

# Summary Report: Tackling hidden energy vulnerability through housing, energy and health collaborations

For the Lord Mayors Charitable Foundation



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## Acknowledgement of Country

We at RMIT University acknowledge the people of the Woi wurrung and Boon wurrung language groups of the eastern Kulin Nation on whose unceded lands we conduct our research, teaching and service. We respectfully acknowledge Ancestors and Elders past, present and emerging who have always been caring for Country. We pay our respects to Country, the lifeworld that sustains us all.

Our research, education and service are already in a relationship with Country and the people of Country, here and in all the places we undertake our business. As mostly non-Indigenous people, we acknowledge our obligation in this relationship: to uphold the ngarn-ga [understanding] of Bundjil and practice respect for community and culture. Though there is much we still need to learn, especially about ourselves, we affirm our dhumbali [commitment] to that work. We hold as central to our business, dhumbali to a shared future with Indigenous peoples everywhere and especially Kulin Country and peoples.

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# Executive Summary

## Key Points



- **Energy vulnerability is a health risk.** Tackling energy vulnerability may be considered a primary public health prevention strategy.
- **Energy vulnerability is often hidden.** Households may under-use energy or fall outside existing systems of detection and support.
- The literature on tackling hidden energy vulnerability reveals the importance of trusted intermediaries in identifying households and supporting them in a holistic manner.
- Our study revealed a wide range of households that suffer from hidden energy vulnerability, with salient factors including household's situation, coping mechanisms and culture.
- Identification of hidden vulnerability through housing, health, energy and social services and assistance given was mostly opportunistic and ad hoc.
- Collaboration across services was present and productive but was not systematic and generally did not include shared decision-making processes.
- **Householders highly valued energy assistance.** However, service delivery models varied and produced varied experiences, including unintended consequences.
- **Tackling hidden energy vulnerability** requires (a) more systematic linkages between service organisations (b) capacity building and awareness raising across the sector, and (c) the involvement of a broader range of frontline services, such as health practitioners and local councils.

## Background



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### Purpose of this summary

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The aim of this executive summary is to provide a snapshot of the research on tackling energy vulnerability through collaborative efforts among health, housing, energy and community services organisations. It presents the problem definition, project aims, methodology, literature review on hidden energy vulnerability and collaborative efforts to tackle it, both internationally and in Australia, key stakeholders' insights into their interaction with householders with hidden energy vulnerability and the collaborations with other organisations to assist householders to mitigate hidden vulnerabilities. It also describes interview results with householders experiencing energy vulnerability and the assistance they sought to deal with it. Recommendations for different sectors to recognise and mitigate hidden energy vulnerability are listed.

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### Problem definition

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This project conceptualised tackling hidden energy vulnerability as a preventive public health intervention. Energy vulnerability is the susceptibility to harm from energy poverty. Energy poverty may lead to physiological ill health, premature death, anxiety and stress, as well as social exclusion, poor school performance and tensions in family relationships (Marmot Review Team 2011; Yip, Mah & Barber 2020).

'Hidden energy vulnerability' captures the propensity of householders to experience harm due to limited access to safe, affordable and reliable energy services in the

home which may not be easily detected by conventional indicators of energy disadvantage, such as bill arrears or disconnections, or which may be overlooked in a system that largely requires householders to self-identify and to self-refer to support services. Given the available data that focuses on winter heating as an essential energy service, in Victoria, an estimated five per cent of households may be energy vulnerable; almost one per cent of households may be in hidden energy poverty (VCOSS 2018). This means that they live in dangerously under-heated homes, often deliberately, in order to avoid the risk of incurring energy bill debt. The dynamic nature of energy vulnerability was highlighted by the economic and social impacts of the COVID-19 pandemic (Essential Research 2020; Horne et al. 2020) during which this research took place. Linking health care with energy support, which is traditionally not considered to be health-related, is an innovative approach. Although joined solutions to energy and health may improve wellbeing and promote energy justice, such interdisciplinary initiatives are rare (Willand, Sharrock & Long 2019).

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### Project aim

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This project aimed to inform capacity building strategies to mitigate energy vulnerability through integrated and collaborative service delivery and policy development across health, housing, energy and social services. This project sought to increase understanding of how to reach 'hard to identify' people, connect them to energy support and promote health through collaborative efforts across

housing, energy, health and social services.

The research questions for the empirical research components were:

1. What are the practices of relevant organisations with regards to identifying households in energy vulnerability and connecting them to energy assistance services?
2. What are the models of inter-organisational energy assistance service delivery?
3. What are the challenges and keys to success in inter-organisational collaborations to mitigate energy vulnerability?
4. What are the householders' lived experiences of energy vulnerability and energy assistance?

The findings were used to formulate recommendations for capacity building strategies.

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## Literature review

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There seems to be broad agreement among researchers and practitioners in Europe and Australia that tackling energy poverty should take a holistic approach and entail construction measures, financial and contractual assistance as well as behavioural advice. Energy poverty initiatives in Europe and the United Kingdom (UK) are amongst the most developed international examples. Initiatives in Europe tend to aim for carbon emissions reductions and promote low costs energy efficiency retrofit measures together with collaboration between housing, social services and energy sectors. By contrast, in the UK, equivalent efforts are championed through expected health benefits, and there is a focus on long term strategies to improve housing quality. Across these jurisdictions, referral schemes are a common mode of collaboration, and they typically include training of frontline staff to identify potentially energy-vulnerable households.

Tool kits for collaborations and capacity building facilitate joint action at the individual, community and organisational levels. These include accredited training and basic awareness training for frontline staff and other professionals, local community awareness sessions, a software tool to help general practitioners (GPs) identify patients at risk of energy vulnerability and a central hub which collates, develops and disseminates knowledge on energy poverty.

In Australia, several collaborative projects across local

councils, health and civil society organisations have been trialled in recent years. Despite their proven success, initiatives were not upscaled and project resources, such as training materials, have been lost. Trusted intermediaries still play a key role in identifying householders in energy vulnerability in Australia. However, the skills, practices and patterns of referrals are relatively ad hoc and localised. Training and capacity building for either service providers or households is lacking, as is knowledge of the diversity and challenges households face. This in turn requires research on the lived experience of householders in hidden energy poverty.

This project addressed these gaps in knowledge. Interim findings were presented and discussed at a workshop, where a selection of the key stakeholders was prompted to inform the enhancement of integrated service initiatives to better identify and address hidden energy vulnerability in Victoria.

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## Methodology

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To achieve these aims, accounts were collected from both households and service providers via interviews and focus groups, and then cross-analysed together with secondary data from literature studies of energy vulnerability and policy interventions both in Australia and internationally.

Following steps were undertaken throughout this project:

1. Literature review of collaborative approaches to address energy vulnerability.
2. Review of existing initiatives. Interviews with key personnel in the identified collaborative initiatives provided insight into their models, resources and experiences. Data was collected through interviews and focus groups with 34 key personnel in housing, health, energy and social service agencies assisting households with health and energy support, e.g. in-home older people support service workers, social housing officers and support coordinators, and maternal child health nurses.
3. Evaluation of householder experiences. In-depth interviews with nine householders who had been targeted by these existing initiatives illustrated how these were experienced and helped inform how initiatives, policies and programs may best respond to the complexity of circumstances for vulnerable households. The project targeted older people (65+), people with chronic health needs and parents

of young children. All householder participants were social renters in Greater Melbourne.

4. Development of 'Integrated Energy Support' capacity building strategies that aim to mitigate energy-related health risks.
5. Delivery of a Research Workshop that translated the evidence to the target audience and to create momentum for change.

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## Findings

Through this work, insights were gained into how housing, energy and health policy and services could be better integrated to provide improved identification of households in energy vulnerability and provision of assistance. While hidden energy vulnerability may never be completely eradicated, significant inroads can be made by joining a holistic approach to energy assistance with a collaborative approach to providing services. Such comprehensive approaches are characterised by the combination of material and capacity building initiatives at the household and service organisation levels, including housing retrofits, energy literacy and capability building across service providers, more tailored financial support, as well as de-stigmatised, tailored advice, support and information for households and their relatives or friends.

### ***Practices of relevant organisations with regards to identifying households***

Key personnel described a wide range of manifestations of energy vulnerability which included limited access to heating and cooling, laundry, cooking and refrigeration. Energy services were perceived as being essential for mental and social health as well as legal / rights-based reasons. Methods for locating and identifying hidden energy vulnerability typically involved intermediaries from housing, health care and social support services.

Five distinct types of hidden energy poverty were identified: underconsumption; incidental masking; disguised vulnerability due to behavioural coping mechanisms; intentional concealment due to fear of legal consequences, and denial or lack of awareness of the effects of energy deprivation. Methods of identifying households with hidden energy poverty or vulnerability included:

- careful listening during conversations
- observations of circumstances during home visits
- health care assessments with relevant questions
- rent arrears
- referrals from other support services, and

- spatial techniques allowing the identification of areas with relatively high prevalence of drivers of energy vulnerability.

### ***Models of inter-organisational energy assistance service delivery***

Inter-organisational relationships occurred among the domains of housing, energy, health and social services. They were diverse, often temporally bound and limited by funding. While formal relationships were often transient around particular projects, there were also informal networks of advocates more broadly scattered through the system. Links varied from consultations and elementary transactional relationships to collaborations around shared goals and through extended programmes. Energy assistance was predominantly delivered by civil society organisations. The models of inter-organisational service delivery fell into the seven categories:

- engagement and outreach services;
- signposting/prompting followed by self-referral
- facilitated referrals (i.e. forwarding of household details to another organisation)
- monitored (holistic) referrals (i.e. forwarding of household details with follow-up process)
- advocacy and brokerage (i.e. representation of householders)
- collaborative handholding (i.e. organising jointly guiding householders), and
- co-location of services.

The study also revealed a few unilateral models of assistance where an organisation helped mitigate householders' energy vulnerability directly through advice, letters of support or prescription of appliances.

COVID-19 restrictions and policy responses brought about changes in both energy vulnerability and the provision of energy assistance services. Neutral changes included a shift in population groups needing assistance and a recognition of the importance of energy in the home among policy makers and energy organisations. Negative changes referred to challenges in project implementation and the exacerbation of the intersectional disadvantages among householders. Positive changes included more opportunities for energy assistance by the civil society organisations, wider geographical spread of ie. energy counselling, increased funds for income support, digital participation and retrofits, and better work-life balance for civil society organisations staff.

Our findings revealed that challenges in providing

energy assistance delivery fell into the categories of program design (planning shortcomings, content issues, insufficient and sporadic funding, limited evaluations and knowledge translation), program delivery (time constraints, language translation issues, difficulties in dealing with retailers, the reluctance and complex needs of householders) and inter-organisational relationships (due to restrictions in program designs and information on programs and potential partners). Keys to success in the delivery of services and interaction with householders were categorised into three types: engagement, delivery of assistance and communication. Key to success in collaborations included shared motivations, the selection of suitable partner organisations, maintenance of relationships and good management of collaborations.

### ***Householders' lived experience of energy vulnerability***

Nine householders were interviewed in total between October 2020 and January 2021. Although interviews had to be conducted remotely due to COVID-19 physical distancing rules, each was an in-depth, semi-structured conversation designed to elicit rich and detailed information about what households do and how, and to what end. Each interviewee was selected carefully following assessment of their circumstances. A range of households was sought to provide a diversity of information. Interviews were ceased when a pattern was established amongst responses.

While all participants suffered energy vulnerability, the conditions that shaped it varied. The analysis of these accounts revealed the range and dynamics of energy vulnerability. Participants talked about their perceptions of cold and hot homes, about their experiences of dealing with broken heating and cooling appliances and managing inadequate heating and cooling. They recounted how this affected their use of the home, including safety concerns around indoor air pollution from gas heaters. They reported that their physical, mental and social health were negatively affected by their energy vulnerability, including through constant stress about energy bills. COVID-19 exacerbated energy vulnerability by removing their ability to pay bills; by forcing them to spend much more time in their homes, including caring for others with specific energy needs; and by requiring high levels of digital literacy. Householders with disability relied on their electrical medical devices. Those with family and caring responsibilities were anxious about providing cooked food and comfortable indoor environments for others, which they could no longer afford. Some participants also emphasised the importance of the help they received to support their digital capabilities to continue education or

to access essential government services.

Apart from fear of bill shock, awareness of and control over housing condition and its role in energy bills was a key feature of the household accounts. This included poor thermal quality of the home, and poor quality heating appliances with limited spatial coverage. Some participants were suffering silently without asking for any assistance. They either saw little point in raising issues beyond their control, or they were ashamed or otherwise felt it was inappropriate to raise their suffering. They compromised on their meals, medications or socialising to pay their bills. Others were less aware of the relations between property and appliance conditions and their ability to afford basic warmth. We observed three types of hidden energy vulnerability among our research participants: underconsumption, incidental masking and disguise by behavioural coping mechanisms.

To tackle their energy poverty, householders sought and received help from different avenues. Some householders had limited help, some had multiple sources of assistance. Financial assistance, retrofit, advocacy, energy advice and some unsolicited assistance was offered by energy retailers, financial counsellors, housing and health care providers. Some of our participants received acute help (e.g. Utility Relief Grants) while others experienced assistance with long-term affordability of electricity (e.g. solar panels). Only one participant reported receiving advice about how they could better manage their energy use.

### ***Proposed capacity building strategies***

The literature review, service provider and households research components were combined to formulate recommendations for capacity building strategies at four distinct scales as described below. They extend VicHealth's conceptualisation of capacity building for health promotion and its four levels of capacities: individual, community, organisational and system capacities (VicHealth n.d.).

The proposed *individual capacity building strategy* aims to improve the knowledge, skills, motivation and confidence of intermediaries who have regular contact with vulnerable householders, and who may facilitate their access to energy assistance. It entails training of housing officers, community workers, energy retailer call centre staff and interpreters in energy literacy and in the identification of energy vulnerability. This workforce development would include provision of technical knowledge, training in reading of bills and



communication skills, aim for an understanding of social and structural conditions and share knowledge of the varied assistance providers. The predominant service delivery model would be signposting with limited hands-on help. Checklists may be a suitable tool.

The proposed *community capacity building strategy* aims to promote the capacity of communities to develop and deliver local initiatives to address hidden energy vulnerability. The community capacity building strategy entails the development of local partnerships and establishment of referral and assistance mechanisms. It would build on an 'opportunistic' approach to identifying householders in energy vulnerability. Partnerships could be formed among health care organisations, social support services, housing organisations and civil society organisations who provide energy counselling. Possible service delivery models would be facilitated or holistic referrals from health care providers, and co-location or integration of energy counsellors into organisations. It could also entail engagement and outreach initiatives, community champions, train the trainer sessions and signposting through health support organisations. Supportive tools would include a central website for information on grant opportunities and assistance services as well as hard copy information, for example, to complement health care assessment reports.

The proposed *organisational capacity building strategy* aims to foster local organisational leadership that allows diverse local entities and sectors to work towards the goal of eliminating energy vulnerability through shared responsibilities, complementary services and a continuous process of improvement. A local council could drive the identification of vulnerable households through data-driven and opportunistic methods, act as the central point of referral and assist with the implementation of energy assistance, including practical help with retrofits.

The *institution-building (system-wide) capacity building strategy* proposes structural reforms to achieve a

continuous progress to eliminate energy vulnerability through changes in policy, the professionalisation of energy counselling, regulatory reforms aimed to improve housing quality, increased collaboration with energy retailers, increased and continuous funding and political advocacy and involve all stakeholders. It would consider energy in all disciplines and decisions, include access to essential energy services in Victoria's Public Health and Wellbeing Plan and aim for better collaboration among state departments. The cross-sectoral energy assistance service delivery model would be facilitated by a central helpline, independent advice, triage and referrals to local energy counsellors and supported by training materials for frontline staff and a WhatsApp account.

### ***Evaluation of the research workshop***

The findings of the research and the proposed capacity building strategies were presented at a research workshop. The research workshop was attended by 70 participants, half of whom belonged to the community services and government sectors. A post-event survey received 22 responses. According to the survey, the research forum had increased the respondents' awareness of energy vulnerability, awareness of inter-organisational service delivery and willingness to collaborate to mitigate energy vulnerability. The preferences for sectors for collaboration were fairly evenly distributed with a slight preference for community services and health organisations. Joint advocacy, engagement and outreach services research were the preferred collaboration models. The research workshop itself proved an opportunity for collaboration among the participants and contributed to the community of practice. Incidental outcomes of the project were the increased awareness of energy assistance among participating key personnel, an expressed willingness of some key personnel to collaborate in energy assistance services, the facilitation of contact between a home care assessment team and a civil society organisation, and the dissemination of resources by the researchers during the duration of the project.

## Recommendations



The capacity building strategies have been translated here into recommendations for the relevant target audiences. The following list of recommendations is based on initiatives discovered in the project and is not exhaustive. These recommendations relate mainly to short to medium term initiatives, except in the case of proposed longer term policy improvements.

### Housing organisations

To identify hidden energy vulnerability:

- Monitor rent payment arrears
- Conduct regular home inspections to monitor indoor temperatures, safety of appliances and intactness of building envelope
- Have regular discussion about energy with householders to tease out energy vulnerability,

To mitigate energy vulnerability:

- Build capacity among householders on their energy-related rights
- Provide timely information to householders and building/neighbourhood/community/tenant organisations on energy assistance support offers upon which to act
- Be proactive in offering financial counselling and energy assistance, incl. reading of bills, for households in rent arrears
- Be proactive in providing air conditioners to older people and those with impaired thermoregulation
- Be proactive in providing information on energy assistance services to householders; hard copies

may be useful for householders with limited digital capabilities

- Provide information to householders regarding new appliances they receive (e.g. energy ratings, projected savings)
- Pursue diverse opportunities to improve energy efficiency of dwellings
- Upskill housing officers and translators in energy efficiency and energy literacy
- Consider employing in-house energy counsellors as advisors for housing officers and trusted expert and authority on all matters energy for householders

To collaborate with other organisations:

- Establish ongoing relationships with energy assistance service providers for referral of householders, practical assistance and energy literacy information events
- Seek partnerships to provide access to computers, free data and digital literacy training to householders
- Seek funding and support from state and local councils and philanthropic organisations
- Collaborate with health care and other tenant support services in offering energy assistance and retrofits

### Health care providers

To identify hidden energy vulnerability:

- Be sensitive to the risk of energy vulnerability if there are underlying medical susceptibilities, e.g. substance abuse, advanced age, impaired

thermoregulation

- Be sensitive to inadequate indoor temperatures during home visits
- Be sensitive to illnesses that may be linked to inadequate home temperatures
- Be sensitive to expressions of financial constraints, e.g. when medications cannot be purchased

To mitigate energy vulnerability:

- Be proactive in offering to complete Medical Cooling Concession and Life Support Concession forms when a patient presents with an eligible medical condition
- Be proactive in offering Letters of Support for air conditioners or non-polluting heaters to social housing and private renters

To collaborate with other organisations:

- Investigate local energy support services, e.g. through local councils, and establish a referral pathways

### **Energy providers**

To identify hidden energy vulnerability:

- Use energy consumption data to identify households who seem to be under-consuming, frequently disconnected, on very old or not on 'best offer' energy contracts

To mitigate energy vulnerability:

- Send alerts to householders with unusually high energy consumption
- Be proactive in offering the utility relief grants to householders

To collaborate with other organisations:

- Establish processes with housing organisations that ensure automatic renewal of concessions for social housing tenants
- Nominate permanent call centre staff as liaison officers for civil society organisations that offer energy assistance
- Establish ongoing relationships with civil society organisations and fund energy assistance

### **Local councils**

To identify hidden energy vulnerability:

- Use council data to identify householders who may be vulnerable, e.g. householders with a disability parking permit, discounted council rates, bill collection assistance, registered for Meals on Wheels and Home and Community

Care (HACC), social housing tenants, those on the social housing waiting list and in council rate arrears

- Upskill Home and Community Care workers and Maternal and Child Health nurses in identifying energy vulnerability and provide energy literacy training.

To mitigate energy vulnerability:

- Be proactive in offering energy literacy training and/or assistance to potentially vulnerable householders
- Consider employing in-house energy counsellors
- Consider upskilling translators in energy literacy
- Upskill and facilitate qualifications for home maintenance teams to undertake retrofits, e.g. insulation
- Consider bulk buying and neighbourhood retrofit initiatives
- Consider top-up payments for state subsidies
- Consider including energy vulnerability mitigation strategies into the Municipal Public Health and Wellbeing Plan 2021-2025
- Consider financing of social housing energy retrofits through net zero carbon funds

To collaborate with other organisations:

- Establish ongoing relationships with energy assistance service providers for referral of householders, practical assistance and energy literacy information events
- Establish referral pathways with local social housing providers
- Consider involving local businesses in device donation schemes (e.g. laptops, mobile phones, tablets)
- Reach out to local health care providers and GPs to offer energy assistance referrals pathways
- Establish a point of referral within the council for households and organisations
- Share initiatives and learnings with other councils
- Tap into already existing networks alliances across councils to incorporate energy assistance into their adaptation/ mitigation plans

### **Policy makers**

To identify hidden energy vulnerability:

- Integrate questions that may identify energy vulnerability into health care assessment tools (National Disability Insurance Scheme (NDIS), My Aged Care, Home and Community Care)
- Establish tools that are able to identify multiple

vulnerabilities across essential services (water, energy, telecommunications) and capabilities, e.g. health, English language skills, digital literacy, housing

To mitigate energy vulnerability:

- Ensure long term funding schemes for retrofits and energy literacy programs
- Include retrofits and energy efficient space conditioning appliances into the list of home modifications that are covered by health care packages
- Prioritise subsidies for vulnerable households

- Establish a central energy support helpline
- Establish a central website for all energy related advice, subsidies, information of support services and organisations

To collaborate across portfolios:

- Engage with housing, energy (planning) and health portfolios to establish energy efficiency retrofits as preventive health promotion
- Introduce energy vulnerability training into health care and social services training
- Introduce social communication skills into energy assessor and counsellor training

## Conclusion



This project showed that various inter-organisational and service delivery practices exist to address hidden energy vulnerability, but that the initiatives are sporadic, ad hoc, under-funded and under-evaluated. The research indicates that housing and health care professionals have the power to identify and reduce energy vulnerability if given the opportunity. This report also contributes to a growing body of literature that shows that health professionals are ready and willing to learn about mechanisms that may improve their patients' access to affordable, safe and renewable energy. Housing, energy, community and health organisations can play a catalytic role by embracing partnerships, supporting capacity building efforts and aligning funding

and programs to address the complexity of the needs of vulnerable households.

Collaborations are crucial given the complex needs and impacts surrounding hidden energy vulnerability. With increasing energy prices, cessation of COVID-19 welfare supplements, soaring housing costs and the growing concern about the health effects of a warming climate, never before have health outcomes been so dependent on sufficient access to energy services. It is essential to work together across disciplines, organisations and sectors to transform the trajectory of energy vulnerability in Greater Melbourne. We hope this project has contributed towards this goal.

# Research Workshop

## Slides

*“They said they can’t afford their medication, like asthma medication, or they’ve neglected their health because they didn’t want to have their electricity turned off. [...] Or that they could not have air conditioning because it would be too expensive, or that they have an old-fashioned heater because they can’t afford a new one because of money issues.”*

*(Health\_14)*

The following pages present the information shared on the presentation slides at the Research Workshop in April 2021.

### Aim

Inform capacity building strategies to mitigate energy vulnerability through integrated and collaborative service delivery and cross-sector policy development.

### Key Messages

- Energy vulnerability is hidden and discoverable in varied ways
- Spectrum of collaborative models, but few with shared decision-making processes
- Spectrum of service delivery models – monitored referrals, handholding, prescription perceived as the most effective by participants
- Householders highly valued assistance - a few unintended consequences
- Linkages between organisations and sectors are critical in tackling hidden energy vulnerability
- Health practitioners and local councils could play an important role in tackling hidden energy vulnerability
- Capacity building at organisational and systemic level is needed to ensure, upscale and sustain actions

### Outline

- Project objectives and methods
- Literature review
- Review of existing collaborations in Greater Melbourne
- Q&A
  
- Exploration of householder experience
- Discussion
- Capacity building strategy
- Questions and Answers (Q&A)
- Open discussion

### Industry & Policy Problem

- Energy poverty is a health risk.
- Energy vulnerability
  - susceptibility to harm from energy poverty
  - multi-dimensionality of causes and effects
- Tackling energy vulnerability may be considered a primary public health prevention strategy
- Energy vulnerability is often hidden

Limited understanding of

- how to identify people
- how to reach them
- how to connect them to energy support
- how to promote health through cross-sector efforts

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## Objectives

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1. Identifying and supporting the enhancement of interdisciplinary service initiatives and disseminating models, practices and resources.
2. Evaluating the householder experiences to inform how initiatives may respond to the complexity of circumstances of vulnerable households
3. Developing an 'Integrated Energy Support' capacity building strategy that aims to mitigate energy-related health risks

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## Methods

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### A – Review existing initiatives.

Interviews with key personnel in housing, health,

energy support and social service agencies assisting households with energy support.

### B – Exploration of householder experience

In-depth interviews with householder who have received assistance

- Develop an 'Integrated Energy Support' capacity building strategy
- Research Forum - to translate the evidence to the target audience and to create momentum and tools for change

### C – Survey

Measure outcome of research forum (awareness, willingness to collaborate)

## Literature Review



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## Energy Poverty

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No single definition – energy/ equity/ housing/ health

### **Lack of access to affordable, safe, renewable and reliable essential energy services**

(Bouzarovski 2013; Thomson, Bouzarovski & Snell 2017; UN 2019; Bouzarovski, Petrova & Tirado-Herrero 2014).

Outcomes, e.g.:

- Bill arrears or disconnections
- Rationing of energy use and inadequate indoor temperatures
- Compromises on medical, food or other expenses

Harmful impacts on health:

- Physiological: cardiovascular and respiratory diseases
- Mental: anxiety and stress, inter-familial tensions
- Social: social exclusion, poor school performance
- Premature death

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## Energy Poverty Measurements

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Three main approaches in Europe:

- **“Direct measurement** – where the level of energy

services (such as heating) achieved in the home is compared to a set standard;

- **Expenditure approach** - which explores the ratio of household income to energy expenditure, in comparison to certain absolute and relative thresholds;
- **Subjective or Consensual approach** – based on self-reported assessments of ability to attain certain basic necessities.”

Source: Thomson, H & Snell, C 2016, 'Definitions and indicators of energy poverty across the EU', in K Csiba (ed.), *Energy Poverty Handbook*, European Parliament, Brussels, pp. 101-118; p.105.

### Definitions of 'hidden energy poverty'

Based on actual expenditure and income

**“Households whose energy bills are “abnormally low” according to what would be considered adequate according to the number of people in the household and the size of the dwelling”:**

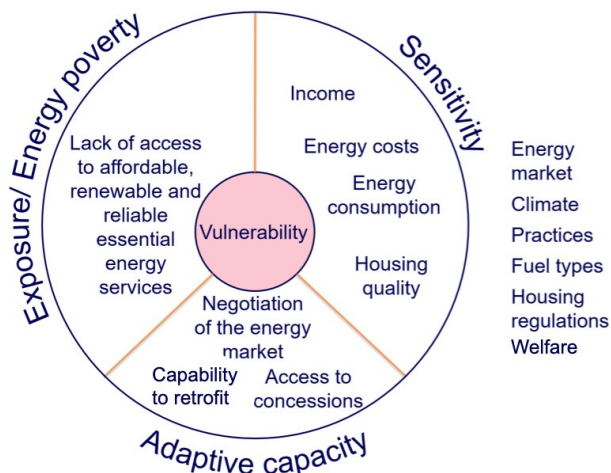
(Rademaekers et al. 2016, p. 110)

Qualitative approach – emerging research

- Acknowledges wider structural conditions
- Costs of wood not captured in statistics
- District heating offers limited control
- Adequacy of cooking facilities, refrigeration, lighting and computer connections
- Pride, coping practices
- Lack of confidence or trust in social services

### Energy vulnerability = risk of harm due to energy poverty

= Intersection of risk and sensitivity to energy poverty



and adaptive capacity

Sources: Bouzarovski 2013; Middlemiss & Gillard 2015; Thomson, Bouzarovski & Snell 2017; UN 2019

**Dynamic** = change over time in causes, manifestations and severity

### Energy poverty/ vulnerability in Australia

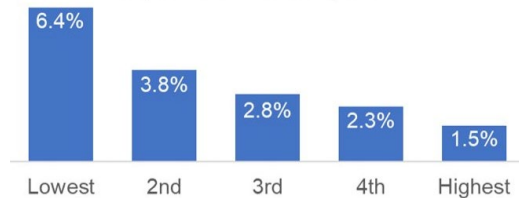
Disconnections

**Energy stress** = “paying disproportionately more of their income on energy than the national average”

(ACOSS, BSL, ANU SR&M 2018)

### Energy vulnerability

Electricity and gas expenditure as a percentage share of income by disposable income quintiles



After ACOSS, BSL, ANU SR&M (2018; p.4)

- Contributing conditions are widespread and perceived to be similar to those overseas, such as
  - financial stress,
  - disability and mental health,
  - low levels of literacy or English language skills,
  - domestic violence (O'Neill, 2019)
- VIC Essential Services Commission is working towards a definition.

### Hidden energy poverty/ vulnerability in Australia

**‘silent’ hardship** – where a consumer is managing to pay their energy bills, but is rationing their energy use to an unhealthy level”

(ECA 2020)

**‘hidden’ vulnerability** (electricity market) = ‘vulnerable Mid Income’ households who are not familiar with or eligible to access income-based welfare support

(Acil Allen Consulting 2018)

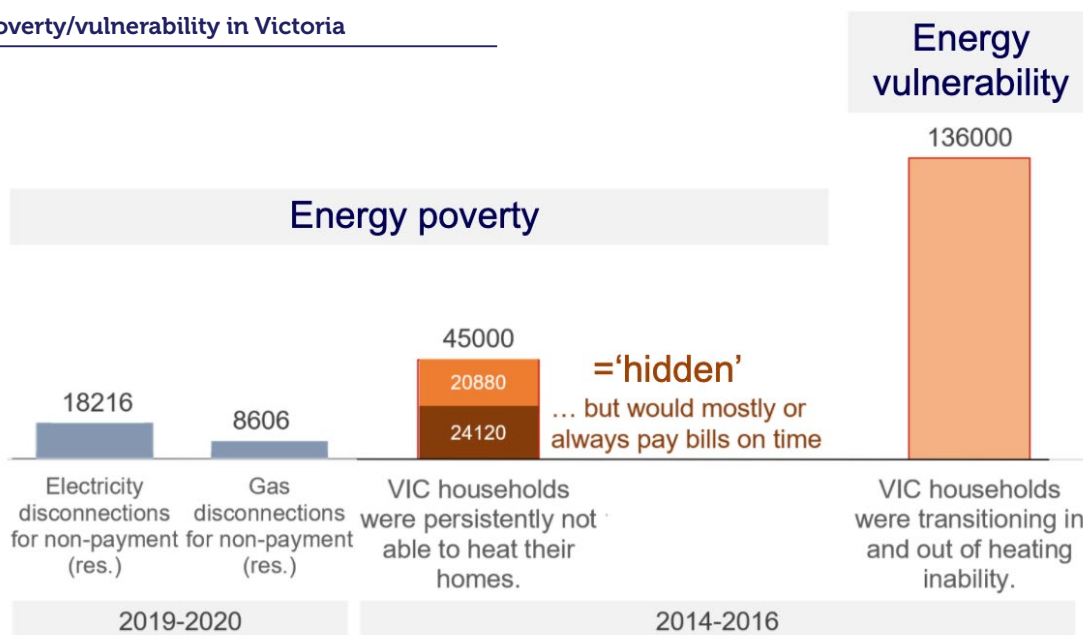
‘hidden’ vulnerability = some older people are proud and do not want their family or community to know that they have difficulties

(Willand & Horne 2018; Willand, Sharrock & Long 2019)

Hidden energy vulnerability is..... the propensity of households to experience harm due to energy poverty,

- which may **not be easily detected by conventional indicators** of energy disadvantage, or
- which may be due to householders **not asking for energy assistance.**

### Energy poverty/vulnerability in Victoria



Sources of data: Essential Services Commission 2020, Victorian Energy Market Report 2019–20, Essential Services Commission, VCOSS 2018, *Battling On. Persistent Energy Hardship*, Victorian Council of Social Service, Melbourne.

### Addressing energy vulnerability

#### Policy approaches

- Financial interventions, introduced to support payment of bills, and primarily focused on short term relief.
- Energy efficiency programmes, targeting improvements to the efficiency of building stock, or energy using appliances.
- Information provision & raising awareness, which improve understanding of consumer rights and information on market tariffs and energy saving measures.
- Additional consumer protection for consumers using the retail markets.

(Csiba 2016, p. 125)

- Energy companies can assist
  - through Energy Company Obligations (free retrofits, e.g. wall insulation, energy efficient glazing and boiler upgrades) targeted at population groups or disadvantaged areas
  - offer extra services as part of the Priority Services Registry
- Increase job security and employability by training:
  - home care staff,
  - long-term unemployed,
  - volunteers,
  - students
  - social workers.
- Re hidden energy poverty: Energy advice may be ineffective and even counterproductive.

### Addressing energy vulnerability in UK & Europe (EU)

#### Energy assistance approaches

- Holistic approach recommended = construction measures & financial and contractual assistance & behavioural advice
- Empowerment of householders is key

### Addressing energy vulnerability

#### Energy assistance approaches

**UK:** priority given to health outcomes and energy retrofits while energy reduction is an expressed secondary goal; strong focus on collaborations (local government, health



and other frontline staff; wide range of services)

**Europe:** priority on behavioural interventions and simple, low-cost energy efficiency interventions; little engagement of the health sector

**Australia:** concessions, consumer protection, energy advice online; few retrofit subsidies; collaborations among the Low Income Energy Efficiency Program (LIEEP) projects

Vulnerable in the UK are people with

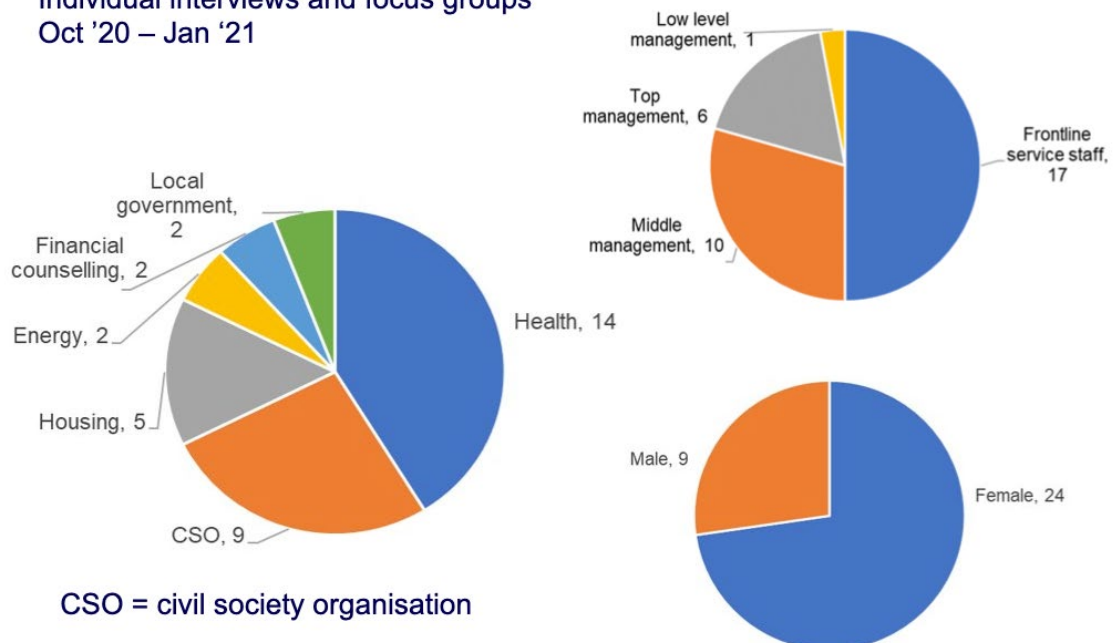
- cardiovascular and respiratory conditions
  - mental health conditions
  - disabilities and addictions
  - a low income
- pregnant women, young children  
- older people (65 and older)  
- people at risk of homelessness  
- recent immigrants & asylum seekers

## Review of existing collaborations in Greater Melbourne



### Participants – Key personnel

34 key personnel  
Individual interviews and focus groups  
Oct '20 – Jan '21



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## Knowledge of energy efficiency and energy vulnerability

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### Civil Society Organisation (CSO) personnel

- had received training in energy efficiency and assistance, but self-rated assessments were still modest
- predominantly in-house training focusing on project-specific instructions
- scope and extent of energy-related knowledge varied among CSOs

**Energy, local government (LG) staff** and financial counsellors (FC) - more familiar with energy vulnerability than efficiency

**Health personnel** - openly admitted their deficits

**Housing staff** - incidental knowledge by attending community energy education sessions and conferences organised by CSOs.

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## Experiences with inadequate access to essential energy services

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### Disconnections - partial or full

#### Limited access to “proper cooling systems or heating systems”

- Maternal and child health (MCH) nurse: bare essentials = heating in one room and the children’s bedrooms, and a fan for cooling during a heat wave to keep children and mothers healthy.
- Hot home - lack of sleep- falls
- Chilblains, mould
- Anxiety about polluting gas heaters and perceived inadequate maintenance

### Lighting, laundry, refrigeration of food and cooking

- No lights, candles
- Laundry of school uniforms
- Food safety, costs, child protection
- Arthritis makes turning stove knobs difficult

### Digital participation

- Access to computers, smart phones and the Internet; instrumental for social health, such as access to education, employment, social connectivity

*MCH= maternal and child health*

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## Intersection of energy vulnerability and health

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**Cold and heat sensitivity** – high heating temperatures, heating even in summer

### Cooling particularly important for

- older people,
- people with respiratory problems,
- people in wheelchairs and
- people with mental health problems (due to medications)

**Life supporting electrical medical equipment**, incl. Continuous positive air pressure (CPAP) machine

### Contra-indications for natural ventilation

- Asthma and allergies during bushfire smoke pollution and pollen flight
- Electric air purifiers recommended

### Coping mechanisms could represent their own health risks

- Compromising on medication
- Dressing in layers reduces physical activity
- Hot showers leading to skin conditions among the older people
- Remaining in bed affects mental health
- Cheap wood fuel represents respiratory health risk

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## Types of hidden energy poverty or vulnerability

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1. Underconsumption
2. Incidental masking
3. Disguised by behavioural coping mechanisms
4. Intentional concealment due to fear of legal consequences
5. General ignorance and social norm

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## Underconsumption

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Because of

- Pride
- Embarrassment
- Low levels of energy literacy
- Intersection with mental health problems

**“These people would largely fly under the radar from an energy retailer’s point of view, they’re paying their bill on time. So, they’re not being flagged in the system as someone in need of support” (CSO\_4)**

Difficult for housing providers to identify

- people “suffer[ed] in silence” although they were “struggling to pay the bills and things and just don’t reach out for help, they just deal with it on their own.” (Housing\_1)

Difficult for energy retailers to identify

- don’t know reason for low energy consumption
- householders who had disconnected completely were not in the energy company systems at all

**“It’s hard for the retailer as well. Because the retailer might not know that, they might think that there’s just no one living at the property or systemic problem in that house” (CSO\_1)**

### Incidental masking

... when energy payment difficulties were supported through other financial support services, e.g.

- rent relief grants

### Disguised by coping mechanisms, e.g.

- accessing power from a power point on the common property after disconnection

**“So rather than trying to get reconnected, she was just sort of making do through that.” (CSO\_5)**

- avoid using essential energy services at home, such as going “to a local, a council shower or a gym or something like that that will allow them to have a shower there”
- due to community-based coping strategies,
  - Burmese families pooling money to ensure ‘pay on time’ discounts
  - Asylum seekers getting loans/ donations from friends and family
  - Aboriginal woman connecting her fridge to her neighbours’ power point

### Intentional concealment

... due to fear of legal consequences e.g. losing the custody of children

**“If they don’t have energy in the house that can be a problem with child protection because the food’s not going to be hygienic necessarily” (FC\_2)**

Disguised by cultural insensitivity to cold homes

- people may be unaware of their own energy disadvantage
- ignorant about the signs and symptoms of energy deprivation
- insensitive to its risks and the need for help

**“I think [sleeping in a cold bedroom] is because you do that in Australia, I have no idea, (laughs) because it does not get as cold as in Europe (laughs)” (Health\_14)**

**“We’re under this understanding that it’s a hot climate country. And we don’t really need to do anything to prevent cold related illnesses” (CSO\_4)**

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### Methods of identifying hidden energy vulnerability

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1. Conversations
2. Observations during home visits
3. Health assessment forms
4. Rent arrears
5. Indirect identification through other support services
6. Spatial techniques

Frontline staff was listening carefully for indirect messages that might indicate financial problems:

- repeated questions about the costs of services
- refusal to engage in health support services, such as subsidised cleaning support
- requests for blankets
- welfare concession cards
- mention of CentrePay
- smoking and alcohol use

**“Really just from talking to them it would come up if they had disconnection notices, if they couldn’t afford to pay their bills, if they have arrears. Or essentially things like you know, I don’t turn my heating on because, you know I can’t afford the bills, or I’m scared of the bills. Just from listening to what they’ve got to say.” (FC\_2)**

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### Observations during house inspections/ visits

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**Housing staff** - Six-monthly rental inspections

**Health care assessment officers** - in-home assessment

**MCH nurses** - all homes of newborns visited at least once

- inadequate indoor temperatures
- lack of artificial lighting
- seemingly underserviced space conditioning appliances

**“The heater is on, but the room is cold”... (LG\_2)**

**“The heat or lack of is something that’s very obvious**

***as soon as you walk through that front door, you know? [...]. We're not obliged to go looking from room to room. We do tend to go into the bathroom to see whether it's an appropriate sort of place to provide the personal care. But really we're not required to go from room to room to check out what's going on in each of the individual rooms. [...] we've been doing it for a long time. And we do develop that sort of sixth sense to sort of work out what's going on in the home just by being there. And just by observing as to what's going on, you know.*** (Health\_5)

### Health assessment forms

National Screening and Assessment Form - My Aged Care

Living at Home Assessment (under 65)

- “Do you have adequate cooling and heating? Do you use it?”
- smoke detectors
- smoking and drinking
- medication use
- shower practices

***“If they tell you, they're having six beers a day, that would be how much? \$20, \$30 a day, just for the alcohol.”*** (Health)

***“He said that he doesn't take a shower every day because he doesn't have hot water on the property.”*** (Health\_8)

### Rent arrears

Housing staff

- rent arrears among their tenants indicated possible difficulties in energy bill
- triggered contacting tenants and asking about their financial capabilities

***“... you obviously make those calls and say, “Look, we've noticed it.” And then, it comes out that, “I've got this bill and I'm can't keep up.”*** (Housing\_3)

### Indirect identification through other support services

- request for reduced fee on the health care assessor's assessment form
- 
- parent's request to have funds meant for children's activities to be re-allocated to paying energy bills.

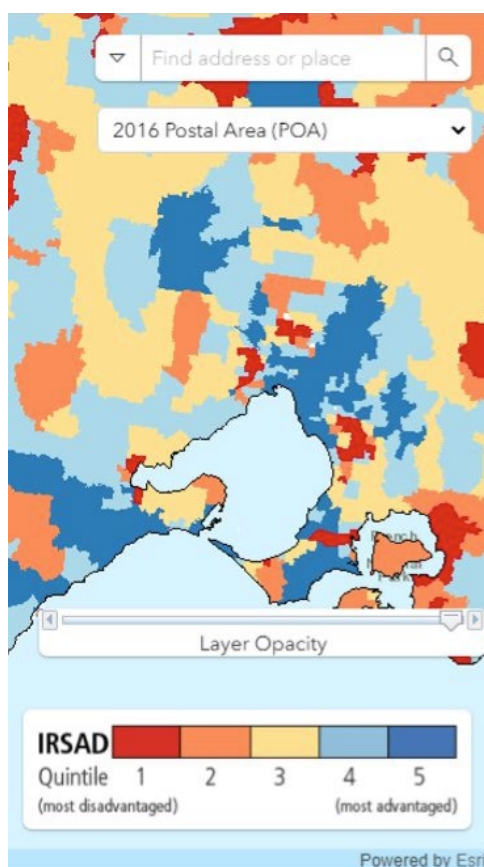
***“[The parents] were turning up with large energy bills at the point of almost being disconnected and that they wanted to use their payment. So, they couldn't have the cash, but they could ask for their payment to be directed”*** (CSO\_7)

### Spatial techniques

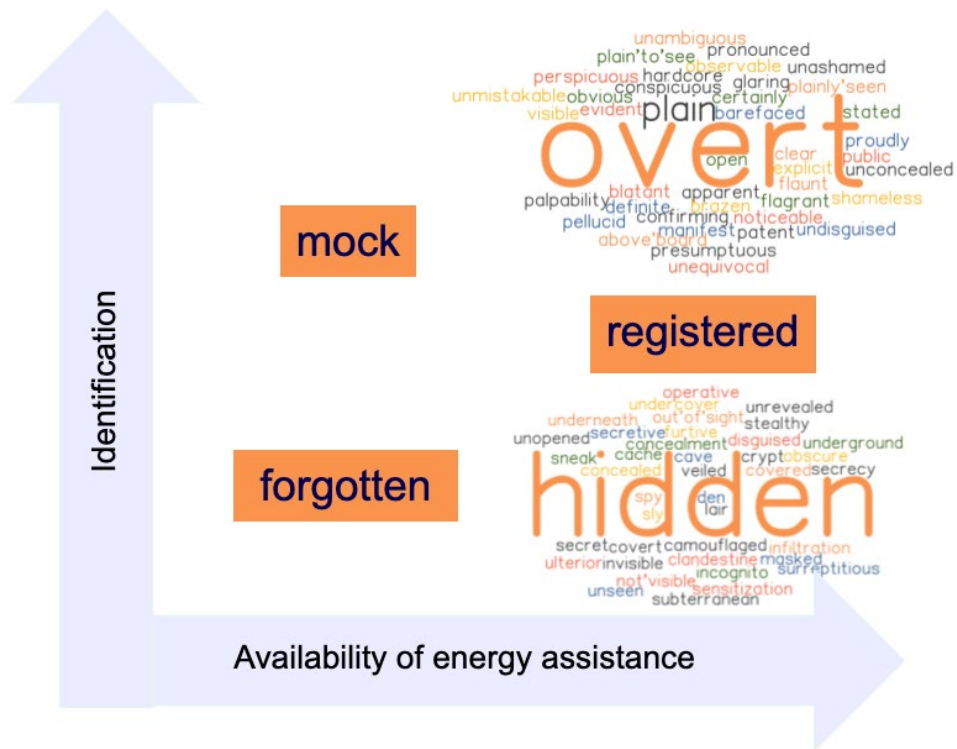
Identification of areas or population groups

- Mapping cumulative risk factors using Census data
- CSO internal: Family violence, welfare support and socio-economic statistics & energy-related complaints
- CSO – Energy: people forgoing heating, low-income high energy costs -> mapping of cumulative prevalence
- Energy Info Hub: areas with high prevalence of markers of energy vulnerability -> select prominent languages for translation

Map of Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) index generated 2 April 2021 by <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSAD%20Interactive%20Map~16>



## Other types of energy vulnerability



Source of word clouds: Grammartop.com

## Registered energy vulnerability

Organisations have lists of households that were perceived as being of risk at energy poverty & proactive offers of assistance

- participants in previous CSO energy assistance programs
- people who had asked for energy assistance from council
- people who had problems paying council-related rates
- community housing tenants
- concession card holders

***“We’ve built up a group of people who have been involved and broadly speaking meet the eligibility criteria. We offer [a new initiative] to them [...] It’s a group of about 2000 people on our books or something like that”. (CSO\_2)***

## Forgotten/ unrecognised/ unacknowledged energy vulnerability

- not officially recognised or included in the eligibility

criteria of energy assistance policies and programs.

-> these households had less opportunity to receive assistance and were likely to suffer disproportionately more than other groups

- people with limited welfare support (income above threshold, in ‘affordable community housing’)
- refugees and asylum seekers (unfavourable contracts)
- people with a bad credit rating
- the homeless
- COVID-19-related – international students, asylum seekers

***“They have a bill; they don’t pay it. They leave the property; they get credit defaulted. Two years down the track when they’re trying to get their life back on track, they can’t. They’re struggling to get connected to energy because they’ve got this default against them”. (CSO\_7)***

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## Mock energy vulnerability

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People trying to use the rules to manipulate the social welfare system to their maximum advantage.

Health care assessment clients demanding or trying to negotiate discounted services and financial support when the request did not seem legitimate.

***“[Some] people will bargain to get things [...] they want everything, they want a reduction in their energy bill. They want free things, and they complain about, he is saying what is the government doing? So, when we go out, we can see really who is struggling, you can tell straight away. [...] we come across many people who would ask for a reduction when truly you can see it's not needed probably.” (Health\_6)***

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## Types of energy assistance

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Drawing on categorisation of medication and assistance

**Symptomatic** - addresses the manifestations, signs or symptoms of harm

**Preventive** - addresses the conditions that may have shaped the energy vulnerability.

Speed of expected effect:

- **immediate** help to relieve acute problems,
- **intermediate** assistance for non-acute assistance which may have results within a few weeks
- **long-term** relief that may take a few months

**No help possible** – low-income renters in expensive private rental

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## Models of inter-organisational relationships

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***Collaboration in social issues management = “temporary social arrangement in which two or more social actors work together toward a single common end requiring the transmutation of materials, ideas, and/or social relations to achieve that end”***

*(Roberts & Bradley 1991, p. 212)*

*Roberts, NR & Bradley, RT 1991, ‘Stakeholder collaboration and innovation: A study of public policy initiation at the state level’, The Journal of Applied Behavioural Science, vol. 27, no. 2, pp. 209-227.*

1. Consultations, co-operations and coalitions
2. Elementary transactional relationships
3. Quasi-transactional relationships
4. Collaborations

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## Consultations, co-operations and coalitions

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**Consultations** = exchange of ideas led by one organisation, e.g.

- energy distributor’s consumer advocacy group
- COVID-triggered community round table organised by the Victorian Essential Services Commission (ESC)

**Co-operations** = partnerships among organisations with aligned values in which there was mutual assistance but no intervention that may have directly benefited householders and mostly unilateral decision-making appeared, e.g.

- energy audits by a CSO of community housing properties, funded by state government
- energy assistance training for social services frontline staff by one CSO

**Coalitions** = strategic alliance among organisations to reach a common goal quicker or easier

- One Million Homes alliance – CSOs, Health

**Conferences** - discover information, exchange ideas, network establish personal connections

**Research partnerships** - indirect, aspirational or desired future benefit - CSOs, Health

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## Elementary transactional relationships

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= open tender selection process and a contractual relationship aimed to meet performance targets of the purchaser with unilateral decision-making processes

Victorian Government (VicGov) projects:

- funds were linked to the maximum number of people who would receive help rather than a qualitative outcome for the householder.
- rationale appeared unclear to some of the delivering CSO participants
- CSO aiming to meet the metric

***“They’re numbers that came directly from the client. So [name of client], I think for whatever reason they had [#] in their mind, I don’t know the backstory behind that. We worked, we upgraded [#] homes [...]. That was, once again, I have no idea why [#] was chosen.” (CSO\_6)***

Local government

- tender process - energy advice, retrofits for low income and culturally and linguistically diverse communities and a solar photovoltaic (PV) program aimed at culturally and linguistically diverse (CALD) householders

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### Quasi-transactional relationships

= some softening around contractual arrangements and some involvement of service providers in decision makings

Energy – CSO: Outsourcing of energy retailers’ hardship programs

- CSO = exclusive service provider but yearly contracts
- Fee for service model -> insecurity of funding, challenges in budgeting and workload management
- Identification through energy retailer – criteria unclear to CSOs
- Facilitated referral
- Assistance: energy saving advice, negotiation of payment plans, translation services, dwelling audits to check for structural problems; previously also retrofits or upgrades; contract switching advice inappropriate;
- shift towards a more interactive relationship: CSO training of call centre staff
  - how to identify people who may be compromising and using very little energy
  - how to communicate (listen and speak) to vulnerable people

***“I’m going without food or whatever to keep paying these bills.” (CSO\_1)***

VicGov – CSOs: Commissioning of energy advice service program

- Targets (# of households, time) determined by the funder; CSOs felt pressurised - “marketing strategy”, active recruitment
- But: in response to advocacy; extension of successful trial; CSOs had had some success in adjusting the

funding of services to “complex clients”

- Low-income householders broadly
- Identification through CSOs; evaluation # of people (not outcome)
- CSO-collaboration in response to competitive market
  - pragmatic approach to secure funding
  - to increase the capacity and viability of the services.
  - effort to reduce competition

***“It’s a fairly small number of community organisations that work in [energy support services]. We’re all fairly protective of our patch. [...] It’s a tough sector because there’s not a lot of money floating around for support for consumers. So, whatever there is, we’re all chasing the same sort of small bucket of money.” (CSO\_1)***

VicGov - Housing: Solar PV panels grants

- Funding organisation changed rules after feedback from housing organisation
- Selection by housing quality rather than householder characteristics
- Anecdotal evidence of benefits
- Collaborative handholding of householders

***“So, now they are acknowledging [cost of energy distribution equipment in multi-unit buildings] also. That’s one of the challenges we overcome with them working collaboratively.” (Housing\_5)***

Funding body - CSO - Health: Community education for mentally ill people

- requirement to participate in a series of 10 information sessions did not match the capabilities of the target group
- referrals to individual support afterwards

***“We very quickly identified if somebody is acutely, mentally unwell, getting them to commit to one session, let alone 10 is extremely difficult. [...] So we actually had to adjust it and go back to the funder. So, this is just not realistic for this cohort.” (CSO\_5)***

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### Collaborations

***Collaboration in health care settings = “professionals assuming complementary roles and cooperatively working together, sharing responsibility for problem-solving and making decisions to formulate and carry out plans for patient care. Collaboration [...]***

***increases team members' awareness of each other's type of knowledge and skills, leading to continued improvement in decision making"***

*(O'Daniel & Rosenstein 2008, p. 2-272)*

#### Energy - CSO: Community engagement

- energy distributor funded CSO to deliver co-presentations to community centres and English as Second Language (ESL) classes in their "patch" incl. free home energy assessments, focus on CALD communities
- co-production of services:
- energy distributor translated energy information resources
- joint decision making on the scope of services -> switch from community education to individual advice during COVID-19 pandemic
- motivation of energy distributor: partly self-interest (reputational, control future legal responsibilities, influence demand), partly altruistic (genuine interest in helping vulnerable people)
- CSO attested to their relative independence in the content of assistance
- evaluation: # of households, type of support
- model seems to have been replicated

***"They've just let us go out there to support as many clients as we possibly could with the funding that they've given us."*** (CSO\_1)

#### CSO - Housing: Community housing tenant education

- CSO was funded deliver energy behaviour and contract advice
- housing organisation supported CSO in finding suitable households
- joint decision making from the start
- evaluation: # of households participated in events

***"It was a joint project. They worked well, they had the funding that they came in to meet with the team, talked about the project. And everyone was excited about it. Everyone was wanting to do whatever they could do to help, and it's just a shame it wasn't an ongoing thing. It was just that bulk of money."*** (Housing\_4)

#### VicGov - Energy – CSO - Housing - Health: Solar PV panels installation in community housing with assistance from support workers

- solar energy company wanted to trial a new business model for solar PV
- CSO with interest in supporting renewable energy adoption

- housing organisation leased roof space for a nominal fee; provided a car space for batteries and inverters; organized community education events;
- health workers who supported householders in the process.
- funded by Victorian government
- all organisations involved from the start – timelines, communication methods
- feedback - solar energy company alerted housing team to unusually high levels of energy consumption
- handholding by support workers to achieve installation and connection to solar energy - translated information or put suspicious people's mind at rest, liaised among tenants, housing staff and energy retailers in the process of switching to solar energy
- evaluation: reduced bills (housing), anecdotal qualitative evidence

#### Energy – CSO - Health: community education webinars on heat waves and health

- CSO delivered community education webinars on heat waves and health
- resources were co-produced by the energy distributor.
- community health organisations helped in promoting the webinars and distributing hard copy and digital information.
- no direct referrals from the community health organisation to the CSO for individual advice because of privacy issues

#### CSO - local computer repair shop - local university: donation of refurbished laptops

- collaboration with a local computer repair shop to supply refurbished laptops to students that had been identified as being in need by the local university
- CSO funded

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#### Models of service delivery

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Energy assistance mostly by CSOs and financial counsellors

1. Engagement and outreach services
2. Signposting with self-referral
3. Facilitated referrals
4. Monitored referrals
5. Advocacy and brokerage
6. Collaborative handholding
7. Co-location of services

Unilateral services



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## Engagement and outreach services

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### Engagement

Community energy education

- empowering people to help themselves
- cheaper than individual counselling
- tailored to characteristics and needs of group

***“Engagement may just be the opportunity to raise awareness, whereas outreach is actually being able to take live cases.” (CSO\_7)***

Outreach

- ‘Bring your bill day’
- individual advice
- sometimes engagement on other issues such as elder abuse

Home visits

- required transport capacities
- required “checks and balances for staff and client safety”

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## Signposting with self-referral

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= passive referral process

- sharing of contact details of the energy assistance service organisation or a way of actioning assistance themselves.
- webinars, brochures, during conversations
- success relied on the self-initiative and capabilities of householders
- not suitable for some vulnerable householders
- data sharing challenge - only option when householder privacy and confidentiality had to be ensured

***“If we’re giving people leaflets and stuff, we are then counting on these people to actually be motivated to actually do it. And, I know that might seem strange to you, these people are in financial distress. But, often, when people feel powerless and feel disenfranchised, they often don’t have that motivation to actually bring about the change themselves. [...] something like a gut feeling. I’m giving these people this information, they’re saying they’re going to go call, and I’m not sure if they actually do go and call. My gut feeling is that there’s a good chance they’re not.” (CSO\_3)***

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## Facilitated referrals

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= with permission, householder’s details are forwarded to another organisation with the householder’s permission

- E.g. retailer hardship customers; CSO would follow up with a phone call

***“The retailer will tell them about the program that we have, not always with the best detail, but they’ll get the consent from that person for us to make contact with them. And then we’d give them a call, explain to them what we do. And then if they still want an appointment, they will arrange a time.” (CSO\_5)***

Indirect referrals from housing staff

***“So, there’s not someone that we have a go to as such about energy. But that’s something we could actually potentially look into to see what services are out there and available. But we’ll link them into community services within their areas, and hope that they’ve also got sort of some assistance and help I can provide that.” (Housing\_3)***

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## Monitored referrals

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= facilitated referrals with a follow-up process to check on the outcome of the referral.

- Preferred model by CSOs

***“We would vastly prefer to be encouraging people to do it themselves, to call themselves. But I guess, the people that are opting into these programs [...] most people would generally rather have your assistance. They’re calling up because they want some help from someone and as much as we’re open to and keen for people to be calling themselves. And when we get people to call themselves, if we sort of say, “Look, this is what you need to do. You need to talk about these types of things to get the assistance you need, and don’t let them, you know, you’ve got the right to decide what payment plan suits you. So, we give them a call and engage in, you know, go through the key things they need to look out for. If they call themselves, we’ll then call them back in a week to check out how they went. Or at a suitable time, whether it’s a couple of days, or if it’s a broker thing where we’ve identified a good deal, we’ll then call them back and say, “Did you actually go and switch?” Because we know a lot***

***of people don't.[...] We're just checking that they did follow up.***" (CSO\_2)

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### Advocacy and brokerage

= protection and defence of rights of disadvantaged householders

#### Advocacy

- energy counsellor requesting private and public landlords to repair or improve material aspects of the dwelling
- imbalance of power between tenant and landlord

***"You've got to have a very, very strong case for them to be convinced to really do something. Somebody with significant health issues. The problem at the property is severe. I can clearly demonstrate that the improvement is going to reduce the person's bills or any future or future tenant's bills."*** (CSO\_5)

#### Brokerage

- energy counsellors helped in choosing favourable contracts and negotiating suitable payment plans
- effectiveness supported by personal connections with the energy retailers' frontline staff

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### Handholding

= organisations guided householders carefully and slowly through energy assistance services

Solar PV installation in community housing

- collaboration among housing, support staff, CSOs, families
- education, explanation of technology and process, translation, access to phone, guiding conversations
- very effective but time consuming and costly process

***"One thing we found is one-on-one help for most of the clients is actually made 100% results. [...] We show the client what's happening on the iPad to them, and then we make a call from our office mobile. Because some of our clients may not even have their mobile phone, or they don't have any outgoing call credit on their mobile phone. So, we help them standing next to them, giving our phone to talk to their retailer, and we put that sign saying "yes" answer. [...] Support workers usually come and stay next to the client in***

***support. Again, they don't have technical knowledge or technicalities of the systems. So, more often, what we request the support workers if the language barrier of our client is difficult, to talk to the energy retailers."*** (Housing\_5)

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### Co-location of services for holistic support

Planned place-based service hub

- to offer a holistic service
- to reduce the effort to navigate the system
- energy assistance not included, though

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### Unilateral assistance

#### Energy distributor

- Short Messaging Service (SMS) warning of householders of expected higher-than-usual electricity bills
- call in addition to text notice of planned power outages
- laptop donations for people in need via CSOs
- battery hire offer for life support customers during power outages

#### Certifications of energy concession requirements

- GPs certified patients' need for medical energy concessions.
- knowledge from their patients who had learnt it from specialist support services
- started notifying other patients
- GPs skilled in working the system
  - adding of un-listed illnesses

#### Letters of support

= instructions, prescriptions by GPs and occupational therapists (OTs)

- air conditioning
- additional electric sockets
- new stove

***"They just tell me whether it was successful. If not, I write a little bit more on how important it is that this patient is... can't cool down. So, he might end up in hospital or things like that. Like, I make it a bit more of a traumatic in a second letter, and usually after that it works."*** (Health\_14)

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## Changes due to COVID-19

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### Neutral

*Change in population groups needing energy assistance*

### Negative

*Challenges in project implementation*

- project delays, staff retrenchment, loss of volunteer staff

*Challenges for householder*

- exacerbation of the intersection of health, energy vulnerabilities and elder abuse
- difficulties of engaging older people with digital limited capabilities
- suspension of home visits and maintenance works.

### Positive

*More opportunities for energy assistance by the CSOs*

*More support for householders*

- increased welfare payments
- new services and support offered by councils
- new support services for digital participation
- more proactive checking of people's welfare by housing organisations

***“It’s very exciting because energy efficiency has not been spoken of as much as it’s been spoken of now, and so it’s really good to see.” (CSO\_6)***

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## Challenges due to program design

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### Planning shortcomings

- rushed design without householder participation
- oversight of people who do not self-identify
- ineffective single access service models

### Content issues

- lack of retrofit programs
- simplistic solar PV programs

### Insufficient and sporadic funding

- public disappointment
- hindered referrals and inter-organisational collaborations
- staff job precarity

### Limited evaluations, lack of knowledge translation

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## Challenges in program delivery

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### Time constraints

- contractual rules about duration of assistance
- delays in communication with retailers
- extra time needed for interpretation services

### Translation issues

- lack of translated material
- limited knowledge of energy among translators

### Difficulties with retailers

- variability in responses to advocacy efforts
- incompetent and insensitive call centre staff

### Reluctance of householders to engage in services or accept assistance

- service wariness, feeling overwhelmed
- frugality, desire for independence, modesty
- freedom of choice
- mistrust in energy companies

### Dealing with complex needs

- need more time and resources, more appointments
- difficult to make appointments
- linking to support services

### Frustrations of energy counsellors

- feeling helpless when not being able to reach or assist people in need
- coming to terms with perceived inequities

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## Challenges in collaborations

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### Restrictions due to program design

- siloed approach in project design,
- restrictive funding agreements (tenders, time bound projects)
- competition among CSOs (few programs or businesses)

### Difficulty in identifying programs and partners

- no central site for information
- contact persons within organisations changed frequently
- geographical distance hindered collaboration
- variations in priority of organisations

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## Keys to success in interaction with householders

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### Engaging householders

- appropriate timing (not dealing with other acute problems)
- showing empathy and not being judgmental
- tailoring message to individuals
- highlighting the links between energy services and health

### Delivery of assistance

- building of rapport with householders
- facilitated referrals, intensive individual guidance and handholding
- continuity of support though professional/personal support networks

### Communication

- simple messages
- skilled translation of technical knowledge into meaningful and individualised messages; culturally appropriate translation

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## Keys to success in collaboration

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### Shared motivations

- general agenda or concrete objective of program/project
- mutually beneficial, complementing strength and sharing burdens
- ability to tackle larger projects

### Selecting suitable partner organisations

- specific to funder or program
- CSO enjoyed trust in community, links to other support services
- local champions in community groups

### Maintaining relationships

- existing contacts, conferences, key people with power

### Collaboration management

- clear communication and division of tasks,
- generous sharing of information

## Exploration of householder experience



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## Interview with householders (HHs)

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We interviewed nine householders over the phone Oct '20 – Jan '21

- four were parents of young children
- three were living with disability
- two were older householders.

### Housing tenure

All these householders were social renters.

### Gender

Seven female and two male

### Cultural background

One third of our participants were Australian and two thirds were from CALD communities.

### Experiences of energy poverty: heating, cooling, safety

- Cold/ hot homes
- Broken heating/cooling appliances
- Spatially restricted heating/cooling
- Spatially restricted use of home
- Safety: polluting gas heaters

Experiences of energy poverty: heating, cooling, safety

**“So we’ve been sleeping there... Last summer, we’ve been sleeping on the floor in the living room, because it’s too hot, not in the bedroom. That’s it. And then, sometimes you use the ceiling fan but that doesn’t help, it just circulates the heat already inside.” (HH4)**

**“Air conditioner [split system for heating and cooling], but it’s useless. I have two bedrooms, it’s freezing, the house, and the heater is not working, it’s not coming on all the rooms. Even the lounge is not working.” (HH3)**

Manifestation of hidden energy vulnerability; missing on food or socialising to pay their energy bills on time.

**“I think it’s consistently paying for my electricity without problems over the years, because I don’t go out socially much. That’s where I’ve sacrificed to make sure my bills come first.” (HH5)**

#### COVID-19 impact on energy vulnerability

Impacting pathway of affordability

- During COVID-19 lock down in Melbourne, two of our participants lost their jobs and income. Also, their energy bills increased because of higher energy use, home schooling and heaters.
- Two other participants also observed slightly higher bills due to COVID-19 situation.

**“Oh, it has dramatically increased, the bill I think because they [his children] have been using unusually too long hours on a computer, the computer because they have nowhere to go. And they play games sometimes, sometimes they study.” (HH8)**

#### COVID-19 impact on energy vulnerability

- Relying more on digital connectedness

Five householders who were older or living with a disability relied more on digital connectedness for social health during COVID. They managed their virtual medical appointments and connect to their family and friends.

**“Then I see the pain management clinic in [locations and name] pain management and that was... it had to be via video link.... Son, sort of thing, I wasn’t sure how to do it, but he brought in a headphone and connected that for me. And he said, “This will come up, the camera will come up.” But I did not know there**

**was a camera on the computer until this (laughs), but now I can use it now.” (HH9)**

#### COVID-19 impact on energy vulnerability

- Impacting service delivery to householders
- Slower process for their NDIS approval, dealing with their energy provider for the solar panel process, lack of face-to-face appointment regarding their CPAP machine

**“I’ll just get the little, [Energy provider’s name] I think it is. And they haven’t charged us for the solar since we’ve been in the middle of COVID but I do need to ring them up and sorted it out with them. Because they are going to charge us for the solar as well.” (HH5)**

#### Health and energy connection: Mental health

Householders are under stress for paying their energy bills

**“ I didn’t need [help from other organisations] at that time, I was just worried that if I don’t if things get hard I need to have that plan B since I’ve got a child. You can’t just be on plan A. But, so far I haven’t used it, so I’m lucky.” (HH1)**

#### Health and energy connection: Physical health

- One of our participants directly linked using a clothes’ dryer to help with her son’s medical condition.

**“I guess I use because my son has severe eczema and allergies, hanging his clothes out on the line makes them kind of crunchy. When you put clothes in the dryer they come out soft and when you hang them on the line they’re a little bit stiffer. So that can irritate your skin. I suppose using the dryer to dry every load is beneficial for his skin.” (HH6)**

- Two participants mentioned the connection between electricity and their health support medical devices.

**“I think it’s just important in every aspect. I think that if I didn’t have the mechanisms I have set up, my MePACS alarm [personal alarm service], I probably wouldn’t be able to live independently. But, that alarm gives my parents the security to live two hours away, and know I’m okay.” (HH2)**

### Health and energy connection: Physical health

- Lack of proper heating and cooling in all rooms in participants homes had impact on their health. Hot days in summer especially during COVID-19 period when they have no access to public spaces like libraries or shopping centres has impacts on householders' health.

***“When it is hot, I couldn’t sit in this house, I must go out, because it doesn’t have a central cooling system. ... in summer, we do not have anything. Day and night also when it is hot, it is horrible.” (HH8)***

### Digital connectedness and energy vulnerability

Digital connectedness was an important factor for our participants social health.

***“Well, I never used to play games. I used to just... I just had the phone to accept calls and make calls, that’s it. That is how it changed my life and because now I know how to get into Facebook. I know how to get into Google, Instagram, all those things. If I didn’t concentrate and think about it, how hell I have to do it I’ll still be in the stone age.” (HH7)***

### Conditions shaping energy vulnerability

1. Affordability
2. Poor housing and appliances quality
3. Sub-optimal practices: behaviour, not managing utility contracts
4. Structural conditions
5. Energy literacy

### Energy literacy

8 out of 9 participants only read the due date and \$ amount on their utility bills.

***“I don’t have any clue.” (HH3)***

Only 1 householder (HH4) supports her friends with energy information:

***“To be honest, I actually help other friends as well... with their electricity and stuff like that. It’s not more of the understanding, it’s just there’s a tariff, what they call the tariff, what they say off-peak. And, when you stay at home, just whenever you have to cook, especially when you have kids. So, those ones, the***

***one that makes difference probably in terms of the payment, every month’s payment. It doesn’t work for me because I have a daughter, whenever I need to cook her, I’m not going to say, “Oh, this is now off-peak”, so I just have to do it.”***

8 out of 9 stated that when buying a new appliance, they only look for affordability and not for the energy efficiency.

### Hidden energy vulnerability

We observed two types of hidden energy vulnerability among our research participants.

1. Underconsumption
2. Incidental masking
3. **Disguised by behavioural coping mechanisms**
4. **Intentional concealment due to fear of legal consequences**
5. General ignorance and social norm

### Incidental masking

- Asking for help from their housing providers.

***“They just helped me \$100, that’s the only, they said, we can do. They didn’t pay anything, only \$100 they paid for my electric.” (HH3)***

### Disguised by behavioural coping mechanisms

- Using cool public spaces in hot days, sacrificing on food and socialising.

***“Well, my GP and that have told me I should eat more red meat but I can’t afford to buy red meat because it’s too expensive. So I basically live on chicken. Cos that’s the cheapest meat you can buy. Chicken. But then they keep saying to me because I get... I suffer with what is it? The blood disorder...” (HH9)***

- Relying on their social capital

***“I’m really lucky, I’ve got mum and dad who are still very much together and a lot are quite well. They live two hours away. They are actively involved in looking after me. And, they help out quite a bit financially.” (HH2)***

### Assistance received to tackle their energy vulnerability

Both acute and long-term assistance were offered to mitigate energy vulnerability.

**Type:** financial, retrofit, advocacy, energy advice, some unsolicited help

**Who:** energy retailer, financial counsellor, housing provider, health provider

**How:** Offer by housing provider, self-referral, asking for support through community health organisation.

#### Examples of assistance through collaboration

Housing provider's collaboration with a CSO

***"I'm pleased. I think I'm paying \$21 now a fortnight, but that doesn't include the [energy provider] bill and I used to pay about, I think it was about \$55 a fortnight before that. So yeah I have to make a few phone calls, in terms of looking after the environment it's worth it. And I hope that the second bill from [energy provider] will be a smallish and well contained I hope."*** (HH5)

Housing provider's collaboration with a community service organisation

***"I did have with the housing officer. I did talk to her. And, that was when... What happened was our rent went up, and I was totally panicking. And, I'm like, "What if..." I struggle, I don't know where to go, what do I do?" And then, she [housing officer] explained to me that there is one time off that they pay once a year, one bill for you. So, they do have that support as [housing provider's name]. And then, she did tell me, "If you need further assistance, then I will give you other places where you can ask for support." And she did email me that."*** (HH1)

OT's prescription for an air conditioner to a housing provider

***"I had to pay \$100 for an occupational therapist to come out and have a look of my home. Well, when she was here, she found a few other faults that needed adjusting..."*** (HH9)

A community health service's collaboration with a financial counsellor

***"Since I've been in recovery, I had seen a financial counsellor through the support agency I was working with. She set up payment arrangements that just get deducted from my Centrelink pay every fortnight and I managed to pay off, I think it was about \$2000 or something owing on my electricity."*** (HH6)

Long term assistance: help with having a laptop by a care giver

***"I'm getting, my case manager, that's one thing I can get from My Aged Care is the laptop or computer. They will pay for it, yeah. Because they think that they want all the pensioners to try and get on the laptop because everything is going on computers. Like with the My Pension and everything, My Gov, you know, I got to try and understand My Gov which belongs to Centerlink, I got to try and understand that. Having a computer or a laptop it's better to work on a computer than it is to work on a phone or on the tablet. or smaller devices."*** (HH7)

Acute assistance: energy retailer helping with their concession

***"I just heard a week ago that there is a possibility of applying for the energy supplier. So, I called them to [Energy retailer's name] and I expressed the difficulties, financial difficulties I am in now to pay the bills, and they said, "We will try to see if you are eligible to receive a government grant for those who are affected on this. Maybe we'll call you and we will inform you." But no one has called so far."*** (HH8)

## Discussion



### Discussion

Knowledge, motivation or competencies to access information, understand and improve energy usage in the home was low even among most key personnel

- **low energy literacy** may be a broader, societal problem
- access to safe, affordable and reliable energy use in the home needs to be made easier

#### Typology of 'hidden' energy vulnerability

- beyond individually determined underconsumption
- mechanisms such as welfare support and social networks are important

Identification of hidden vulnerability relied on careful listening, observations and intuition ≠ quantitative or qualitative

- Role of **embodied knowledge** in the decision-making processes around energy, equity and health deserves investigation

**Health practitioners** very interested in learning more and assisting patients/ clients

- could play an important role in tackling hidden energy vulnerability but have hitherto been largely overlooked

Inter-organisational collaborations were key in efforts to identify and address hidden energy vulnerability; no integrated models of energy assistance service delivery;

- energy counselling is **not a recognised profession** but a job

Initiatives were fragmented, sporadic, varied in acceptability and accessibility

- informal and haphazard sharing of information;

dependent on individuals

- confusing for householders
- seldom addressing socio-political, economic or institutional contexts

#### Commodification of energy assistance

- competition among CSOs; price imperatives; too little time to assist householder; difficult to develop collaborations
- insecure funding; casualisation of energy counsellor

#### Connection rather than correction

- 'Hard to find, hard to reach, hard to help, hard to teach'
  - time and patience in dealing with people on a one-on-one basis to build trust; choosing the right time and location; repeated contact
  - progressing help along the spectrum from addressing acute needs to long term solutions

#### Little evaluation of initiatives

- scarce reports of systematic evaluations; mostly quantitative metrics
- no uniform evaluation methods or measures of success (outputs vs outcomes)

#### New insights into perception of essential energy

- e.g. adequate temperatures in bedrooms, refrigeration, digital participation
  - What are 'essential energy services'?
  -

#### Limitations

- Snowballing -> unrepresentative sample; little data saturation



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## Energy justice implication

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### Procedural justice

CSOs

- central to the delivery of energy assistance
- representatives of the community voice, but some recommendations went unheard in the quasi-transactional arrangements

### Recognition

- little acknowledgement of diverse types of energy vulnerability
- empowerment approach not appropriate for 'hidden' householders
- set client/ time ratio left many vulnerable households stranded
- financial assistance and energy literacy did little to change the structural conditions
- no initiatives to enhance community capabilities by providing jobs

### Distributive justice

- householders may obtain more help from larger retailers
- postcode lottery - assistance dependent on local council and energy distributor

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## Individual capacity building

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**Aim:** to improve the knowledge, skills, motivation and confidence of intermediaries who have regular contact with vulnerable householders and may facilitate their access to energy assistance services.

Training in energy literacy and in identification of energy vulnerability

- housing officers, community workers
- home care workers, NDIS staff
- call centre staff
- interpreters

### Content

- technical knowledge, reading of bills and communication skills
- understanding of social and structural conditions
- knowledge of varied assistance providers

### Service delivery model

- signposting; bit of hands-on help

### Tools

- Checklists

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## Community capacity building

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**Aim:** to promote the capacity of communities to develop and deliver local initiatives to address hidden energy vulnerability

- development of local partnerships and establishment of referral and assistance mechanisms.
- 'opportunistic' approach to identifying householders

### Partnerships

- among health care organisations, social support services, housing organisations and CSOs who provide energy counselling

.

### Service delivery models

- facilitated, warm or holistic referrals from health care providers, co-location or integration of energy counsellor into organisations
- Engagement and outreach, community champions, train the trainer, signposting through health support organisations

### Tools

- Central website for grant opportunities and assistance services
- Hard copy information, e.g. to complement assessment reports

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## Organisational capacity building e.g. Local Council

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**Aim:** to foster local leadership that allows diverse local entities and sectors to work towards the goal of eliminating energy vulnerability through shared responsibilities, complementary services and a continuous process of improvement.

### Local council can

- **'data-driven identification'** of households - those who
  - receive municipal rates concessions
  - have a disability parking permit
  - qualify for assistance with waste bins
  - social housing waiting list
- **'opportunistic' identification** of households
  - HACC and Regional Assessment Service (RAS) teams and their MCH nurses.
  - home care workers, housing managers
  - librarians etc.
- act as the **central point of referral**
  - referral to local council energy advisor
  - detailed and up to date knowledge and

understanding of available programs, projects, support services

- assist with the **implementation of energy assistance**
  - free comprehensive energy assistance services
  - assess needs
  - organise audit
  - facilitate energy assistance
- Local council could offer practical help 'Home Improvement Agency'

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### System capacity building

**Aim:** to achieve a continuous progress towards eliminating energy vulnerability

- structural reforms
- through changes in policy, professional status of energy counselling, practices, funding and advocacy and involve all stakeholders

### Consider energy in all disciplines and decisions

- include access to essential energy services in Public Health and Wellbeing Plan
- better collaboration among state departments

### Cross-sectoral energy assistance service delivery model

- central helpline, independent advice, triage, referral to local energy counsellors
- training materials for frontline staff
- WhatsApp account

### Professionalising energy counselling

- formal qualification – technical and social skills
- assessing home energy consumption from a material, behavioural, economic and legal perspective,
- advising householders of avenues to decrease energy consumption, costs or emissions and helping implement these strategies

### Increased collaboration with energy retailers

- concession eligibility checks – always
- automated re-application of concessions for social housing tenants
- assistance for Life Support Concession
- 'train the trainer'- community capacity building
- investigating energy issue rather than disconnecting
- change in bill design

### New forms of assistance

- appliance manuals in different languages
- home care service providers to offer more energy-related services
- assistance for private renters and owner occupiers

### Suggestions for regulatory reforms

- minimum energy efficiency standards for private rentals
- better energy efficiency of social housing and giving tenants more security in their tenure
- enabling access to solar PV, batteries or insulation for tenants
- better welfare support for asylum seekers and refugees
- more accessible and holistic welfare system

### Advocacy for policy change

changing political will – upscale retrofit programs  
advocacy from health professionals could be powerful

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### Funding

#### More funding for

- retrofits
- interaction with householders
- capacity building

#### Continuous funding needed

- continuity of assistance,
- job security of staff, knowledge and skill retention
- gradual strengthening of trust, inter-personal
- inter-organisational collaborations and awareness of services among householders

Possible sources:

- net zero carbon emissions funds
- energy company obligations (ECOs)
- health budgets

***“The most benefit to society, and the individual will be achieved if ECO reaches low incomes households who have physical and/or mental health issues caused or exacerbated by living in a cold home. This approach relies on local authorities having mechanisms in place to identify such households, for example GP or hospital referrals.” (BEIS 2019, p.2)***

# References

- Acil Allen Consulting 2018, *Supporting Households to Manage Their Energy Bills. A Strategic Framework*, Energy Consumers Australia, Melbourne, <<https://energyconsumersaustralia.com.au/wp-content/uploads/Supporting-Households-to-Manage-Their-Energy-Bills-a-Strategic-Framework.pdf>>.
- ACOSS, Brotherhood of St Laurence & ANU Centre for Social Research & Methods 2018, *Energy Stressed in Australia*, Australian Council of Social Service, Strawberry Hills, NSW, <<https://www.acoss.org.au/wp-content/uploads/2018/10/Energy-Stressed-in-Australia.pdf>>.
- BEIS 2019b, *Energy Company Obligation: ECO3, 2018-22 Flexible Eligibility Guide*, Department for Business Energy & Industrial Strategy, <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/776540/energy-company-obligation-3-LA-flexible-eligibility-guidance\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/776540/energy-company-obligation-3-LA-flexible-eligibility-guidance_.pdf)>.
- Bouzarovski, S 2013, 'Energy poverty in the European Union: landscapes of vulnerability', *Wiley Interdisciplinary Reviews: Energy and Environment*, vol. 3, no. 3, pp. 276-289.
- Bouzarovski, S, Petrova, S & Tirado-Herrero, S 2014, *From Fuel Poverty to Energy Vulnerability: The Importance of Services, Needs and Practices*, University of Sussex, Brighton <[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2743143](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2743143)>.
- Csiba, K (ed.) 2016, *Energy Poverty Handbook*, European Parliament, Brussels, <<http://bpie.eu/wp-content/uploads/2016/11/energy-poverty-handbook-online.pdf>>.
- ECA 2020, *Power Shift Final Report. February 2020*, Energy Consumers Australia, <[https://energyconsumersaustralia.com.au/wp-content/uploads/Power-Shift-Final-Report-February-2020.pdf?mc\\_cid=4cf709fcf6&mc\\_eid=a28ff8b3a9](https://energyconsumersaustralia.com.au/wp-content/uploads/Power-Shift-Final-Report-February-2020.pdf?mc_cid=4cf709fcf6&mc_eid=a28ff8b3a9)>.
- Essential Research 2020, *Shock to the System: energy consumers' experience of the Covid-19 crisis. The Numbers*, Energy Consumers Australia, <[https://energyconsumersaustralia.com.au/wp-content/uploads/Shock-to-the-System\\_-energy-consumers-experience-of-the-Covid-19-crisis-the-numbers.pdf](https://energyconsumersaustralia.com.au/wp-content/uploads/Shock-to-the-System_-energy-consumers-experience-of-the-Covid-19-crisis-the-numbers.pdf)>.
- Horne, R, Willand, N, Dorignon, L & Middha, B 2020, 'The lived experience of COVID-19: housing and household resilience', *AHURI Final Report*, vol. no. 345.
- Marmot Review Team 2011, *The Health Impacts of Cold Homes and Fuel Poverty*, MR Team, London.
- Middlemiss, L & Gillard, R 2015, 'Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor', *Energy Research & Social Science*, vol. 6, pp. 146-154.
- O'Daniel, M & Rosenstein, AH 2008, 'Professional Communication and Team Collaboration', in H RG (ed.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, Agency for Healthcare Research and Quality (US), Rockville MD, pp. 2-271-272-584.
- O'Neill, E 2019, *Exploring regulatory approaches to consumer vulnerability. A report for the Australian Energy Regulator*, Consumer Policy Research Centre, Melbourne, <<https://cprc.org.au/2020/02/26/exploring-regulatory-approaches-to-consumer-vulnerability-a-cprc-report-for-the-aer/>>.
- Rademaekers, K, Yearwood, J, Ferreira, A, Pye, S, Hamilton, I, Agnolucci, P, Grover, D, Karásek, J & Anisimova, N 2016, *Selecting Indicators to Measure Energy Poverty*, Trinomics, <<https://ec.europa.eu/energy/sites/ener/files/documents/Selecting%20Indicators%20to%20Measure%20Energy%20Poverty.pdf>>.
- Roberts, NR & Bradley, RT 1991, 'Stakeholder collaboration and innovation: A study of public policy initiation at the state level', *The Journal of Applied Behavioural Science*, vol. 27, no. 2, pp. 209-227.
- Thomson, H, Bouzarovski, S & Snell, C 2017, 'Rethinking the measurement of energy poverty in Europe: A critical analysis of indicators and data', *Indoor Built Environment*, vol. 26, no. 7, pp. 879-901.
- UN 2019, *Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all*, United Nations Statistics Division, viewed 22 June 2019, <<https://unstats.un.org/sdgs/report/2017/goal-07/>>.
- VCOSS 2018, *Battling On. Persistent Energy Hardship*, Victorian Council of Social Service, Melbourne, <<https://vcoss.org.au/wp-content/uploads/2018/11/Persistent-Energy-Hardship-FINAL-Web-Single-Page.pdf>>.
- Willand, N & Horne, R 2018, "They are grinding us into the ground" – The lived experience of energy (in)justice amongst low-income older households', *Applied Energy*, vol. 226, pp. 61-70.
- Willand, N, Sharrock, D & Long, D 2019, *Integrating energy efficiency & hardship improvements into the Care at Home system*, RMIT University, Melbourne, <<https://www.rmit.edu.au/about/schools-colleges/property-construction-and-project-management/research/research-centres-and-groups/sustainable-building-innovation-laboratory/projects/care-at-home-system-improvements>>.
- Yip, AO, Mah, DN-y & Barber, LB 2020, 'Revealing hidden energy poverty in Hong Kong: a multi-dimensional framework for examining and understanding energy poverty', *Local Environment*, vol. 25, no. 7, pp. 473-491.



[cur.org.au](http://cur.org.au)

[mit.edu.au/about/schools-colleges/property-construction-and-project-management](http://mit.edu.au/about/schools-colleges/property-construction-and-project-management)