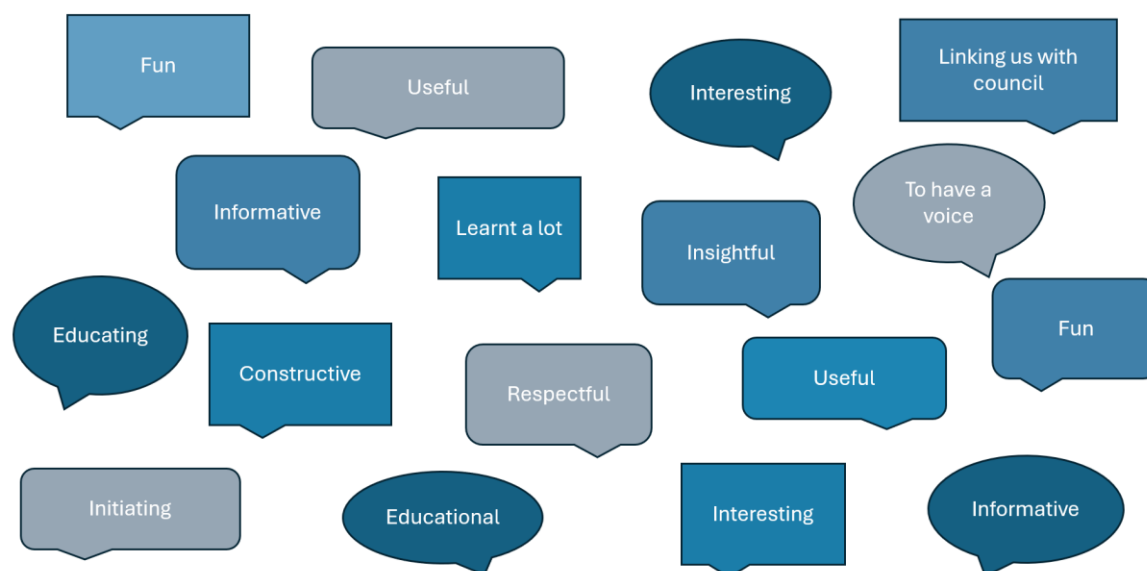
Figure 27. Participant feedback captured at end of the workshop

Evaluation of intervention trial

The intervention trial included 1) an Energy Efficiency and Comfort Kit containing a range of simple products that can be implemented buy any household, including by renters and apartment residents, 2) information resources on ways to save energy, and 3) an energy bill review service.

Energy Efficiency and Comfort Kit	Booklet on ways to save energy	Energy bill review service
• Factsheet on how to use kit • Energy efficiency thermometer • Heated throw rug • Door snake • Door / window perimeter seal • Removable window shade • Induction cooktop (plug in) • Cool Kit (fan, water bottle, cooling necktie, hydrolyte, sunscreen, hat)	• In the kitchen • In the bathroom and laundry • Heating and cooling • Passive heating and cooling • Lighting • Demand management • Links to information to compare and find the best energy deals, check eligibility for concessions	• Assessment of resident's energy bill with information on how to reduce energy costs, consumption, and identify cheaper alternative electricity offers to switch to

The evaluation findings for the intervention trial are presented under each of the key evaluation questions, alongside verbatim feedback and participant's own 'stories of change'.

Usefulness and impact of energy-saving products and information

Story of Change

" *I am new to Melbourne and have mostly lived in tropical climates before. So last week when the temperatures really plummeted, it was good to have all this stuff at home to fall back on. If I didn't go to the workshop, I wouldn't have been prepared with a heated throw blanket. It is great to have these on hand.*

I now know how the cold feels and how to deal with it [with the products and knowledge about layering up]. I haven't had to deal with this before moving to Australia.

When I go to uni I wear a thick coat. When I get to uni there is heating, but now I don't have to worry about coming home to the cold or turning on a heater that would increase my bills. It is great to have this peace of mind. We all have enough on our plate, so it's great to have peace of mind.

There has been a learning curve participating in this process and the workshop and using the products. Going to the workshop really expedited the learning process. "

Key Evaluation Question 1 – What feedback did participants provide about the usefulness and impact of the energy-saving products and information provided?

Each item was rated on its usefulness for people experiencing energy hardship in the municipality, based on an analysis of the data collected from participants. The reported usefulness scale is; Very useful, useful, somewhat useful, not so useful, not applicable.
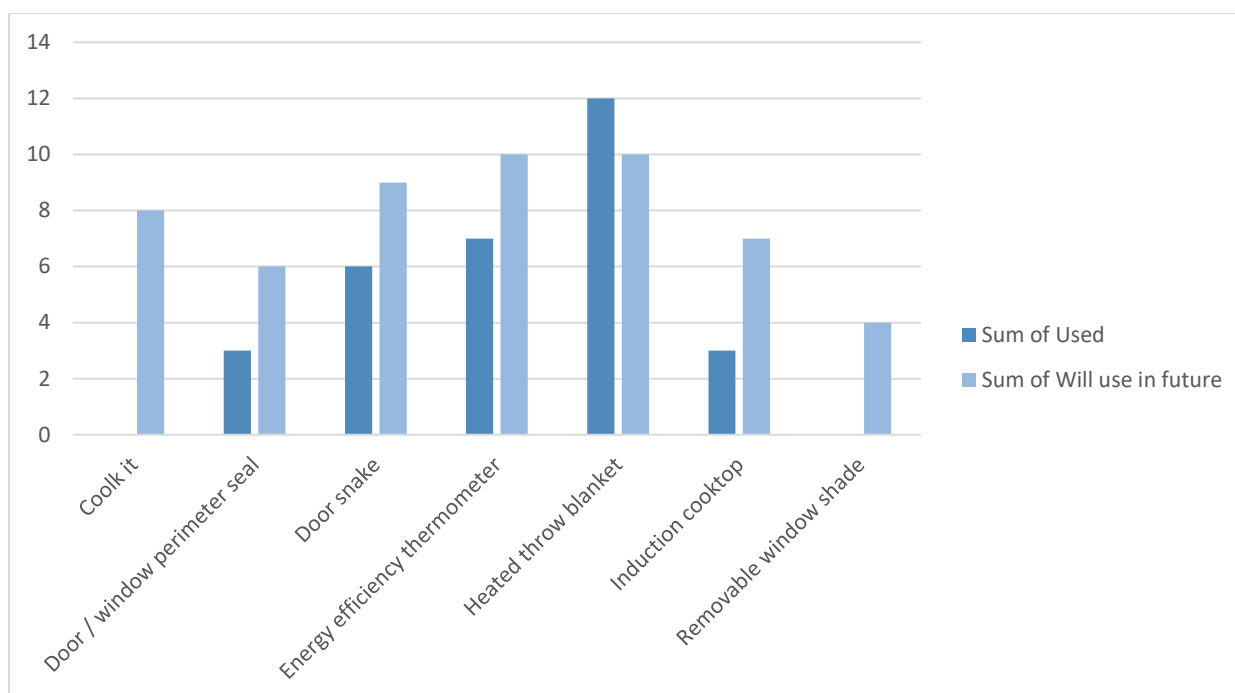
Figure 28 - The energy efficiency and comfort products survey respondents used and expect to use in future (n=12)

Intervention	Usefulness rating	Feedback
Factsheet on how to use kit	**Somewhat useful**	*"I prefer video, put it on Facebook, Council could make it live or a video. It can be hard to read. I will get lost in the detail. Images are better. Much better than writing."* – Interview participant
Energy efficiency thermometer	**Useful**	*"I used it to check out my freezer [because] I was wondering if it was too cold. I checked the efficiency. I have kept it around my living room and still seems like that everything is in the right [temperature] range"* - Interview participant
Heated throw blanket	**Very useful**	*"I have really [been] making good use of the throw blanket. …especially in the student accommodation, they didn't have good heating there. Last week was freezing in Melbourne and the blanket was perfect and made me feel really comfortable. it heats up in 5 minutes."* – Survey respondent
Door snake	**Useful**	*"Door snake [makes a] huge difference, so we don't have to use the heater. It's significantly warmer. when I remove it, I can feel the air coming through and it gets cooler."* – Interview participant *"Door snake not that helpful - too stuffy in here anyway - no draft really comes in"* - Interview participant

| Door / window perimeter seal | Not so useful | *"Door seal was hard to use - it was too thick and the window didn't shut."* – Interview participant

"Window seal - my room is facing the sunny side. we tried it on one window. it was great. we just tried on one window" - Interview participant

"Window seal was a bit tricky. I have an old place; the window seal didn't stick so well" – Interview participant |
|---|---|---|
| Removable window shade | Not applicable | Not relevant during the evaluation period (testing occurred during Melbourne winter). Some interviewees said that they can see how the shade would be useful for cooling in the warmer weather. One interviewee noted that while they would like to try it that they did not take the item due to concerns about how to store it in a small student apartment space.

One participant shared that they were not able to apply the window shade as it was incompatible with body corporate requirements for consistency of external visual impact of the building. |
| Induction cooktop | Useful | *"[I haven't used the induction cooktop] because I need to buy the special utensil and it's better to go to the shop than buy online. It would be good to get a utensil with the cooktop because it can be quite expensive"* – Interview participant |
| Cool kit | Not applicable | Not relevant to evaluate during the evaluation period (testing occurred during Melbourne winter). However, people noted that they appreciated receiving it and expect that it will be useful in warmer weather. |
| Booklet on ways to save energy | Somewhat useful | *I forwarded it to my friends so they can get some help from it. When you move into a house you don't get taught to use the appliances. They have used the information.* – Interview participant (international student)

I feel that one of the best ways to communicate it through Instagram video reels for the younger generation. any person from any background is on social media. 30 seconds or less with maximum information. – Interview participant |
| Energy bill review | Useful | *"I was really thrilled with the analysis of the electricity bill and the CoM gave clear direction on how and who we could move to, to get better rates. I reviewed it and moved energy supplier so I am very grateful for that and appreciated it. An outstanding service and result. Plus, moving electricity supplier was easier than anticipated. thank you."* – Survey respondent

"I discovered I can save $400 each year. I can go to another retailer - they [Council] gave me a comparison for other retailers. I am not sure what to do next, don't know how to approach my retailer, I don't know how to do it. I don't have the energy. They |

| | | *[retailer] transfer you. I am always worried about what will happen…sometimes they tell you they will give you a 20% discount but that's just at the start"* – Interview participant |

Reflections on take up of energy saving products and services

As mentioned in the limitations section, it is important to note that the products were tested during a cold snap in Melbourne. Therefore, the most useful products were those that keep people warm, rather than cool. While this is identified as a limitation for the trial, it also highlighted an important learning for the project team, that products and advice need to be targeted to the appropriate season, cohort and through the appropriate channels.

Although the take up of the bill review service was low (n=2), participants noted that the bill review offer was a good idea and they would consider taking it up in the future. While the review may be helpful for some, there are clear barriers to implementing the advice, especially for individuals facing additional forms of vulnerability. These barriers warrant further investigation to better support people in overcoming them.

Use of energy-saving products and perceived ability to adapt to energy-related challenges

Story of Change

"

The blanket is very good, and I can use it when I'm sitting and reading. Before I had the blanket I would go to sleep early because I was cold. Now I can stay warm with the blanket so I can stay up and I don't have to go to sleep early.

Before the workshop I didn't know how to keep warm with the upcoming winter. I didn't know how much the bill would go up over winter.

I didn't know Council was trying to help people in the City.

After the workshop I started doing a lot of reading online. I've read a lot of information online from the Victorian government. I have got a new shower head to reduce energy use and water. Those things I can change because I am more aware of what I can do. This means I can help save energy but also help the sustainability of the planet by using energy more efficiently.

"

Key Evaluation Question 2 - To what extent has the use of energy saving products and information contributed to changes in participant behaviour or their perceived ability to adapt to energy related challenges?

The use of energy-saving products and information has contributed to changes in participant behaviour and their perceived ability to adapt to energy-related challenges. This was identified throughout the pre and post participant survey results, and the interview and focus group (stories of change) data.

Participation in the project has led to an increase in self-reported capacity to change behaviour to adapt to changing weather conditions. As presented in the figures below, prior to the workshop and receiving the products, most respondents strongly agreed that they were worried about keeping warm during the upcoming winter and keeping cool in summer. Following the co-design workshop and product and advice trial, most respondents reported to feel neutral or disagree that they were worried which demonstrates a significant shift.
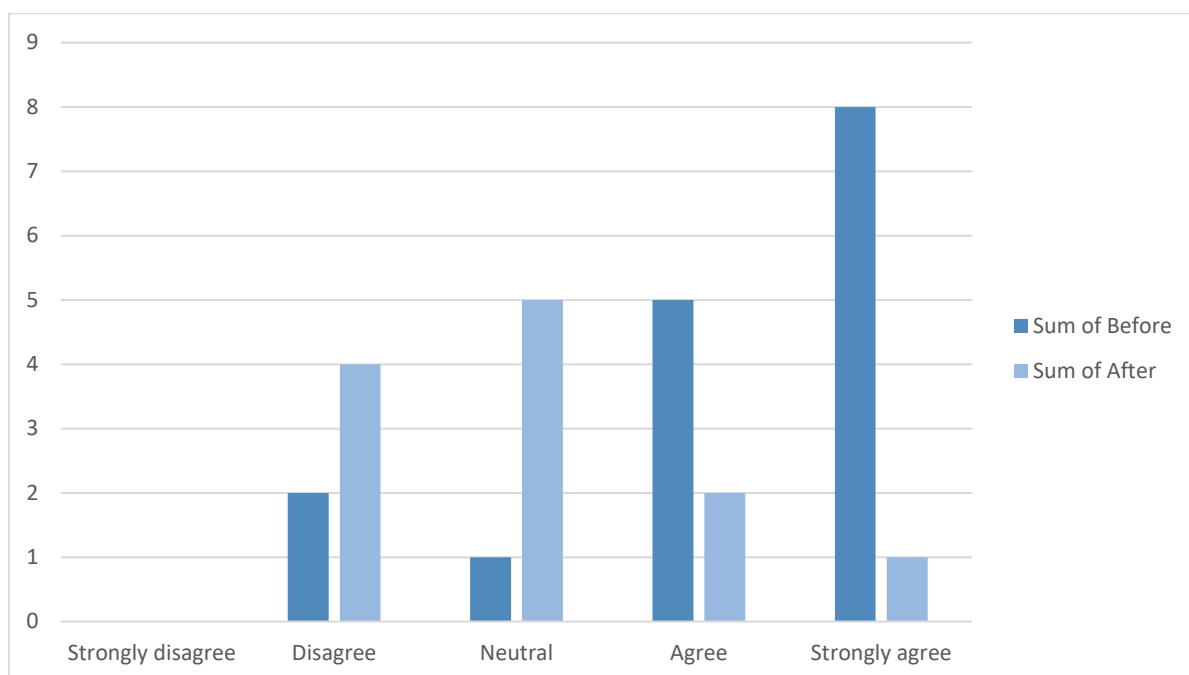
Figure 29 - I am worried about how I will keep warm at home during the upcoming winter (Before n = 16, After n = 12)
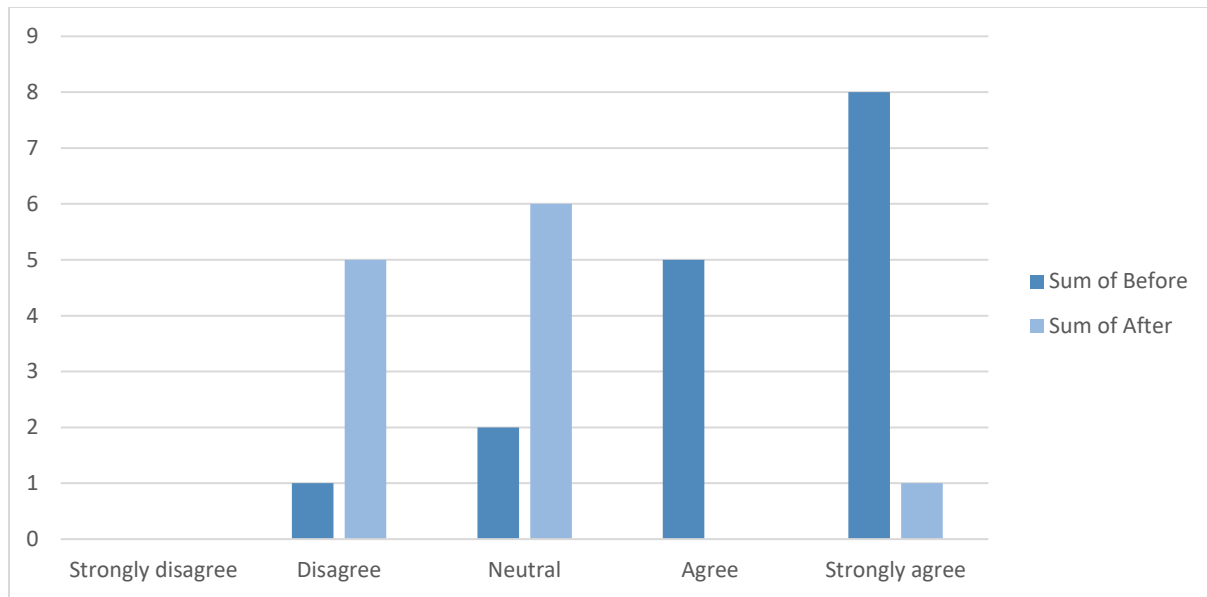
Figure 30 - I am worried about how I will keep cool at home in the summer (Before n=16, After n=12)

Following the intervention, participants reported changes in their perceived ability to adapt to energy-related challenges including an awareness of how to use less energy while staying comfortable.

> *"Instead of using the heater I was able to use the blanket." –Interview participant*

While the interviews and stories of change focus group revealed an overall sense of enhanced wellbeing, some participants are still feeling unsure about cost savings. It is evident that receiving the products from Council has provided people with a feeling of comfort in the short-term, both physically and for many, psychologically. However, there is still work to do to demonstrate how energy saving interventions will positively impact people for the longer term, particularly financially.

> *"It has made a difference, especially at night for sleeping. Increased comfort. I am not sure about the electric bill yet." – Focus group participant*

The energy saving products and information have led to both an increase in self-reported capacity to access the resources (money, technology or information) and increased social capital. Increased social capital is understood in relation to participants willingness and level of comfort in accessing organisations who can help in reducing energy bills and make their home more comfortable in summer and winter.

As shown in the figure below, prior to the workshop and receiving the products, most respondents strongly disagreed or disagreed that they had the capacity to access resources to reduce energy bills and make their home comfortable. Following the intervention, the majority agreed that they did have access to these resources.
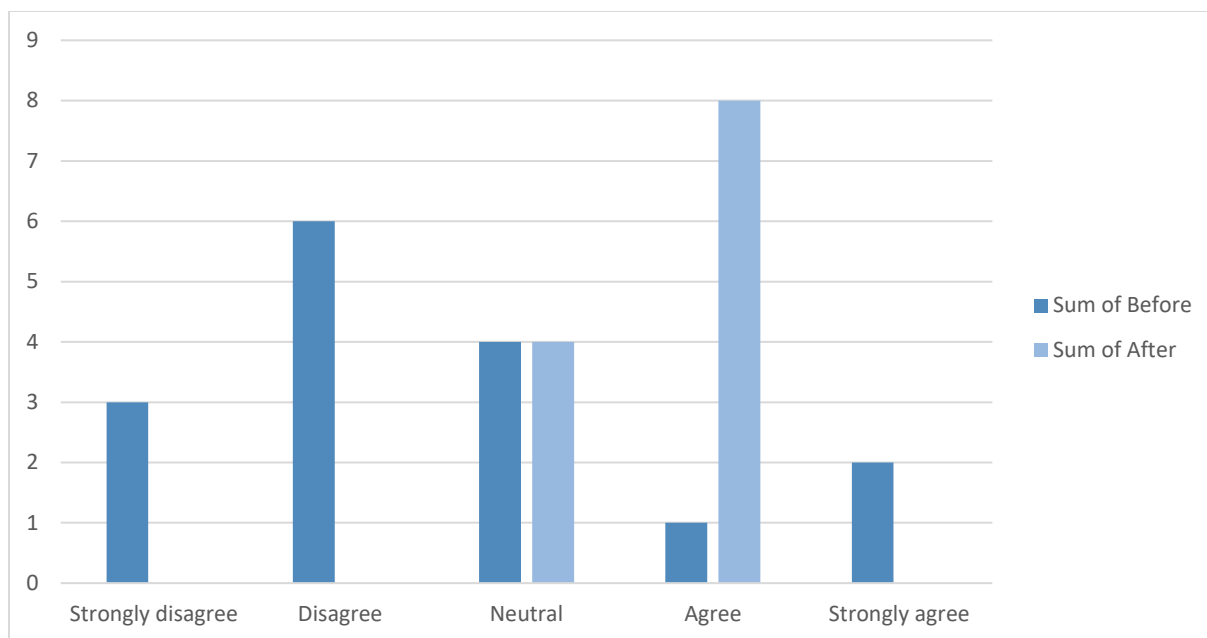
Figure 31 - I have access to resources (like money, technology or information) I need to reduce my energy bills and make my home more comfortable in summer and winter (Before n=16, After n=12)

The figure below shows that prior to the workshop and receiving the products, most respondents strongly disagreed or disagreed that they knew people and organisations that could help them take action to reduce energy bills and make home more comfortable in summer and winter. Following the intervention, some people reported to disagree, while most agreed, or strongly agreed that they know the people and organisations to help them.
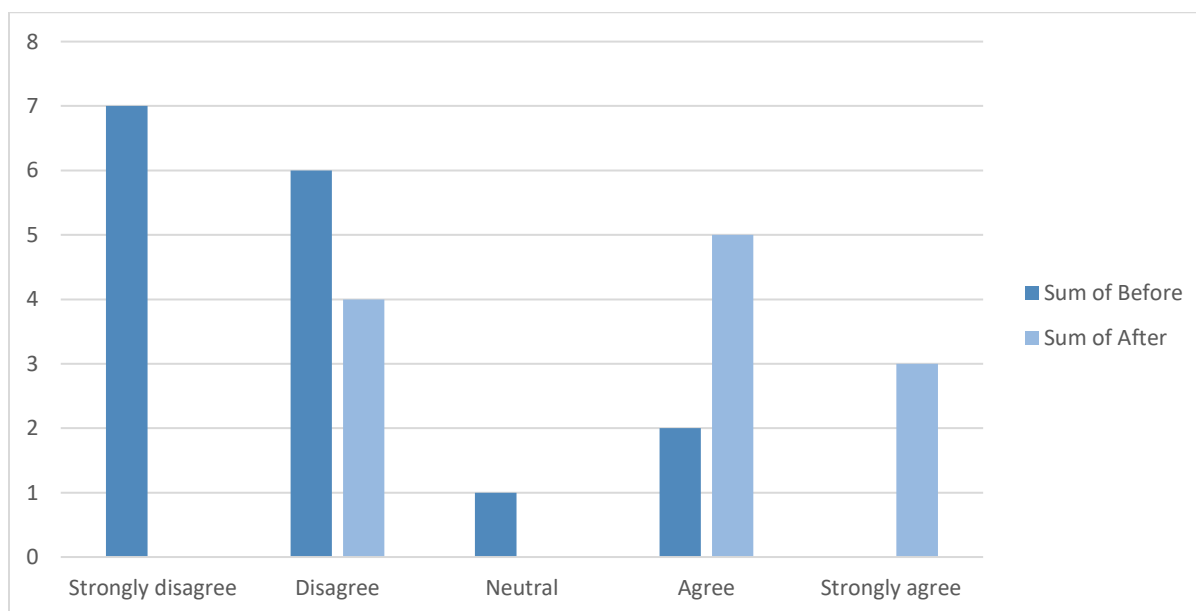
Figure 32 - I know of people and organisations who can help me take action to reduce my energy bills and make my home more comfortable in summer and winter (Before n=16, After n=12)

During the interviews and focus group, participants described numerous changes in their behaviour and reported increased confidence in managing energy-related challenges following their involvement in the

project. For many, it was not just the receipt of energy saving products and information from Council, but also the opportunity to connect with others facing similar hardships, and engaging with Council officers, that contributed to a greater sense of community and in turn, improved adaptive capacity. Community connectedness and trust are an enabler to uptake and change.

> *"Meeting other people who have different ideas about other things. Talking to people for the exchange of ideas." – Focus group participant*

An unexpected outcome was the 'ripple effect', where participants took initiative beyond what was expected to apply what they learned and shared it with others. Some participants also shared how their participation in the project has motivated them to seek additional information, provide information to others and expand networks to learn more about energy use and saving – not only for their own benefit but for the benefit of friends and, the planet.

> *"I've joined a "how to save energy" group online." – Focus group participant*

> *"I want to thank the Council for being helpful. I have been able to share the information I learnt with my international [student] friends. Some have only been here three months. They were really thankful. The experience was really amazing. The proper compensation [for the co-design workshop] was great. The voucher was very useful. I was able to buy a vacuum and microwave for my whole household. The products are life changing. I'm not being dramatic." – Interview participant (international student)*

Barriers and enablers to use of energy saving products and information

Story of Change

> "
> *I think I feel more supported as an international person coming to a new city for the first time. I even reached out to [council officer name] on email because I had certain doubts about the induction cooktop, and they replied pretty quickly.*
>
> *So as an individual, I feel really supported that, you know, I can, I can always reach out to the council if I'm confused about the product or if I need some help, I can always reach out and there's always an institution there to help us out, and I can pass this knowledge to my friends who can then pass on to others.*
>
> *So in that way it's sort of like a community which we are building and it's great, honestly, yeah.* "

Key Evaluation Question 3 – What insights has the testing of interventions provided regarding the barriers and enablers to uptake and use of energy saving products and information?

The testing of interventions has provided several key insights regarding the barriers and enablers to uptake and use of energy saving products and information.

Enabler: Trust

An identified challenge or barrier to the uptake and use of energy saving products and information for many community members is distrust and concern regarding energy retailers, landlords (enabling them to make change), potential scams or unknown sources of information. Additionally, renters in both private and public housing can feel disempowered and disenfranchised.

The evaluation methodology did not employ a counterfactual; thus we have no comparison for providing the energy saving products and advice to people randomly, without the pre-engagement. However, the data reveals that connecting with Council through the workshop and others experiencing energy hardship had a cumulative positive effect (discussed more below). By providing context, guidance, and a shared space for discussion before using the products, the workshop built trust, helping participants feel more informed, confident, and supported. For some, it also made contacting Council for additional support possible because they were re-connecting with someone trusted and familiar.

> *"I felt more supported as an international student arriving in Australia for the first time. I felt supported by Council to reach out if I'm confused about the products." – Focus group participant*

> *"I appreciated the opportunity that the city provided for constituents to collaborate on this issue and provide insight on what folks are struggling with." – Focus group participant*

Enabler: Community connection

Community connection as an enabler is linked to trust. It appears that the impact of the products and information is amplified when combined with community connection, such as an opportunity to share and discuss experiences and advice. Participants reported that meeting other people and sharing information built a sense of community connection and social capital.

Throughout the co-design workshop and during the evaluation activities, there was a strong impetus from participants toward community connection. Many of the ideas generated during the co-design workshop favoured solutions and interventions centred around community connection. Ideas included information sharing as groups, intergenerational support programs, children's workshops, and skill building workshop.

The post workshop survey included a question "what did you enjoy most about the workshop?"; twelve out of sixteen participants cited community connection in their response. Other responses were learning about energy saving (2 responses), and the facilitation and activities of the workshop (3 responses).

Following the workshop, some participants have been empowered to seek out other communities to both share and gain information for saving energy and reducing bills.

Story of Change

> " *Participating in the workshop and having conversations with other people was the most significant change for me. I can pass this information on to my friends and peers which is very impactful.*
>
> *I am an international student that had been in Australia for 2 months. I was previously living in student accommodation and they gave us no information on how to use the appliances. When it got cold in March we had to use the heater. Our bill went up when we had to use the heater all the time.*
>
> *We learnt at the workshop that some appliances have energy ratings, we learnt that we need to read our energy bills.*
>
> *In the workshop I learnt that you could layer up to be warmer. Coming from a tropical place I had never known that you needed to layer up.*
>
> *After the workshop, my friends are I are so aware. We checked the kilowatts of the microwave we bought so we can save electricity.* "

Enabler: The right intervention at the right time

The co-design workshop and product distribution coincides with a cold snap in Melbourne, which demonstrated a key enabler in the success of certain energy saving products, such as the heated throw blanket and door snake. The cold snap significantly amplified the relevance and uptake of the products designed to keep people warm. During the trial period, temperatures plummeted to the coldest days of the year so far, meaning participants were more aware of their heating needs, which likely influenced the appeal and immediate utility of these energy-saving items provided.

This was reflected in the evaluation survey. Participants reported high usage of cold-weather products, particularly the heated throw (used by 12 respondents) and the energy-efficient thermometer (used by 7 respondents). In contrast, none of the heat-adaptive or cooling products were used during the trial period, suggesting that the weather conditions significantly influenced use of and perceived usefulness of the products.

The effectiveness of interventions is not only a result of their design or delivery but also of their timely distribution—offered at a moment when participants could immediately relate to the value they provided. This was particularly significant for the international students, some very recently arriving to Australia and from tropical climates, who had rarely or never experienced these temperatures before. They were therefore very grateful to Council for the products that enabled them to adapt to the cold.

> *"I am new to Melbourne and have most lived in tropical climates before. So last week when the temperatures really plummeted, it was good to have all this stuff at home to fall back on. If I didn't go to the workshop, I wouldn't have prepared a heated blanket. It is great to have these on hand."*- Focus group participant

Seasonal relevance is a key factor that contributed to the seeming poor performance of products including the cool kit and tinted window shade, which are targeted at enabling adaption to heat waves and warmer temperatures.

> "It is evidence to Council that we should target events or interventions at the right time…We do this for cool kits but we don't do this for the cold. Melbourne is a heating climate; we use more energy in winter than in summer. Winter is the [bigger] problem for energy hardship. – Council officer

Barrier: The wrong supporting information

Overall, participants reported that the products were intuitive enough to set up and use without reading the instructions and they skimmed over the supporting information and guidance on how to use the products, and tips on saving energy.

> "Heated blanket - Easy to set up. I made it too warm at the beginning. It stays warm so you can turn it after a while and it stays warm." – Interview participant

However, while the products were easy to set up without instructions, a barrier to the long term use of, and effectiveness of electrical products was a lack of clarity about how the energy efficiency compares to other products. Six out of eight interview participants commented that they would like additional information to understand and compare the energy efficiency of the heated throw blanket, to other heating products. Participant feedback included:

> "How is it going to save money if it still using the electricity - but are you sure? Is it safe to be covered at night? Is it taking too much electricity? Is it better to use a hot water bottle [even though] you need to heat the hot water in the kettle? I am still feeling worried to use it." – Interview participant (community housing resident)

> "The blanket has been game changer. It makes it hard to get out of bed and has enhanced my wellbeing and comfort. [However, I am not sure] about the energy saving [of the blanket]. How does that [the energy saving] translate to dollars e.g. in comparison to space heater?" – Interview participant

In addition to information on the energy efficiency of the heated throw blanket, participants were concerned about safety of the heated throw blanket. Insufficient information about safety may be a barrier to people using the products.

> "I had some reservations about it in terms of safety." – Interview participant

> "Is it safe to sleep [with the heated throw blanket]?" – Interview participant

Key lessons for program design

This section provides advice to local governments for the development and refinement of a range of possible energy related interventions and supports with communities experiencing energy hardship. The key lessons have been drawn from the evaluation findings. It is expected that the following lessons will be coupled with research evidence and local authority expertise to enable an evidence-informed service and policy response for combatting energy hardship.

Create opportunities for building a sense of connection and community

While the reception to the products and energy saving advice was as broadly in line with expectations, the extent to which participants valued the engagement component, due to its resulting sense of community connection, including building a connection to council, was unanticipated.

Many participants shared feedback that the sense of community connection and learning from others was some of the most valuable outcomes of the experience, even above the provision of free products and advice.

Both the ideas developed by participants during the co-design workshop and the evaluation data highlight a call to action for local governments to further investigate community building and connection as both a means to deliver energy-saving and resilience building initiatives - beyond what council can do alone - and as means to continuously learn and improve through connecting to a community of lived experience experts.

Lived experience insights are high value and underscore the need for further and ongoing engagement

Lived experience and storytelling are invaluable for understanding how people think, prefer to receive, and use energy-saving products and advice.

It is clear from the participant feedback that community members are interested in contributing to this issue and the work of local governments around it. Further and ongoing engagement will provide an opportunity to have greater representation from other cohorts experiencing energy hardship in engagement activities, and allow council's to explore different experiences, perspectives and ideas on how to combat it.

Both outreach and time to gather and ideate are valuable. The community conversations and co-design workshops were important and complementary engagement methods. The community conversations were a valuable method for gathering a baseline understanding of the lived experience of a range of residents. This enabled the workshop to focus on ideation and design, rather than only focusing on gaining information about lived experiences.

The engagement activities were limited by time constraints. A lesson learnt is that more time can be spent in collaboration, ideation and proto-typing. Having more time would have allowed for participants to fully explore ideas, iterate on concepts, and engage more thoroughly with each other.

A note: lived experience insights are not something to be extracted, people sharing their knowledge and expertise must feel valued and like it is worthwhile. Many participants spoke of how meaningful their involvement felt and that they felt appreciated throughout. The survey data shows that most participants agree or strongly agree (88%) that they trust council actively supports community involvement in decision making. This trust is both critical for local government's role in combatting energy hardship but also for community development and cohesion more broadly – particularly for people experiencing energy hardship who may feel isolated or vulnerable.

Trusted messengers, through the right channels at the right time

A key finding is that trust plays a foundational role in how community members respond to energy-related advice and support. Trust is foundational, community members are more likely to accept and act on

energy-related advice when it comes from sources they perceive as understanding, consistent, and genuinely invested in their wellbeing.

Participants reported that they want products and information that suit their immediate needs. The products that were most used were those needed during colder weather, which was influenced by the cold snap that occurred during the intervention phase. This reinforces the importance of the delivery of interventions and information with other factors such as the seasonal context to maximise impact.

A clear lesson from the evaluation is that different cohorts have unique priorities and pain points. Therefore, information about energy-saving practices, and the promotion and access to energy saving products needs to be considered and targeted to different audiences. While all participants highlighted the value of human connection and a trusted messenger, we also heard that students are often short on time and have limited connection to existing community networks and programs across the municipality. For this reason, receiving digital information via social media platforms, such as TikTok and Instagram Reels would also be effective.

Participants highlighted that for multicultural and religious communities, messaging through a trusted messenger is important. We heard through the co-design workshop that some people want to receive information through existing trusted channels, such as community WhatsApp groups.

For older communities, trusted relationships and in-person communications are most helpful. For these cohorts, having a 'real person' to call or someone to sit for a one on-one conversation and advice will support their trust, understanding and take up of energy-saving and wellbeing interventions.

11. Programmatic responses for local government

Insights from the community engagement and co-design process reveal the critical role for local government in addressing the root causes of energy hardship and building adaptive capacity within the City of Melbourne. There is a need within the community for clear, relevant and accessible energy information and support delivered at the right time, through the right channels. Trust and community connection are also critical enablers of effective action. As the closest level of government to the community, Council is uniquely placed to deliver programs that meet these needs, building on its existing networks, services and connections with the community. Priority responses have been identified based on these opportunities and are identified below for further development as part of future program design.

Empower residents to get the best energy deal

- **Provide an energy bill review service** to help residents understand their energy bills, identify and switch to alternative retail plans and access energy concessions; starting with low-income households and other vulnerable cohorts.

Provide targeted support to renters and vulnerable households

- **Provide tailored advice for renters** on their rights and the actions they can take to improve thermal comfort and reduce energy consumption, including in both apartments and standalone buildings.

- **Provide targeted advice** to key cohorts such as culturally and linguistically diverse communities, and international students. Ensure information is provided in suitable languages and communicated in culturally appropriate and accessible ways through trusted channels.

- **Engage with housing providers** and other relevant institutions such as universities to provide better information to tenants about the energy system, their rights and opportunities to reduce energy costs.

- **Provide free or discounted products** to help renters improve thermal comfort and energy efficiency.

Facilitate community connection and capacity building

- **Provide events and workshops** aimed at educating and upskilling community members on energy issues, ensuring that they are accessible, culturally appropriate and tailored to a diversity of target communities. Design events and associated activities to facilitate connection between people experiencing energy hardship and support the two-way sharing of information between residents and with Council.

- **Recruit, train and mentor** a network of community champions representing Melbourne's diverse communities to advocate and educate their communities on energy issues.

- **Deliver a public health awareness campaign** about keeping warm in the winter, modelled on Council's current approach to heat.

Support owners to undertake home and building upgrades

- **Provide targeted information** on how to electrify and improve thermal efficiency, including the most cost-effective approaches. This information should be tailored for different building types, including apartments and standalone homes. It may include free or low-cost energy efficiency assessments.

- **Provide financial support for building upgrades** through grants, ensuring that apartment communities, including Owners Corporations, are eligible. Prioritise buildings that house vulnerable populations.

- **Connect local consumers with trusted products and suppliers** to facilitate upgrades such as solar installations, hot water and heating upgrades, and thermal efficiency improvements.

- **Provide advice and assistance** on accessing financial support provided by State and Federal governments

Build the capacity of apartment communities

- **Establish a consistent point of contact** within the City of Melbourne for apartment communities, based on the existing Business Concierge model currently offered by Council.

- **Provide tailored information** for owners and residents on the opportunities for electrification, thermal performance and energy efficiency upgrades.

- **Provide accessible training** for Owners Committee members to improve awareness and upskill them in delivering energy efficiency and electrification projects.

- **Connect owners with trusted advisors and suppliers** with expertise in delivering whole of building energy upgrades.

- **Facilitate mutual capacity building by delivering regular events** designed to bring apartment building communities together to learn from each other, experts, and council staff, and to feed relevant information and ideas back to council.

- **Develop guidance for Owners Corporations on navigating embedded networks,** including negotiation of better terms and pricing structures, and how to transition out of existing contracts.

Lead innovation and demonstrate what works

- **Catalyse whole of building electrification and energy efficiency projects** by working with apartment building owners to promote these initiatives in new builds and retrofits.

- **Develop and promote case studies** demonstrating how whole of building upgrades can be delivered in the apartment sector, including the benefits to owners and residents.

- **Develop and pilot models to share the benefits of renewable energy technologies** like solar and batteries with community, including renters and apartment communities.

12. Priority Policy Responses

Despite the opportunities for local intervention, many of the policy levers required to address the systemic causes of energy hardship lie outside the control of any Australian local government. There is a clear need for the City of Melbourne to advocate on behalf of its community for legislative change, policy intervention and market reform at the state and federal level. Key opportunities identified through our research are outlined below for further development.

Regulate to improve building quality and efficiency

- **Advocate to support the Victorian Government's proposed minimum energy efficiency standards for rental properties**, requiring rental properties to have higher levels of insulation and efficient electric appliances including heating and cooling.

- **Advocate for nationwide mandatory disclosure of building energy efficiency** for all residential buildings at the point of sale to improve transparency, inform consumer decisions and provide a market signal for investment in building improvements and energy efficiency appliances.

- **Advocate for measures to strengthen the next National Construction Code** to bring existing standards into line with international best practice for new homes and significant renovations.

Deliver equitable support for energy upgrades

- **Lead an advocacy campaign** on behalf of participating councils to support a national energy upgrades program, with a focus on ensuring low-income households are prioritised. The program would provide households with financial assistance and trustworthy advice, and could be delivered by state or local governments or nonprofits.

Catalyse household electrification

- **Advocate in support of the phase-out of gas appliances**, including at the time of replacement in existing homes, new homes and commercial buildings, including individual units and apartment common services. This should include specific program pathways such as technical and financial support to assist apartment communities, renters and low-income households in transitioning to electric appliances.

Empower apartment communities to act

- **Advocate to the Victorian Government to reform the Owners Corporation Act** to ensure that it drives more sustainable outcomes, including lowering of approval thresholds for building upgrades, better definition of 'sustainability items' and requirements for all OCs to plan for electrification via their maintenance plans and funds.

- **Advocate to the Victorian Government to establish a Strata Commissioner** dedicated to supporting strata governance and compliance, consumer protection, policy development and regulatory reform.

- **Partner with other councils and allied groups to advocate** to the Commonwealth and Victorian governments for appropriately **targeted support for apartment owners**, particularly those with lower income tenants.

Improve energy consumer choice, awareness and protections

- **Advocate to increase access to energy concessions**, for example to international students and newly arrived migrants.

- **Investigate and advocate for retail market reforms** to better support low-income households, such as through a mandatory social tariff or default offer for low-income households

- **Advocate to improve conditions for residents in embedded networks**, including improvements to concession access, lowering regulated maximum prices, more transparent disclosure of pricing structures and better enforcement of regulations.

- **Advocate for the transition of all embedded** networks to the Victorian Government's established renewable energy obligations in 2027, a clear timeframe for removing all gas embedded networks, clearer termination provisions and a pathway to end all legacy contracts.

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14. Appendices

Appendix 1 - Baseline survey questions

The following questions were presented as a *five point Likert scale (Strongly agree to Strongly disagree).*

1. Please rate your level of agreement about how ready you feel you are to deal with extreme weather like heat waves and cold snaps.

   a) I am worried about how I will keep warm at home during the upcoming winter

   b) I am worried about how I will keep cool at home in the summer

   c) I have access to resources (like money, technology or information) I need to reduce my energy bills and make my home more comfortable in summer and winter

   d) I know of people and organisations who can help me take action to reduce my energy bills and make my home more comfortable in summer and winter

   e) My wellbeing is negatively impacted during hot and cold weather because I cannot use the gas and/or electricity I need

2. Please rate your level of agreement about your gas and/or electricity bills. Rating from Strongly agree to Strongly disagree.

   f) I feel in confident that I understand my energy bills

   g) I know how to make sure I'm getting the best electricity deal available to me

   h) I know how to make sure I'm getting the best gas deal available to me

3. What do you hope to get out of the co-design workshop? [open-text]

Appendix 2 - Workshop evaluation survey questions

The following questions were presented as a *five point Likert scale (Strongly agree to Strongly disagree).*

1. I trust that Council actively supports community involvement in decision making.

2. I believe my input was taken seriously.

3. I felt encouraged to express my opinions and views during the workshop.

4. The facilitators gave clear directions for the activities.

5. I felt like it was a respectful and inclusive process.

6. I would recommend future similar opportunities to my friends or family.

7. I learnt something new about combatting energy hardship.

8. I enjoyed my time in the workshop.

9. I am proud of what we accomplished during the workshop.

The following questions were presented as open short response questions.

10. What did you enjoy most about the workshop?

11. What would you change about the workshop?

12. Do you have any other comments regarding the recruitment process or the workshop?