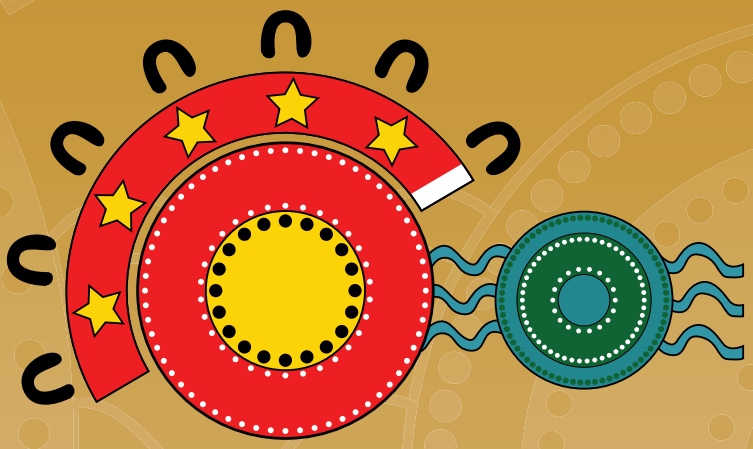

KEEP

KOORIE ENERGY EFFICIENCY PROJECT

FINAL REPORT

JUNE 2016

UnitingCare Kildonan

SWINBURNE UNIVERSITY OF TECHNOLOGY

Acknowledgment

Kildonan acknowledges the Aboriginal Peoples as the First Peoples of Australia and the Custodians of the Land.

Kildonan would like to thank all KEEP partners for their contribution and all people who participated in the project.

We would also like to acknowledge the contribution of Community Development Officers and the KEEP project team.

Kildonan acknowledges the assistance of the energy distributors who provided access to electricity consumption data: AusNet Services; Citipower; Jemena; Powercor Australia and United Energy Distribution.

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The views expressed herein are not necessarily the views of the Commonwealth of Australia, and the Commonwealth does not accept responsibility for any information or advice contained herein.

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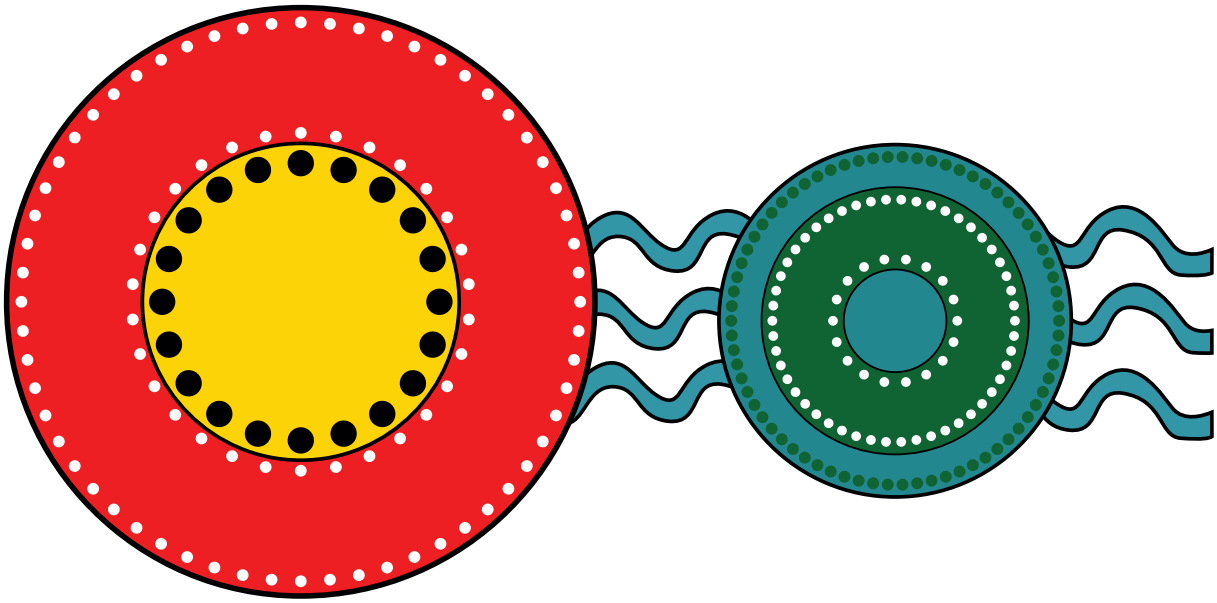
The use of the word “Indigenous” is avoided in this report to reflect the preference of Aboriginal Peoples to be called “Aboriginal” and which captures the predominant Indigenous Peoples in Victoria. Accordingly, “Indigenous” is only used when including titles or quotes. For the purposes of this report, the term ‘Aboriginal’ has been used to denote Aboriginal and Torres Strait Islander Peoples.



Case Study 1

"Helping the mob" goes beyond energy support

Lilly is in her sixties and on Centrelink benefits. She was visiting family in Melbourne when she received the news that her sister had passed away. At the time she was struggling financially with outstanding bills from all her utility providers, threatened with being disconnected by her gas provider, and had an outstanding bill with her phone company. Her son and daughter-in-law took her to a "Bring in Your Bills Day" to seek some assistance. This session was run by KEEP Community Development Officers (CDOs).

On arrival, Lilly fell apart emotionally. She was extremely distressed over her recent loss and worried about how she would afford to get to the funeral, especially with all the companies chasing her for money she didn't have. She stood outside the venue sobbing, and felt too ashamed to go inside to get the help she so badly needed.

A KEEP CDO came outside to speak with Lilly. He encouraged her inside with the offer of a cup of tea and a yarn. Once inside he and a KEEP Energy Officer calmed her down and, when she was ready, began talking with her about the problems she was having with her bills.

They started with her phone bill, as this service was crucial to Lilly staying in touch with family during a time of Sorry Business. The KEEP CDO then worked through each of Lilly's outstanding bills, ringing each retailer to request that her accounts be put on hold until Lilly could sort out her financial situation.

The KEEP CDO referred Lilly to the Koorie Connect service and arranged a meeting the following day. Initially, Koorie Connect offered to cover Lilly's bills for her. However, Lilly's priority was to get to her sister's funeral, so the money was used to cover Lilly's travel costs as well as food vouchers for the trip.

Upon Lilly's return, the KEEP CDO followed up with a Utility Relief Grant to cover all Lilly's bills and a referral to a financial counsellor to review her situation and support her to put strategies in place so she didn't fall behind in her utility payments again. Lilly wept again, this time with gratitude for the assistance KEEP and Koorie Connect had provided in helping her through an extremely difficult and stressful time.

"The payoff for us is helping people. They are relieved. You can see the worry lift off their shoulders." (KEEP CDO)

Executive Summary

Rising fuel and utility prices can have detrimental consequences, particularly for low income, vulnerable households, by impacting their financial struggles, comfort at home, ability to care for children and the elderly and general health and well-being. In 2002 and 2011, Consumer Utilities Advocacy Centre (CUAC) conducted research which revealed that Aboriginal consumers in Victoria were being disconnected and restricted from energy and water services in higher numbers than the rest of the population (CUAC, 2011).

The Koorie Energy Efficiency Project (KEEP) was designed to address this energy-related disadvantage experienced by Aboriginal householders by providing energy-related support to 4500 Aboriginal people across Victoria. KEEP was funded by the Department of Industry, Innovation and Science as part of its national Low Income Energy Efficiency Program (LIEEP) which aimed to trial and evaluate a number of approaches across Australia that were designed to assist low income households in becoming more energy efficient. LIEEP results will be used to inform future energy efficiency policy and programs, and KEEP findings are expected to contribute to this outcome.

Uniquely, KEEP adopted a shared-leadership approach wherein Aboriginal and non-Aboriginal organisations worked together to design and deliver a project "by Aboriginal people for Aboriginal people". KEEP is the first of its kind in Victoria to trial such a leadership style to address energy issues. KEEP built upon the experience of Kildonan UnitingCare, which initiated in-home energy visits and financial counselling for Aboriginal households in partnership with Aborigines Advancement League in the past.

In addition, KEEP designed several ways of reaching individuals and homes, which included a culturally appropriate evaluation method to determine which way(s) worked best. The purpose of this report is to detail the findings of the project.

KEEP Aboriginal workers (Community Development Officers), trained as energy workers, provided clear, independent advice to Aboriginal households through easy to understand group education sessions and home energy visits. KEEP CDOs spoke with households about their main energy concerns, provided practical tips and tools to curb their usage and keep costs down and, in some cases, assisted householders in assessing alternatives in their area. After experiencing a home visit by one of KEEP's CDOs, householders reported feeling that "someone cared", and that they were in a better position to lower their energy consumption by implementing the numerous tips provided to them.

Three home visit (HV) approaches were trialled including a standard HV (SHV), a standard HV with visual cues (SHV-IHD) (which included installation of an in-home display so the household could monitor their own energy use), and two standard HVs over a period of several months (SHV*2). Billing data, together with survey responses, were collected from households before and after each trial to separately determine the impact of each HV. Survey items to evaluate each trial type were developed in conjunction with all partners so that an agreed, culturally appropriate, measure was developed. The concepts of energy-related knowledge, behaviours, social and emotional well-being and confidence in dealing with energy providers were captured in a 35-item survey, which included several open-ended questions.

Of the 1124 HVs conducted at the time of this report, a total of 867 (77%) were useable for analysing the schema-data (descriptive-based data), 714 (64%) were useable for establishing baseline survey data and 193 (17%) were useable for evaluating trials (post HV measures). Daily electricity consumption data was also collected for one year before, and one year after, the HV for 340 (30%) households, though 50% of these households had post HV data for six months or less. It was important to both LIEEP and KEEP to determine the most effective way of supporting this vulnerable community, and to thus evaluate which HV approach worded best. To evaluate KEEP trials, data that was used for analysis per trial was as follows:

Valid Data Used for Evaluation	SHV	SHV-IHD	SHV*2	Not-Usable
First Phone Follow-up survey	123	24		46
Second Phone Follow-up survey			46	2
Electricity consumption data	121	199	11	9

Key Findings from KEEP

Home Situation: Initial analysis reveals that Aboriginal households invariably live in homes that are older than 20 years and were not structurally energy efficient. Participants were mostly tenants and lived in dwellings with higher than average occupancy levels, had limited window coverings and insulation and relied heavily on gas for heating in the winter. Many struggled to pay their utility bills and were stressed due to their financial situation.

Energy-Related Barriers: Many Aboriginal households reported experiencing energy-related barriers including: high consumption levels, associated high bills and difficulty paying them; fear of dealing with their energy providers due to past negative experiences; worry about the constant threat of disconnection; falling further and further behind financially; and caring for other family members which often meant increasing their own energy burden. In extreme cases, some went without food so their children could eat. Numerous problems with energy providers were uncovered, which include over-charging, disconnection threats, “not caring” and not offering the supports that were available to them (such as payment plans, concessions and grants). KEEP was designed to try and relieve some of these energy-related burdens.

Home Visit Trials: Of the three trials implemented by KEEP, the SHV and SHV-IHD trials were the most successful. Both trials were effective at reducing energy-related stress and discomfort in the home, as well as encouraging energy-savings practices around the home. Further, the trials assisted householders in becoming more confident dealing with energy providers and managing their home energy use, which included understanding their bills (which was important considering the tendency towards overcharging).

Only minor improvements were found in the analysis of daily electricity consumption data where, after a SHV, a 4% reduction in energy use was observed. Homes with no insulation, however, showed further and significant reductions in energy consumption. The second trial SHV-IHD showed a significant increase in energy consumption. However, this finding is confounded with the associated findings that homes receiving an in-home display were larger and had more family visiting and increasing energy use in the home.

The third trial produced the lowest benefit (SHV*2) and did not show meaningful improvements in energy consumption or behaviours when evaluated using both survey and consumption data. However, available data to evaluate this trial were low, and lower still for consumption data, rendering robust evaluation of this trial impossible within project time constraints.

Qualitative research was conducted to assist with interpreting these findings, and to obtain a deeper understanding of the household experience in having a HVs. Further, several open-ended survey questions were included in the main survey. Results both corroborated and contrasted the quantitative analyses. For example, householders consistently reported they experienced lower bills and felt considerable benefits from having a SHV*2. They also confirmed that HVs were beneficial in helping them know what to do to reduce their consumption and bills. These results suggest that, with more energy related data, and more behavioural and energy data for the SHV*2, more promising results will ensue. The results also suggest that empowering people with energy-related knowledge helps them to feel as though they are not struggling so much, even if there is no change to the bottom line in their bill.

Quantitative research created considerable challenges for KEEP. The most compelling difficulty was implementing a large-scale quantitative project that required numerous data collection points and practices. This was often overwhelming to a group who wanted to focus on 'helping the mob' due to understanding the plight of many Aboriginal households and knowing they could help them improve their situation. Further, constant pressure to meet very high and moving milestones, with new project deliverables added after the project had started, made it difficult to balance household needs with project demands.

Evaluation of the KEEP shared-leadership approach adopted to govern the project revealed that sharing in the decision-making and management of the project was mostly beneficial for both Aboriginal and non-Aboriginal people involved in KEEP and which built capacity, skills and knowledge for all parties. The importance of delivering a project for Aboriginal people, guided by Aboriginal organisations, employees and their networks, cannot be over-stated. Access to helping vulnerable people who find it difficult, if not at times shameful, to receive support must be done with dignity and respect, which can be only achieved with cultural and intimate knowledge and compassion of their situation. One clear message was received: home access was possible because a level of trust and rapport was built between the Aboriginal CDOs and the Aboriginal households they visited. Reaching people in need requires access to them, and without KEEPs CDOs and Aboriginal project partners, it is unlikely this would have been possible.

Overall, as a result of KEEP home visits, Aboriginal households became increasingly willing to reduce their energy usage and showed marked improvement in their confidence around energy and in dealing with the energy sector. Several householders reported that after a KEEP HV, they now share energy-savings tips with their friends and family, while feeling less stressed and experiencing more comfort at home.

Through the broad reaching Community Education Sessions almost 3000 Aboriginal households were reached, and more than 1120 individualised home energy visits has enabled a large proportion of the Victorian Aboriginal community to learn more about energy, receive support in managing their bills, and improve their home and personal situation.

Numerous findings have emerged from KEEP and inform a range of recommendations.

KEY FINDINGS

1. After a KEEP home visit, Aboriginal households experienced significant reductions in their energy-related stress and discomfort, and made substantive improvements to the adoption of energy related behaviours around the home, and shared the knowledge of how to make these improvements with friends and family.
2. KEEP HV trials 1 and 2 were both successful in motivating more energy efficiency household behaviours, improving the competency of householders, increasing their confidence to deal with the sector and reducing energy-related stress and discomfort.
3. KEEP's Trial 3 (two HVs) quantitative survey data did not show meaningful improvements in the home. However, data to evaluate this trial was limited.
4. Overall, as a result of KEEP home visits, Aboriginal households became increasingly willing to reduce their energy usage.
5. KEEP home visits (across all trials) showed marked improvement in the confidence of Aboriginal households around managing their energy bills, and dealing with the energy sector.
6. Many Aboriginal Households:
    - Have large energy bills and find it difficult to pay them
    - Are caring for other family members which increases their energy burden
    - Are falling further and further behind in paying their bills
    - Worry that their power will be turned off
    - Feel stressed about their situation
    - Are afraid to deal with their energy providers due to past negative experiences.
7. Aboriginal households report the benefits of a KEEP Home Visit:
    - Energy savings items
    - Energy savings tips
    - Help interpreting utility bills
    - Help dealing with utility providers.
8. Barriers to Changing Energy Providers:
    - Passive householder loyalty ("it's just too hard")
    - Unhelpful staff at call centres
    - Type of payment plans available
9. Problems with Energy Providers
    - Over-charging
    - Disconnection threats and action
    - "Not caring"
    - Not offering all available concessions/support grants.

RECOMMENDATIONS

1. Projects that involve Aboriginal communities should include representatives from those communities, including Aboriginal organisations, and delivered by Aboriginal people. This is best achieved in unison with mainstream organisations where a collaborative and mutually beneficial approach will likely yield the best outcomes.
2. Future programs for Aboriginal people should avoid using Randomised Control Trials as a research design, and refrain from using quantitative methods wherever possible
3. When addressing energy efficiency, factors beyond energy consumption should be considered, because ameliorating energy-related disadvantage such as stress and discomfort may be more important outcomes
4. Avoid data collection requirements that are intrusive to someone's home or privacy
5. If conducting surveys for Aboriginal people, ensure they are developed with Aboriginal people
6. When attempting to determine household energy consumption, both gas and electricity usage measures need to be taken
7. Energy usage data needs to span a minimum of two years – one year before and one year after the approach to accommodate high variation in energy use and type of energy used due to weather
8. Ensuring homes are well insulated is a priority in terms of reducing energy consumption and reducing energy waste, particularly for low-income tenants
9. Set regulations and/or incentives to encourage landlords (private, public and Aboriginal housing), particularly those renting to low income households, to improve their properties with retrofits, including insulation, so that they reach a minimum standard of energy efficiency
10. Provide financial support and guidance in negotiating with energy providers to Aboriginal households prior to encouraging them to adopt energy efficiency behavioural changes
11. Energy providers consider employing Aboriginal people to work with Aboriginal community members including call centre team members
12. Retrofits and appliances that are mobile (moveable) need to be included in future efforts to support Aboriginal households with their energy use, particularly as most are renting
13. Provide energy savings tips and advice that are easily transferable from home to home, as most Aboriginal households are renting

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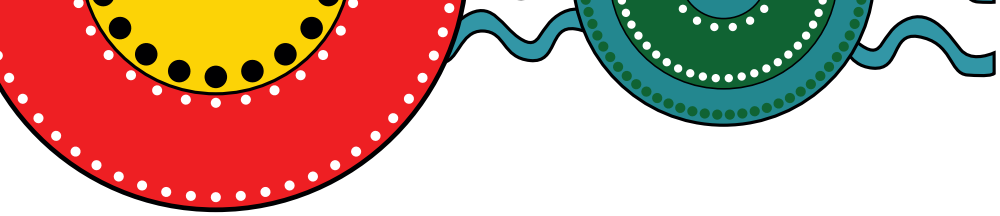


1. Background

Many Aboriginal people are disadvantaged in Australia. Numerous reports, including the latest *Closing the Gap* report (2016), attest to the discrepancies in quality of life issues such as mortality, education, health, employment and well-being, with little progress towards improving the situation. Despite the multitude of efforts that have been made, with substantial funds spent by government bodies and public sector organisations, Aboriginal communities are still struggling, and the gulf between their living standards and the rest of Australia is uncomfortably wide and growing larger. The manifestation of the "gap" is experienced by many Aboriginal people in their day-to-day lives, yet is poorly understood by others. What is being done, by and large, is not working well enough or not working at all.

Continually rising fuel prices, coupled with a highly complex energy sector in Victoria has detrimental consequences, particularly for low income, vulnerable households. This amplifies their financial struggles; discomfort at home; inability to care for children and the elderly; poor general health and quality of life. A report published by Consumer Utilities Advocacy Centre (CUAC) in 2011 identified a number of barriers that exclude Aboriginal participation in the energy market, creating disadvantage and adversely affecting Aboriginal health and wellbeing. This includes issues of debt and affordability, household energy consumption, navigating an increasingly complex energy market and the causal link between energy usage and living standards. The CUAC report was the motivation that brought together several not-for-profit organisations to work on addressing energy hardship in Aboriginal communities across Victoria.

CUAC Report

CUAC undertook research in 2004 which revealed that Aboriginal consumers in Victoria were being disconnected and restricted from energy and water services in higher numbers than the rest of the population. This was confirmed in a large scale project by CUAC in 2011.

Trialling a different approach to supporting Aboriginal communities, the Koorie Energy Efficiency Project (KEEP) involved Aboriginal workers, from Aboriginal organisations, providing genuine and practical energy-related support to 4500 Aboriginal people across Victoria. This project was the first of its kind in Victoria, featuring a unique shared leadership approach which allowed Aboriginal and non-Aboriginal people to work closely, side by side, sharing respective understandings and solving problems together. By so doing, the KEEP program was able to develop a service model reaching many Aboriginal people in need.

This move towards self-determination aimed to help Aboriginal households reduce their energy usage and bills, become savvier in the energy market place, and enable them to make informed decisions about efficiently using appliances, choosing providers, buying new appliances, and accessing concessions when needed. Further, the governance structure of KEEP ensured that Aboriginal partner organisations were intrinsically involved with decision making, management and project design.

Since the outcomes of all Low Income Energy Efficiency Program (LIEEP) projects will be to inform national policy, KEEP wanted to ensure that any national policy for Aboriginal people is informed by the most accurate findings we can obtain within the KEEP project. Furthermore, such an approach is consistent with *Principle 2 of the AIATSIS Guidelines for Ethical Research in Australian Indigenous Studies: "The rights of Indigenous peoples to self-determination must be recognised".* It is thus important that Aboriginal people involved in KEEP have the chance to inform all decisions made and inform national policy in the future.

Esme Bamblett, CEO, Aborigines Advancement League, Melbourne, at the Launch of KEEP, April 2014.

2. Project Overview

The Koorie Energy Efficiency Project (KEEP) is one of twenty national projects funded by the Department of Industry, Innovation and Science (DIIS), Canberra, under its pilot project: LIEEP.

The LIEEP objectives are to:

- trial and evaluate a number of different approaches in various locations that assist low income households to be more energy efficient;
- capture and analyse data and information to inform future energy efficiency policy and program approaches.

In addition to the objectives above, LIEEP aimed to have the following benefits:

- assist low income households to implement sustainable energy efficiency practices to help manage the impacts of the carbon price and improve the household's health, social welfare and livelihood Low Income Energy Efficiency Program Guidelines – February 2012 Page 6
- build the knowledge and capacity of consortia members to encourage long term energy efficiency among their customers or clients; and
- build the capacity of Australian energy efficiency technology and equipment companies by maximising the opportunities for Australian industries to participate in the projects.

The fundamental aim of KEEP is to address the barriers that prevent low income Aboriginal consumers in Victoria from improving their energy affordability and managing rising consumption costs.

2.1 KEEP Objectives

As a LIEEP recipient, KEEP secured a grant for $5.54m to rollout energy efficiency support and evaluation for a period of 3 years for Aboriginal households across Victoria.

The following broad objectives guided KEEP activities:

- To develop, trial and evaluate a number of different approaches to creating engagement, behaviour change and energy efficiency of vulnerable and low income Aboriginal households in Victoria.
- To evaluate the use of an innovative and evolving approach of shared leadership throughout the life of KEEP towards the practice of Aboriginal 'self-determination'.

The project involved trialling a number of innovative approaches to improving energy efficiency and reducing energy costs during Community Education Sessions and Home Visits conducted by Aboriginal Community Development Officers (CDOs) to low-income Aboriginal households.

Critical to the success of this project is respect of the history, culture and experience of the Victorian Aboriginal people. KEEP employed six Aboriginal CDOS, three team leaders in Aboriginal partner agencies and three Aboriginal people in the KEEP project team. Further, ongoing and regular consultation occurred between project partners, who were intrinsically involved in all aspects of the project design, implementation and evaluation.

KEEP aimed to determine which home visit (HV) approach was the most effective in lowering energy consumption and bills. KEEP contained two key components:

1. *Service delivery:* in the form of CDOs providing advice and support to Aboriginal households;
1. *Evaluation* of:
   (i) the impact of service delivery in terms of energy usage, the adoption of energy efficiency behaviours, and quality of life; and
   (ii) the shared leadership approach used to govern KEEP.

2.2 The Consortia

2.2.1 Approach to Partnering

The KEEP partnership approach fully integrated project management and decision-making, based on a model of shared governance and leadership between Aboriginal and non-Aboriginal organisations (refer to diagram of KEEP structure). Joint decisions were made at monthly partnership meetings of all consortia members (project partners) where project design and implementation matters were discussed, resolved and/or approved. Each Aboriginal partner was responsible for employing and managing two CDOs, totalling six Aboriginal CDOs, who were trained to become energy officers via an extensive training regime conducted by the lead agency, Kildonan UnitingCare, who has over fifteen years of experience in providing energy-related and financial support to vulnerable families.

Ongoing mentoring of CDOs was provided by the KEEP Project Manager (Aboriginal), Energy Mentor, and Community Engagement Officer at Kildonan. Furthermore, numerous workshops were run by Swinburne University of Technology with project partners and CDOs to ensure they understood the evaluation (research) component such that they could inform its development and operations. During these workshops, Aboriginal organisations and workers helped to ensure that the project elements were tailored to reach Victorian communities, and were able to provide advice on what was culturally appropriate. These aspects will be reported upon throughout the report.

2.2.2 Project Partners

KILDONAN UNITINGCARE

Kildonan UnitingCare (Kildonan) is an innovative organisation within the Uniting Church that is rapidly gaining a reputation for delivering some of the most relevant community services in Victoria. Annually Kildonan provides services to over 20,000 individuals and families across Victoria. Their 135-year history demonstrates a proven track record of pre-empting social trends and responding with programs and services that help people improve their circumstances. Kildonan's services support the growth of thriving and inclusive communities. This is achieved by creating and delivering integrated solutions with a holistic, personalised approach.

ABORIGINES ADVANCEMENT LEAGUE

The Aborigines Advancement League (AAL) is the oldest Aboriginal Organisation in Victoria. Located in Thornbury, the league provides services such as Home and Community Care, Family Services, ITAR Housing Unit, Funeral Services and Hostel Accommodation. AAL aims to administer and initiate programs to improve the social, economic and cultural advancement of Aboriginal and Torres Strait Islander people.

NGWALA WILLUMBONG LIMITED

Ngwala Willumbong Limited (Ngwala) is a key service provider offering specialist alcohol and drug rehabilitation and outreach support services to create an environment for positive change for people whose lives have been affected by drugs and alcohol through a holistic approach which recognizes the spiritual, emotional and physical needs of Aboriginal people. The multidisciplinary team offer community based support for people in the community suffering from the effects of substance misuse, homelessness, family violence and or contact with the Adult or Youth Justice system.

VICTORIAN ABORIGINAL CHILD CARE AGENCY

The Victorian Aboriginal Child Care Agency (VACCA) provides specialised assistance and cultural support to Aboriginal children and families known to protective services and/or are experiencing difficulties living with their family. VACCA also receives funding from ATSIC to deliver the Link Up Program which assists people from the Stolen Generation, reuniting family members. As a community based and Aboriginal controlled agency, VACCA's essential belief is the total self-management for Aboriginal communities throughout Victoria

CONSUMER UTILITIES ADVOCACY CENTRE

The Consumer Utilities Advocacy Centre (CUAC) is Victoria's only consumer organisation focused specifically on the energy and water sectors, and consequently it has developed an in-depth knowledge of the interests, experiences and needs of energy and water consumers. CUAC's mandate is to represent all Victorian consumers, but has a specific policy focus on the residential housing sector and to the needs of the most vulnerable community members.

SWINBURNE UNIVERSITY OF TECHNOLOGY

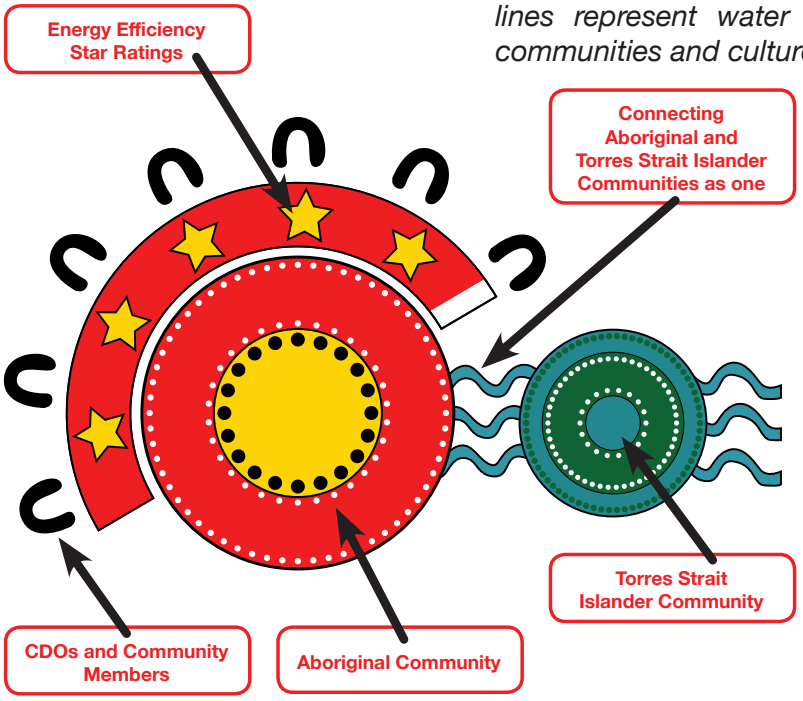
Swinburne University of Technology (Swinburne) is the research partner on this project, specifically the Centre for Social Impact. Swinburne has a long and well-established track record in working with industry partners to design and evaluate programs, especially within a social context.

The KEEP Logo

KEEP developed a unique logo which would reflect Aboriginal people in Victoria and the project itself. The logo, which was used on all KEEP promotional material and appears on each page of this report, was designed by Mr Namatjira Morgan, KEEP CDO, who was willing to apply his artistic talents to the task.

The "story" of what this logo tells is shared by him below.

> *"The black symbols represent the community members and the Community Development Officers (KEEP) workers. The stars represent the star energy rating system found on most energy saving appliances. The red, black and yellow circle represents the Aboriginal community. The green, white and blue circle represents the Torres Strait Islander community. The 3 blue curved lines represent water and rivers that keeps the 2 communities and cultures connected as one."*
>
> (Nama, KEEP CDO, February 2014)



2.3 Service Delivery Components

In order to provide advice and support to Aboriginal householders, CDOs underwent a seven month training program at Kildonan to become home energy officers. As part of this training, five key areas were covered:

- Respectful practice and working with vulnerable households
- Energy efficiency practices and appliances and financial literacy
- Financial support available, including access to concession rates and retailer hardship programs
- Referral process to other support services where appropriate (i.e., Microfinance, Financial Counselling, Family and Parenting Services, Housing, Mental Health and specialist Cultural services)
- Training on delivery community presentations
- Training to support worker and community safety e.g., mental health first aid, defensive driving, home visits safety and retrofitting
- Broader members of the Kildonan team underwent Aboriginal Cultural Awareness training through a Victorian Aboriginal Agency, VASCAL.

2.3.1 Training CDOs

To support CDOs during their Community Education Sessions (CommEds) and HVs, tailored educational tools and guides were developed. These helped to ensure that CDOs covered all necessary areas while speaking with Aboriginal householders, empowered them to explore energy conundrums in the home and enabled them to advocate on the householder's behalf with energy providers and financial support agencies.

2.3.2 Community Education Sessions

Our Aboriginal partners advised that some Aboriginal families, though struggling with energy bills, would not feel comfortable having someone come in to their home. They further advised that community gatherings take place in many forms, such as community festivals, sporting events and so on. Therefore it was essential to provide a community-based service where Aboriginal people, together, could learn about energy savings tips on how to reduce their bills. The target was to reach 3000 Aboriginal households by conducting Community Education Sessions (CommEds).

Case Study 2

Home energy conundrum

One Aboriginal family could not work out why their electricity bills were so high. After a KEEP home visit, some additional tips were given, though the family were already doing many energy saving activities. Despite these efforts, their next bill remained high.

The CDO returned to conduct a second home visit, and thoroughly went through every room, testing all appliances as they went. In the bathroom, the CDO noticed the lights did not work, and the family were instead using the heat-lamp which produced both heat and light. The family revealed that they left it on every night so the children could easily find their way to the bathroom, if needed. The 275 watt globe was contributing approximately $110 to the family's quarterly bill. After fitting energy efficient globes, and advising the family to avoid using the heat-lamp for light, the family found their next bill to be much lower, just by this one simple change.

"Sometimes, people are doing all the right things and it takes a bit of investigating to work out what it is that's making their bills so high. Once you do, the problem is easily solved." (KEEP CDO)

2.3.3 Home Visits

An integral part of KEEP was to have Aboriginal people supporting Aboriginal households, which is why Aboriginal people were employed and trained to conduct the Home Visits (HV). This ensures cultural "safety" within the home during a HV, where the householder feels less judged, and less shame, by having someone from their own community supporting them. This was later verified during qualitative work where all householder's revealed that this was critical for them when deciding to participate in KEEP.

HVs allowed for personalised attention, where, depending on the needs of the household, the CDO went through the householder's bills, reviewed appliance use, provided energy savings tips relevant to that household, and helped them with energy providers where necessary, in terms of obtaining concessions, grants and payment plans. Some low level retrofitting was also provided, as well as payment arrangement support, access to rebates and subsidies, appliance replacement and referrals to partner programs and services. The target was to visit 1500 Aboriginal homes using this method.

In summary, targets were set as follows:

Method of Reaching Aboriginal Households	No. of Aboriginal Households Targeted
Home Visit (HV)	1500
Community Education Session (CommEd)	3000
Total	**4500**

Members of the KEEP Partnership at the KEEP Launch.

2.4 Project Rollout

2.4.1 Schedule across Victoria

Three regional levels across Victoria were targeted: Melbourne Metropolitan suburbs, Regional Victoria and Rural Victoria. Based on the (former) Department of Human Services (DHS) Victorian regions, Aboriginal populations were gathered across eight DHS regions and a rollout schedule planned for 2.5 years. The coverage hinged upon an agreed requirement by project partners that approximately 75% of HVs would be conducted in Metro, 15% conducted in Regional, and 10% conducted in rural areas of Victoria. This decision was made to allow CDOs, all based in Metro-Melbourne, to be with their families during the project and thus, only away for short periods of time. Further, upon the advice of Swinburne, efforts were made to visit main areas more than once with a variance in seasons, by different CDOs. This allowed any peculiarities in weather conditions or CDO practices to be controlled for later when conducting the analysis.

The map of Victoria below is populated with the postcodes of where HVs were conducted, which also reflects where larger populations of Aboriginal people reside (see Figure 1).

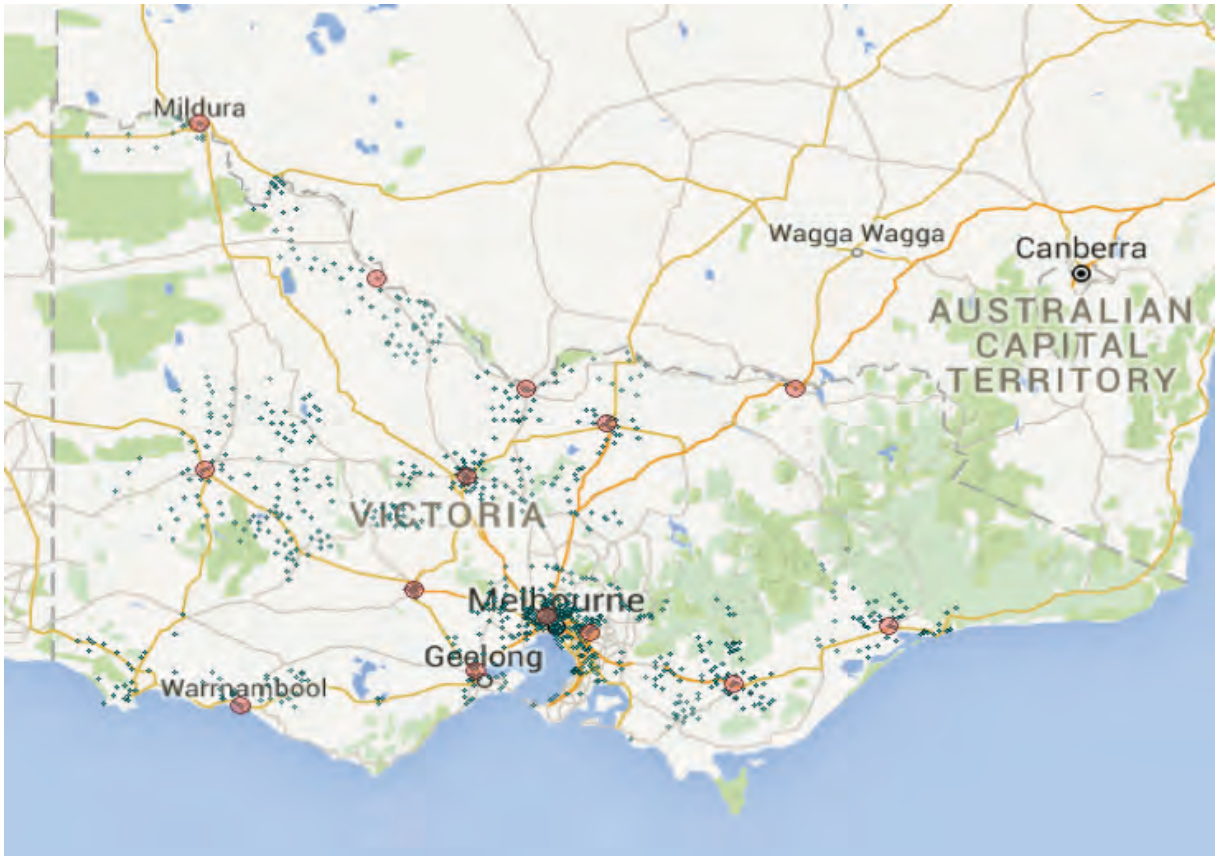


Figure 1: Victorian Map Showing Postcodes where CDOs Conducted Home Energy Visits to Aboriginal Households

It is important to note that the KEEP project is contracted until June 2016 with CommEds and HVs to continue to be conducted until 12 May 2016 to ensure that overall targets are met. This report reflects data that was gathered from HVs up to 5th February 2016, which means total figures reported here are lower than the total final figures of KEEP. Accordingly, analysis was conducted on 1124 households, from which useable data was obtained for 867 households for descriptive analyses; 714 households for survey-data baseline measures; 193 for post-HV evaluation measures; 340 households for energy consumption analyses.

According to the 2011 census, the population of Aboriginal people living in Victoria is estimated at 37,991 (ABS, 2012). Re-estimations two years after the census calculated this figure as 47,333 (ABS, 2013). Based on the former regions used by the Department of Human Services (DHS) the proportional Aboriginal population in Victoria can be seen in Figure 2.

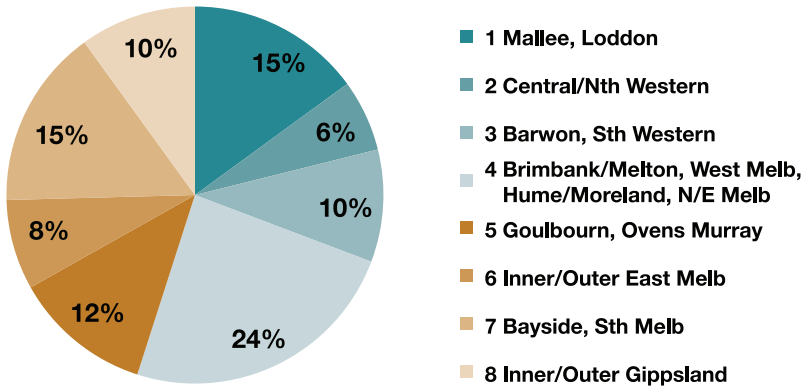


Figure 2: Proportion of Aboriginal Population by DHS Region in Victoria

Source: Based on ABS figures (2011)

Overall, these figures indicate approximately 47% of Victorian Aboriginal people live in Metro, 19% in Regional and 34% in Rural Victoria.

2.4.2 Participant Referral

Three key components of KEEP allowed for a "head-start" in obtaining referrals for HVs. First, the existing client service delivery by partner Aboriginal organisations was a key referral pathway for low income and vulnerable households to KEEP. Second, Aboriginal CDOs and their managers drew upon their own family and community networks to encourage them to participate in KEEP. Third, some Aboriginal households receiving a KEEP HV would then refer others they knew who were also struggling with energy bills.

2.4.3 Communications

KEEP communications included:

- face to face meetings with Aboriginal organisations and community groups
- launching KEEP through an event facilitated by the partnership
- developing promotional materials including brochures and flyers for presenting at appropriate conferences and networks
- developing culturally appropriate energy efficiency materials
- attending Aboriginal gatherings, NAIDOC, National Sorry Day and family days
- preparing case studies, stories and reporting to relevant networks and relevant organisations to share best practice, scenarios and outcomes
- disseminating the final research report

2.4.4 Recruitment and Incentives

Aboriginal households were recruited to participate in KEEP in various ways. Recruitment methods did not follow a random sampling design, rather a referral and snowballing system dominated. Further, CommEds were useful in not only providing basic energy-related information, but turned out to be one of the most successful recruitment methods for HVs. Once an Aboriginal householder attended a CommEd, they were more likely to consider having a (personalised) HV experience. Moreover, due to the promotions and word-of-mouth, partner organisations or CDOs were contacted directly by Aboriginal households requesting a HV. Nonetheless, KEEP experienced constant challenges in reaching monthly required targets.

Incentives were used to encourage participation in KEEP, as they are known to motivate people to participate in research enquires (Singer 2002; Groves *et al.*, 2009). Accordingly, to encourage Aboriginal households to participate in KEEP, numerous incentives were devised, see Table 1.

Table 1: KEEP Incentives for Participating in a Home Visit or Community Education Session

Incentive	Criteria	Details
Major appliance replacement program	Participating in a HV and in a particular state of disadvantage or struggle	Identified by CDO or Kildonan as being highly in need Refrigerator replacement Approximately 100 in total
KEEP Showbag	For participating in a HV	Up to the value of $25
Supermarket voucher	For participating in HV and follow-up phone survey	Up to the value of $50 per household

During the course of the home visits, partner agencies and Kildonan identified many Aboriginal families who were either going without a refrigerator or had old, very inefficient units, some of which were over 20 years old. As part of the project incentive package we developed a fridge replacement initiative subject to strict criteria. To 28 April 2016 the project has replaced or provided fridges for 84 vulnerable Aboriginal families, with a further 21 to be processed.

3. Project Design

To evaluate KEEP, it was necessary to design the research, devise a method of obtaining data, and to determine how the data would be collated and analysed. The original Data Collection and Reporting Plan was reviewed by CSIRO, on behalf of the DIIS, where they requested we conduct *Randomised Control Trials (RCTs).* This formed the first major stumbling block for KEEP. All partners had thought we would evaluate the project using qualitative methods where “having a yarn” was deemed culturally appropriate. At the risk of losing funding, which would also mean being unable to help those Aboriginal households experiencing energy-related disadvantage, the evaluation component was completely redesigned.

With an overarching desire to support Aboriginal Victorians, KEEP developed three “trials” (hereafter termed HV approaches) for visiting homes.

3.1 Community Education Sessions

Comm Eds were held by KEEP in all regions in Victoria as a way of collectively communicating with Aboriginal households. Groups of people were encouraged to attend a session which provided them with key, though generic, information on how to improve their household energy efficiency. As the project progressed, it became evident that it was overly difficult for CDOs to collect data after these sessions to determine whether they were helpful. Instead, participants would invariably request a HV after attending a CommEd, for more specialised support on how to improve their household's energy efficiency and thus lower their utility bills. In other words, CommEds became a highly useful promotion method to attract people to a KEEP HV.

3.2 Home Visit Approaches

The research design adopted for KEEP home visits mirrors Randomised Control Trials (RCTs) in many ways (but not completely). During a workshop with project partners and CDOs, three approaches for HVs were devised.

Firstly, it was decided that all participants will receive a "standard" HV rather than some being randomly allocated to a "control" group. This decision was made based on ethical grounds wherein it was deemed immoral to accept household participation and yet, provide no support, despite knowing that those households wanting to participate are also the most in need of help. To preserve the robust nature of RCTs, a "wait-listed" control group was formed so that the energy usage data of 12 months prior to receiving a HV, and thus prior to experiencing support, was used as control data.

Case Study 3

Blow heaters blow out energy use

Rachel is separated from her partner and her children are now living independently. She lives alone in a one bedroom flat. Rachel lost her job several months ago and over winter her bills skyrocketed, accumulating $2500 in arrears. She had contacted her retailer and put herself on a payment plan but it was too high and she was struggling to keep up her payments as well as cover her other living costs.

When she contacted KEEP she was worried about her future. She had been unsuccessful in finding work and financially going backwards. The KEEP CDO visited Rachel in her home to find she was busy organizing a funeral, a common thing among the Aboriginal community. The CDO made a time to return to speak with Rachel when she was not so pressured.

On their return the KEEP CDO looked at Rachel's appliances and found she had been consistently using two small blow heaters in her flat over winter. The KEEP CDO advised Rachel to get rid of them as they were the likely cause of her inflated electricity bill. The CDO and Rachel discussed a number of ways Rachel could cut down on her energy usage and reduce her bills. Rachel agreed to put the tips into practice immediately.

The CDO contacted Rachel's retailer and advocated for her to be put onto their hardship program. Rachel's payments were renegotiated to an amount she could afford and they applied for an URG to cover some of her arrears. The retailer agreed to contribute to Rachel's arrears every fourth payment as long as Rachel made her payments on time.

Rachel was grateful to have the financial pressure relieved while she continued to look for employment. It was one less thing she had to worry about.

While looking at Rachel's appliances the KEEP CDO found Rachel's fridge wasn't operating properly, the refrigerator section was too cold and the freezer section was too warm, so Rachel was recommended for a new fridge through the Refrigerator Replacement Program. Rachel was overjoyed with the support she received through the KEEP program and was very grateful she was in a more secure financial position after her home visit.

Secondly, KEEP was interested in the aspects about the standard home visit which were successful, and importantly, what additional components worked best to help bring about improvements in energy efficiency. These additional components selected were an in-home display monitor, with visual cues for around the home (IHD), which includes items such as energy-saving stickers and magnets, and thermometers to be placed strategically around the home, and a repeated standard HV (2nd HV). Accordingly, people received one of the following types of HVs.

Three main approaches:
i. Standard Home Visit (SHV)
ii. In-home Display Monitor and Visual Cues (IHD)
iii. Second Follow-Up home visit (2 standard HVs over time) (SHV*2)

3.3 Conceptual Framework

To evaluate KEEP HV approaches, it was first essential to understand which aspects were important so that a way of capturing key information could be formed. A second workshop was held between project partners, CDOs and Swinburne to develop a shared understanding of what was delivered during HVs, what was required by the DIIS (schema-data) and what was known to influence behavioural outcomes towards lower energy consumption. The following diagram depicts the outcome of this workshop, and how each are interrelated. This guided KEEP's research design.

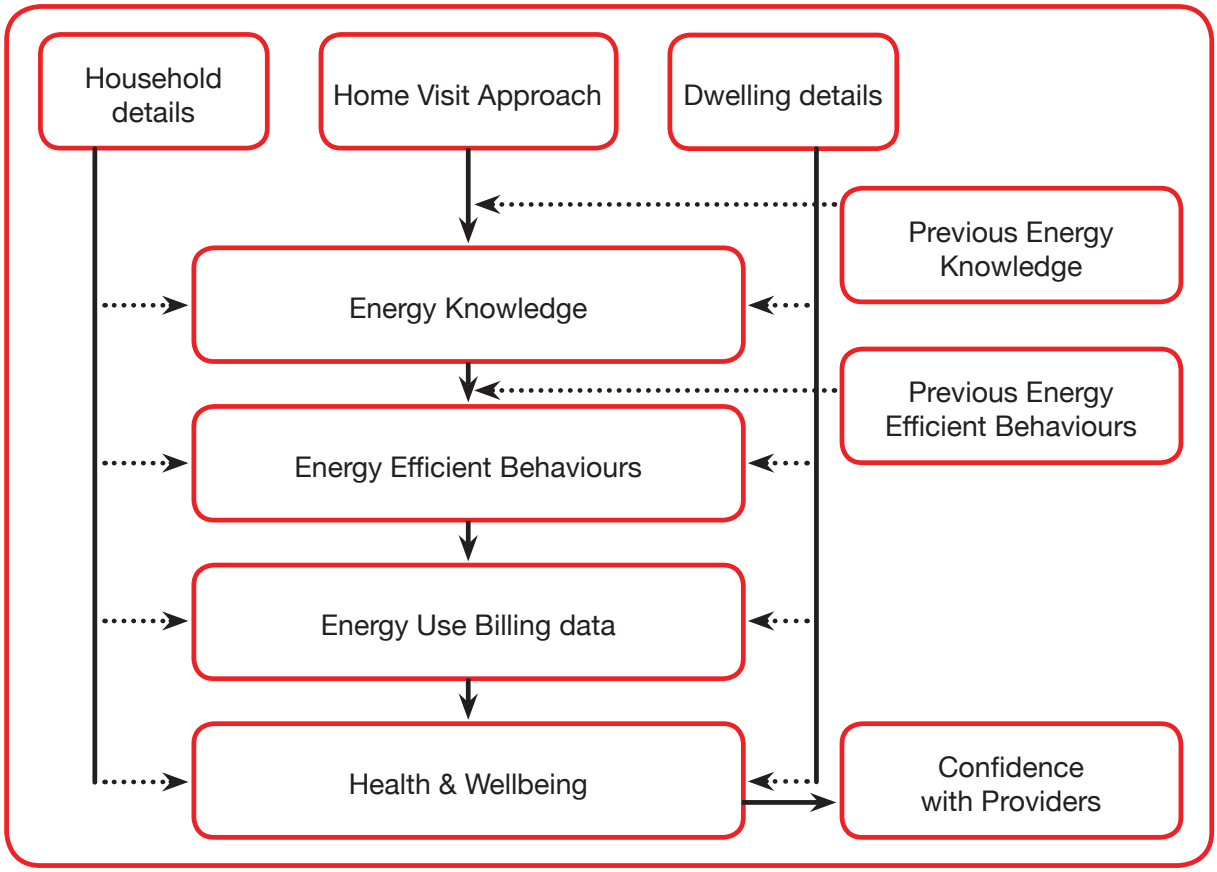


Figure 3: Conceptual Design for Developing Research to Evaluate KEEP

3.4 Construct Measures

Consistent with high-level quantitative designs, surveys capturing quantitative responses were deemed suitable to capture each of the areas (constructs) in the conceptual design model.

KEEP survey items measured three key constructs:

i. Knowledge about energy efficiency

These items include knowledge about appliance usage and conservation usage *e.g.,* which appliances use the most energy, how to save (informed by DeWaters *et al.,* 2007)

ii. Behaviours

a. Behaviours around household energy efficiency
   These items include a checklist of energy efficiency behaviours both permanent (e.g., door seals) and regular (e.g., turning off lights, shutting doors, etc.) (informed by Newton and Meyer, 2013; Stragier *et al.,* 2012; Langevin *et al.*, 2013)
b. Behaviours around participating in the energy market
   These items include making energy efficient decisions (e.g., managing or changing energy providers, buying energy efficient appliances, managing bills)

iii. Health and wellbeing around energy efficiency

Health and wellbeing with regard to energy includes the following areas:

a. Thermal stress - *e.g.,* heat exhaustion; using medication to relieve symptoms
b. Physical wellbeing - *e.g.,* perceived level of comfort due to temperature in a room
c. Emotional wellbeing - *e.g.,* experienced level of stress and anxiety due to utility stress
d. Social wellbeing - *e.g.,* social interaction, connectedness, functionality in the home (informed by Williamson *et al.,* 2009; Isaacs *et al.,* 2004; McKenzie, 2013)

iv. Confidence dealing with providers

Spurred by the findings of CUAC, experience from Kildonan and AAL and stories from CDOs a few items around the confidence of the household in dealing with their energy providers were included.

Note: A general question regarding willingness to become more energy efficient was included (see Appendix A for the finalised list of survey items).

3.5 Research Design

3.5.1 Home Visit Research Design

To evaluate the HV approaches it was important to capture information before the household benefited from the HV tips and support, and after the HV in order to conduct comparative analysis. Hence, a measure of each construct before and after the HV needed to be captured. The following objectives informed the research design.

Objectives of Evaluating HV Approaches

There are several underlying objectives which underpinned the design and analysis of the research for this aspect of the project:

1. To determine whether each approach was successful in improving energy efficiency
2. To determine which approach had the most impact on energy efficiency
3. To understand why and how each approach improved, or did not improve, energy efficient outcomes
4. To understand which groups experienced the most benefit

Method of Data Collection

Quantitative: KEEP Aboriginal partners felt it was important that household information was collected by the Aboriginal CDOs to optimise the "cultural safety" of the household. Accordingly, CDOs surveyed households at the start of a HV which formed the baseline measure, and they called each household after the HV (minimum of 3 months later) to obtain a post HV measure. This meant that all households participating in HVs would receive a phone call ("phone follow-up") and that households receiving a 2nd HV would receive two phone follow-ups. During a HV, dwelling and household information was also captured to comply with the DIIS requirement of gathering "schema" data (dwelling and household details). This allowed for comparisons across all LIEEP projects. CDOs, equipped with iPads and laptops, entered the results onto the KEEP database.

In addition to the self-report survey data, it was also important to capture energy-use data before and after a HV, considered to be an objective measure of before and after a HV approach. Accordingly, both energy-use and participation consent forms were obtained during each HV. Energy use data of 12 months prior and 12 months post a HV was obtained. Due to the high mobility of Aboriginal people, obtaining complete sets of energy-use data was problematic, as this longitudinal component required the householder to remain in the same house for two years. In some cases, partial billing data was obtained from energy providers.

Kildonan contacted the relevant Victorian energy distributor (note: only electricity distributors were used in this project) requesting energy-use data for each participant who consented. This data was provided to Swinburne for transformation and analysis.

Qualitative: After numerous group discussions with Aboriginal and non-Aboriginal KEEP project partners, some concerns arose about a reliance solely on quantitative evaluation. While the two quantitative measures (energy-use and survey data) are robust in their own right, the quantitative measures assume that an increase in energy efficient behaviour will result in a reduction in energy consumption in the energy-use data, or be revealed via survey questions.

There are five inherent risks associated with solely using this quantitative data:

1) Aboriginal people are highly mobile, that is, many change residence several times a year and obtaining energy-use data for a reasonable proportion of the sample was problematic.
2) High mobility, together with a lack of mobile phone use (for longer conversations, such as phone surveys) means phone survey response rates were lower than anticipated.
3) It does not recognise situations where energy use has remained the same but quality of life has improved due to more efficient consumption.
4) The size of Aboriginal households can change many times a year *e.g.,* due to family members visiting for an extended period for sorry business.
5) The historical context means that potential issues of trust may sometimes be a barrier when engaging Aboriginal households.

It was therefore decided that the evaluation of KEEP would greatly benefit from the addition of a qualitative component to mitigate the risks of not being able to discern the impact of the various HV approaches. Being able to discern this impact is a priority outcome for the DIIS, and so KEEP wanted to ensure that the fullest and most accurate "picture" is provided. Since the outcomes of all LIEEP projects will inform future policies and programs, KEEP wanted to ensure that any national policy for Aboriginal people is informed by the most accurate findings we can obtain within the KEEP project. Furthermore, such an approach is consistent with *Principle 2 of the AITSIS Guidelines for Ethical Research in Australian Indigenous Studies: "The rights of Indigenous peoples to self-determination must be recognised".* It is thus important that Aboriginal people have the chance to provide a complete picture which will inform national policy in the future. To this end, a more complete understanding of Aboriginal household experiences in receiving a HV and implementing energy efficiency behaviours was sought by the following qualitative additions:

- One-on-one interviews with Aboriginal householders who received a HV as part of KEEP
- Focus groups with Aboriginal householders who received a HV
- A focus group with CDOs, who have conducted hundreds of home visits, to gain a valuable frontline perspective.
- Collect and analyse brief case studies, which involved short stories provided by KEEP's CDOs to Kildonan, and which provide insight into the plight some families face and ways that a HV assisted them

The qualitative research findings reported will be used to triangulate survey and energy-use data to provide a richer and deeper understanding of the way that Aboriginal households in Victoria have responded to home energy visits. That is, whether they have/have not changed their behaviour and what, if any, benefits they received or barriers they experienced as a result of their participation, and which cannot be captured using survey and billing data. Indeed, qualitative research methods prioritise the exploration of "individuals own accounts of their attitudes, motivations and behaviour" and detailed information about their views on the "everyday social world" (Denzin & Lincoln 2000: 10; Walliman 2006: 42). As a result, they can provide a "thick description" that quantitative research cannot.

Incentives

Household participants for interviews were provided with a showbag and a voucher to the value of $50 as a gesture of appreciation for contributing their time and knowledge. This is consistent with the incentives already provided for householders receiving a HV. Further, this is consistent with ***AITSIS Principle 11: "Indigenous people involved in research, or who may be affected by research, should benefit from, and not be disadvantaged by, the research project".***

Details of Interviews

To help understand the experience of Aboriginal households from receiving a HV, one-on-one interviews were conducted. Each interview was digitally recorded (audio) with the informed consent of participants. All interviews were conducted in the home of the householder, though they were given a choice of location (e.g., on the premises of Kildonan or at home). Interviews lasted between 40 min and 90 min and participants received a $100 voucher. Interviews were conducted by a member of the Swinburne research team, who was accompanied by the KEEP Project Manager or Energy Mentor for safety and culturally appropriate purposes.[1]

[1] It should be noted that it is culturally appropriate to have a person of the same gender visit the house. Thus, in cases where the interviewer and interviewee were of different genders, another person of the same gender as the interviewee should also be present where possible.

Case Study 4

Advocacy – a little goes a long way

Peter had been living in temporary youth accommodation for the past three years. He was planning to move into private rental accommodation when he discovered an outstanding water bill of $3,500 in his name. Peter had not lived at the address of the property for three years and discovered his brother had put the account in his name without his permission. With this large amount owing, Peter would be unable to secure a home of his own.

Peter had tried speaking to the water retailer to explain his story, but the conversation ended in frustration. The retailer didn't believe him and insisted Peter was responsible for the bill and must pay it. Discouraged, Peter was reluctant to make any further contact with the company.

Luckily for Peter, an Aboriginal worker from a partner agency referred him to KEEP. The initial contact the KEEP CDO made with the retailer ended badly, with the retailer still insisting that Peter must pay the exorbitant bill. The CDO decided to take Peter's situation direct to the water retailer's hardship program, where he advocated strongly on Peter's behalf to have the issue properly addressed.

When the KEEP CDO put Peter on the phone with the retailer to grant permission for the CDO to negotiate on Peter's behalf, the CDO noticed Peter's discomfort in speaking to the retailer. It was clear to the KEEP CDO Peter did not have the skills or confidence to deal with the retailer himself, and left to his own devices would have been forced by the retailer into a payment plan for a bill he was not responsible for. This would also mean Peter would remain in emergency housing for much longer than he needed or wanted to.

Eventually the retailer agreed to launch an investigation into Peter's case. Three days later the KEEP CDO received a call from the retailer informing him they had verified Peter's story and the amount owing had been cleared. Peter was deeply relieved. He now had the freedom to move out of temporary accommodation and pursue his dream of independent living.

"It's about advocacy. Retailers treat people differently, depending on how much they know. A bit of knowledge goes a long way to getting a good outcome for someone who lacks the confidence to deal with the retailers themselves." (KEEP CDO)

3.5.2 Designing the Research to Evaluate KEEP's Shared-Leadership Model

Background

In Australia there is currently a great divide in education and health outcomes between Aboriginal and non-Aboriginal Australians. The social expense of not having a culturally acceptable leadership model to bring about positive change in Aboriginal and Torres Strait Islander communities is costing the nation. The 2010 "Indigenous Expenditure Report" stated that total government expenditure on services to Aboriginal Australians in 2008-09 was estimated to be $21.7 billion or 5.3 per cent of total general government expenditure (Steering Committee for the Review of Government Service Provision, 2011).

In order to improve social outcomes for Aboriginal Australians there has been increasing impetus to form inter-sectoral and intercultural partnerships to address the range of complex social factors contributing to poorer outcomes in life (Haynes *et al.,* 2014). Partnerships with Aboriginal communities could be vital in achieving favourable outcomes (Haynes *et al.,* 2014). As Aboriginal empowerment and social and emotional wellbeing underpin capacity strengthening for Aboriginal people (Bainbridge, McCalman & Tsey, 2014), it would appear that any social work carried out in Aboriginal communities must be underpinned by improving the health and wellbeing of individuals, families and communities. A cross-cultural collaboration between mainstream organisations and Aboriginal organisations seems to be a positive way forward, and underpins the shared-leadership model used in KEEP.

Therefore, a critical component and objective of KEEP was to evaluate the shared-leadership model used to govern the project. By so doing, the advantages and disadvantages of using such an approach to tackle Aboriginal issues and support Aboriginal people could be understood.

Objectives of Evaluating the Shared-Leadership Approach

The aim of this research component was to evaluate the effectiveness of:

1. The shared leadership approach in building energy efficiency knowledge of low income Aboriginal households, communities and organisations;
2. Giving ownership through 'self-determination' of the project to Aboriginal communities and organisations by providing training and creating employment opportunities for local Aboriginal people.

Method for Evaluating the Shared Leadership Approach

To evaluate this novel approach, one-on-one interviews were conducted with the project partners and the CDOs to understand and evaluate both the shared leadership approach and the effectiveness of giving ownership of the project to the Aboriginal communities and organisations. Interviews lasted between 60-120 minutes each and were conducted in two rounds: during the first year of KEEP and at the end of the second year. These informal "yarns" helped inform our understanding of the challenges or difficulties of achieving objectives, and to discuss the shared leadership model and its impact on them. A total of 22 interviews were conducted in the first round, and 16 in the second round. This component of the project was conducted by a doctoral student under the supervision of two members of Swinburne (the research partner).

4. Results of Evaluation of Home Visits

4.1 Data Analysis Design

The aim is to quantify and evaluate the effectiveness of the various HV approaches, identifying which ones have worked and to what extent. Therefore, separate analyses for aggregate findings and findings for each HV approach is necessary to determine whether each trial was successful in improving energy efficiency.

The findings first present the results of the descriptive statistics drawn from the schema data. Key areas of interest pertaining to the dwelling and household were captured and reported upon. Second, the results of the KEEP survey data were analysed. These involved quantitative responses and comments based responses to open-ended questions. Third, the results of the energy consumption data are reported. A multi-level model incorporating key variables was developed to evaluate the impact of the different HV approaches on energy usage. In the basic model the dependent variable was monthly average daily electricity consumption and the independent variables was minimum and maximum monthly temperatures, as recorded at local weather stations. Data comparisons were made to:

- Determine which of the trials was more successful
- Determine for which household clusters the HV approach was more effective.

A range of analysis tools were used: descriptive tests, paired sample t-tests, content-analysis, multi-level modelling and cluster analysis to examine the survey and energy consumption data.

In order to assess whether and/or how the HVs were helpful, and to supplement the quantitative findings, in-depth interviews were conducted with 15 people who had received a HV. In addition, a group interview (focus group) was held with the CDOs who had delivered the HVs. Interviews were conducted in February 2016 and the focus group in December 2015. Interviews lasted between forty minutes and two hours. They aimed to answer the following questions:

1. Was the home visit helpful/beneficial - how so?
2. What new information, if any, was learned at the home visit?
3. What energy efficient knowledge and/or behaviours, if any, have they adopted since the home visit?
4. What barriers, if any, have they faced in making energy efficient adjustments?
5. Have they shared their new knowledge about energy efficiency with others in their community? If yes, with whom?
6. Has any other part of their life been impacted due to their energy efficiency improvements?

An inductive thematic data analysis approach was used to analyse and interpret the data.

4.2 Findings

4.2.1 Descriptive Statistics

Analysis of the LIEEP schema data was conducted on a total of 867 valid household responses from the total number of households who participated in KEEP at the time of this report (n=1124). Accordingly, the analysis conducted in this section represents 77% of KEEP respondents. All data collected were entered into the database by CDOs either during a HV via their iPads or laptops, or following the HV when they returned to their respective offices.

Additionally, the unit of analysis was a single person in the household, who was the energy account holder, and who agreed to participate in KEEP. All data reported in the following sections reflect valid participant responses. All respondents signed an 'informed consent form' agreeing to participate.

Respondent Characteristics

As Aboriginal project partners and CDOs advised it is considered culturally inappropriate to ask people about their age and income. Understandably, this means that on numerous occasions, CDOs chose not to ask these questions, which accounts for the high proportion of missing data (41% and 55% respectively).

Age: The age of the householder participating in KEEP was recorded for 509 people, representing 59% of the total group. The age of the household occupant who participated in KEEP ranged from 18 to 86 years (see Figure 4). Just over half of these people were aged between 30-49 years (58%) and almost one third was 50+ years of age (28%). No age was recorded for 41% of participants.

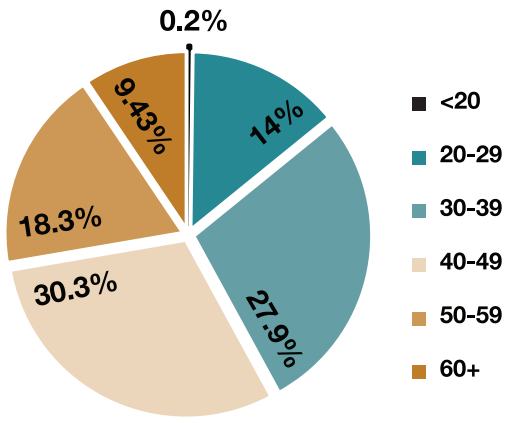


Figure 4: Respondent Age Distribution

Age of Home Occupants: Figure 5 provides detail on the age-distribution of the number of people living in each household, and of the number of households by age categories. It reveals that most households involved in KEEP were families with young and/or adolescent children.

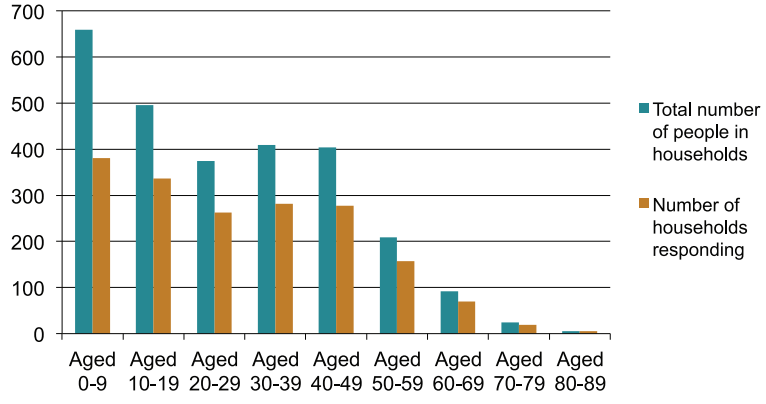


Figure 5: Number of Occupants and Household by Age

Number of Occupants Based on Age: Figure 6 provides detail on the number of occupants indicated by household in the various age groups. An average household hosts a child (below the age of 10) and one in two on average is home to a teenager. The largest households were home to up to 6 children or 5 teenagers. The generations from 40 and above live in households with one or two occupants.

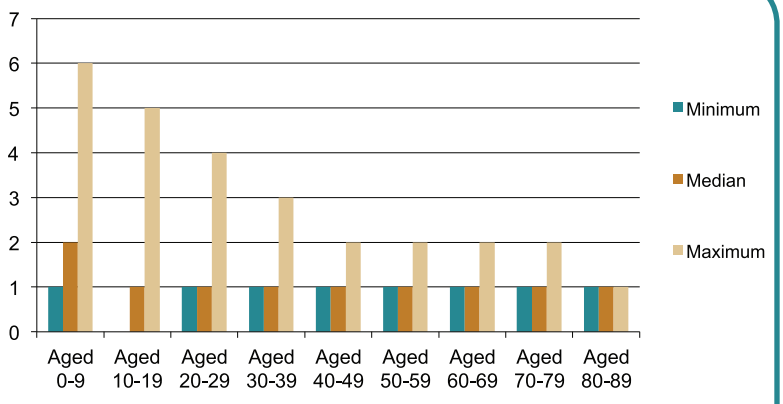


Figure 6: Occupancy of Households by Age

Education: Approximately 45% of respondents (387) provided information on their educational achievement. From Figure 7 it is evident that 86% have achieved secondary school qualifications (to year 10: 33%, and to year 12: 53%), and 12% have completed tertiary studies (TAFE or University courses).

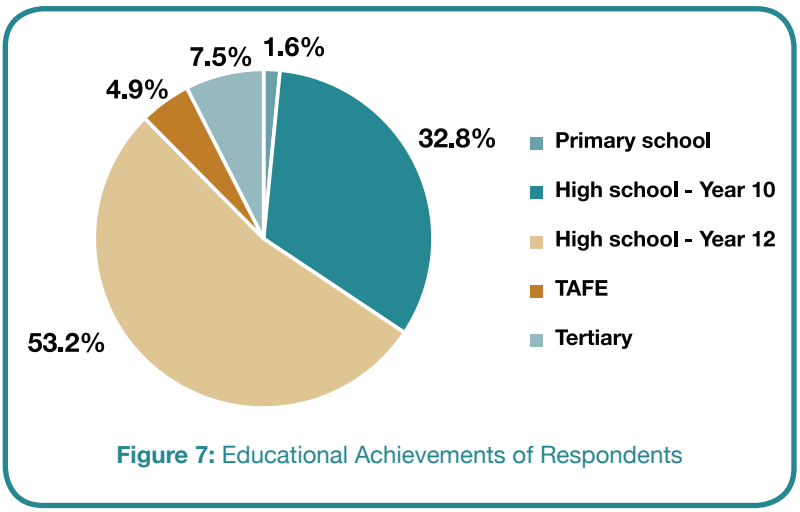


Figure 7: Educational Achievements of Respondents

Employment: When it came to the question on employment, almost 14% of household participants had their employment status recorded as 'not applicable' which may reflect that they are retired or on medical/ health benefits. Interestingly, employment status was recorded as 'intention to withhold' for 52% of household participants. This likely reflects discomfort about the nature of the question for both the household and CDO. As a result, information about employment was available for 30% of respondents (256). Figure 8 shows that 95% of those 256 were "employed".

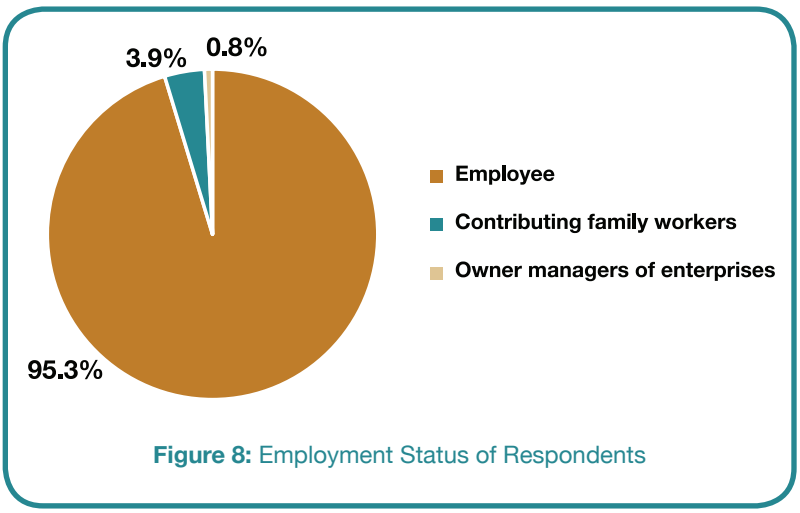


Figure 8: Employment Status of Respondents

Household Information

Location: For all households that participated in KEEP location information was captured (867). This revealed that 233 households were located in different geographical places across Victoria (of which 21 were bordering NSW). This reflects the KEEP aim of targeting Aboriginal communities throughout Victoria, in Metro, Regional and Rural regions.

Occupancy: Occupancy information was captured for all 867 households. The number of people living in the household (assuming each occupant was a regular household resident) was predominantly between 3-4 people (41%) and 1-2 people (33%). Larger households also participated in KEEP with 20% having 5 or more occupants, of which 14 households reported 7+ occupants. Overall, average occupancy was 3.08 people per home. This question is likely to be culturally appropriate as the figures were not captured for only 6% (55) households (see Figure 9). Altogether, the households represented in the survey are home to 2672 people.

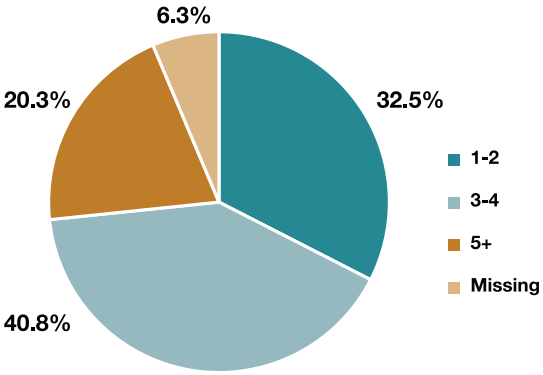


Figure 9: Number of Occupants per Household

Dwelling Tenure: The dwelling status of participants indicates that 86% of participants were renting, 12% owned their home (outright, or with mortgage) and 1% occupied the home under various other legal bases. Figure 10 displays the distribution of the 867 households by type of tenure. Besides the major (mortgaged/outright) ownership categories, various conditional occupancy categories were identified (such as occupancy under life tenure scheme, rent-free occupancy and a rent/buy scheme type of occupancy). These figures are in stark contrast to overall population figures, where 25% of the population rent and 67% are home owners (ABS, 2013, cat: 4130).

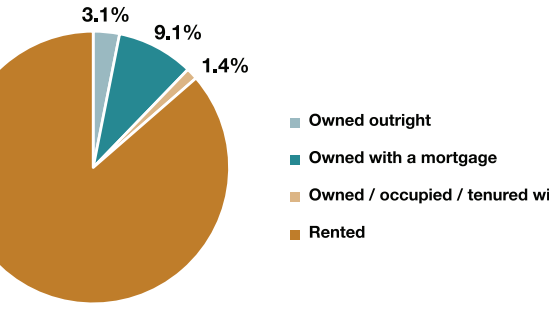


Figure 10: Housing Tenure

Muriel Bamblett, CEO, Victorian Aboriginal Child Care Agency, at the Launch of KEEP, April 2014.

Rooms and Occupants per Dwelling: Information regarding the number of rooms in the dwelling was captured for 820 households (47 had missing data on this item). On average, households involved in KEEP had 5 rooms per house (including bedrooms, living rooms and bathrooms). On average, households had 2.76 bedrooms, 1.19 bathrooms and 1.13 living rooms. Figure 11 displays the number of people by bedroom for 805 households (64 had missing data on this item). Most had one-two people in the home by the number of bedrooms (70%). This means that a 3-bedroom home will typically house between 3-6 people.

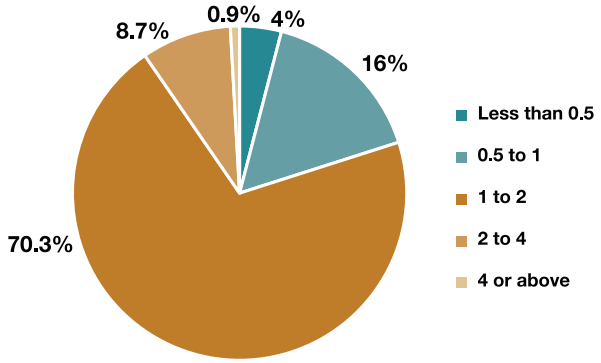


Figure 11: Distribution of Number of People by Bedroom

Age of Dwelling: The majority of homes (78%) were between 10 and 40 years old. Most household participants lived in dwellings that are older than 20 years (91%) and more than one third live in homes that are older than 30 years (37%) (see Figure 12). This means that most Aboriginal people in Victoria live in housing that is not energy efficient (this is consistent with the Victorian population, ABS, 2013, cat. 4102) as energy-efficiency regulations started from dwellings built since 2005 (Sustainability Australia, 2014). Further, due to most Aboriginal people being tenants, they are unable to modify structural aspects of the home (*e.g.,* major retrofits, including insulation), and similarly, are unable to upgrade fixed appliances (*e.g.,* heating, hot water services, cooling, etc.) or engage in new energy technology such as solar due to being non-owners of the property. It is the combination of these two elements that sets Aboriginal Peoples in Victoria at a disadvantage regarding household energy efficiency, compared with the rest of the population.

Dwelling Type: In terms of dwelling type, 60% of KEEP participant households were 'houses' and 19% were 'units/flats' (no information was captured for 20% of households) (see Figure 12). Two households reported living in mobile homes. Most of the dwellings were single storey (89%), 3% were two storey and 1% were described as being 3+ stories high.

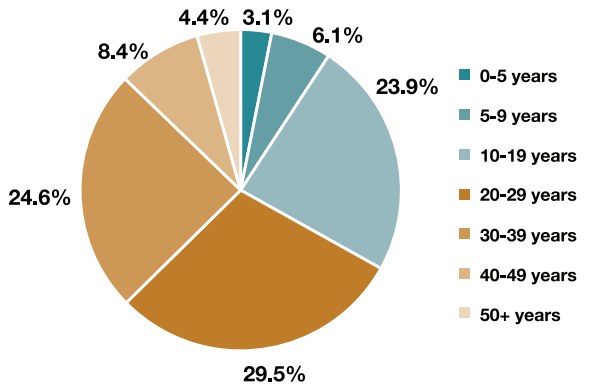


Figure 12: Distribution of Dwelling Age

External Wall Material: The type of material used to construct walls was recorded for 828 dwellings. Predominantly, Aboriginal people live in brick dwellings (81%). Figure 13 provides detail on the distribution of wall materials, showing that weatherboard is the second highest wall construction type.

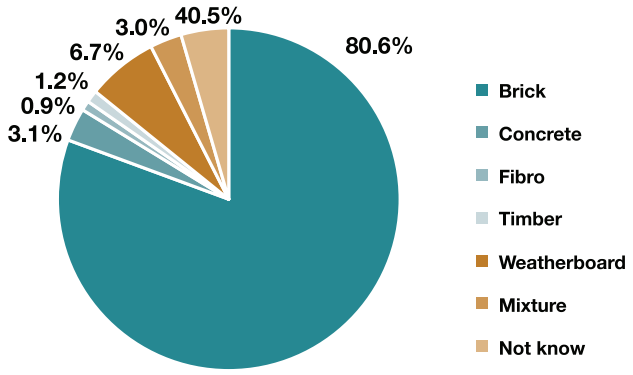


Figure 13: Distribution of Other Major Wall Construction Materials

Roofing Information: Figure 14 shows the distribution of various roof colours among the respondents. The dominant roof colour was "intermediate" (288 dwellings), then "dark" (282 dwellings). Households with a light coloured roof were the least frequent (146 dwellings).

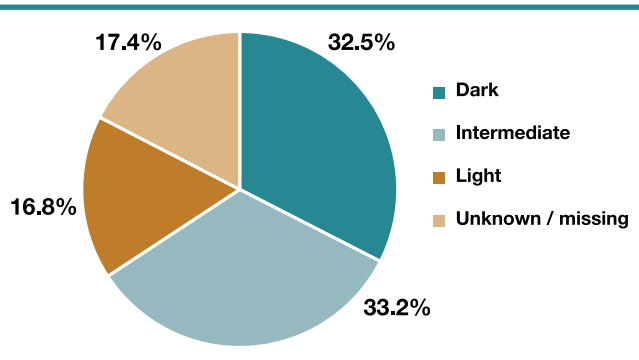


Figure 14: Roof Colours

Construction material distributions reveal that the dominant material used for rooves was tiles (79%). Almost 11% of respondents were unsure what their house roof was made from (this might be the case for those living in buildings with multiple dwellings or several stories). See Figure 15 for the breakdown.

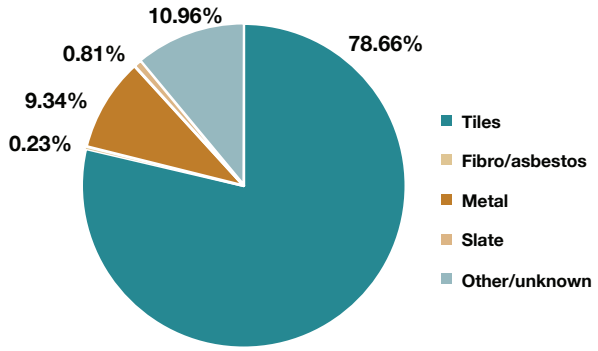


Figure 15: Roof Materials

Dwelling Windows: Most Aboriginal households involved in KEEP lived in dwellings with single-glazed windows (79%) and very few lived in dwellings with double-glazed windows (5%). With regard to internal window coverings, the most common type was blinds (41%) followed by curtains (30%) (see Figure 16). A large proportion of homes did not report on window coverings (29%) which means this information was either not forthcoming, or that there were no window coverings. If the latter explanation is true, then many homes will lose their thermal comfort (e.g., heating in winter and cooling in summer) reducing household energy efficiency at higher rates than those with window coverings.

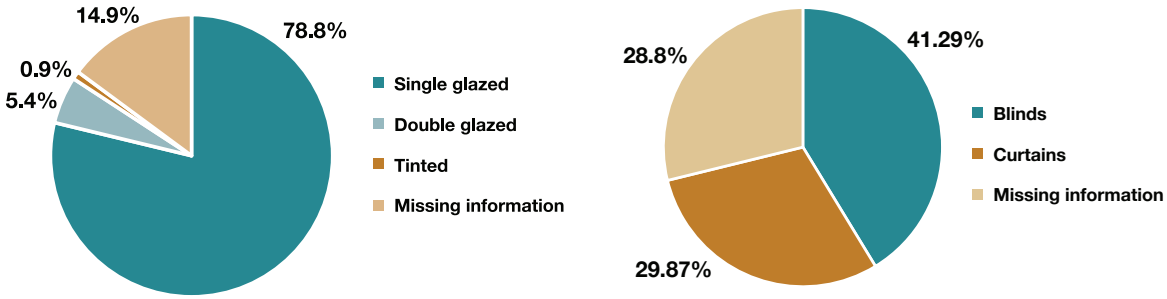


Figure 16: Windows Types and Window Coverings

Insulation: Various types of insulation are possible in homes, including ceiling, wall, floor and water-heating. In total, 64% of households had some insulation. Of those, there were 732 types captured (reflecting that some households had more than one type of insulation). The results of KEEP household participant dwellings reveal low frequencies of insulation in all categories: ceiling insulation – 60%; wall insulation – 19%; floor insulation – 6%; water-heating insulation – 0.03% (see Figure 17). Of concern is that a significant proportion of KEEP participants reported their homes as having no insulation (36%). It should be noted that knowledge of the presence of insulation and insulation types may not be clear by tenants and so the actual insulation levels could be higher or lower. However, given that the age of most dwellings are over 20 years old (91%) it is likely that most ceiling insulation, reported or otherwise, has not been topped up by landlords and that the effectiveness of the insulation is compromised with regard to assisting with energy efficiency.

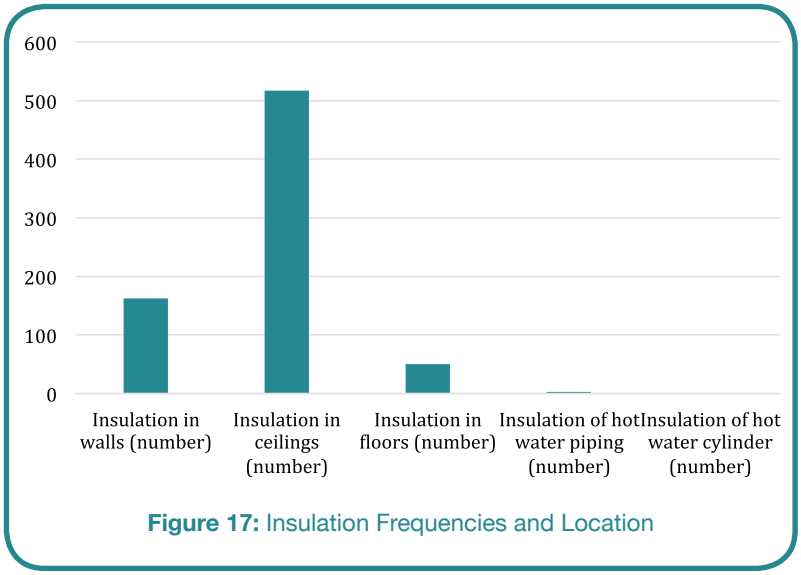


Figure 17: Insulation Frequencies and Location

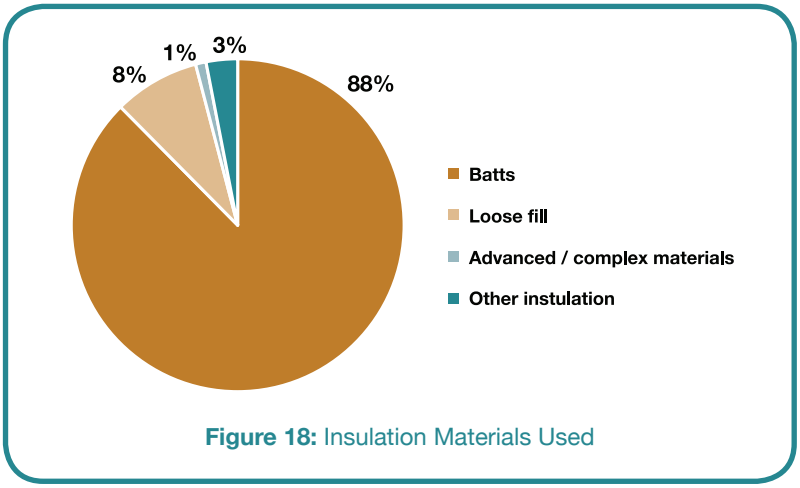


Figure 18: Insulation Materials Used

The most common type of insulation in homes is batts (88%) followed by loose fill insulation (8%) (see Figure 18).

Lighting: Most Aboriginal households involved in KEEP provided information on the lighting used in their homes (862 or 99.4%). Altogether, households have 6769 compact fluorescent lights (CFL), 848 halogen lights, 282 LED lights and 2032 incandescent lights. Figure 19 shows the number of households using these different types of lighting, and indicates that 85% use CFL lighting, 29% use incandescent lighting, 16% use halogen lighting and 5% use LED lighting. These figures add up to over 100% suggesting that some households use multiple types of lighting.

The average number of lights in homes is reportedly 11.5 and the average number of CFL lights is 9.23, incandescent lights 8.06, halogen lights 6.1 and LED lights 6.2.

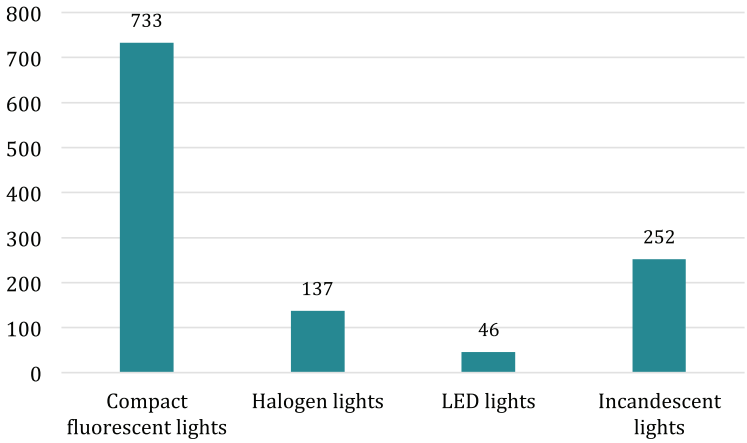


Figure 19: Number of Households Using Different Types of Lighting

Cooling: Approximately one third (224) households use more than one cooling device, and 107 households report having none. The most common form of cooling was fans, followed by 'other', and then reverse-cycle air-conditioners and evaporating cooling. Figure 20 shows the number of households using each type of cooling appliance.

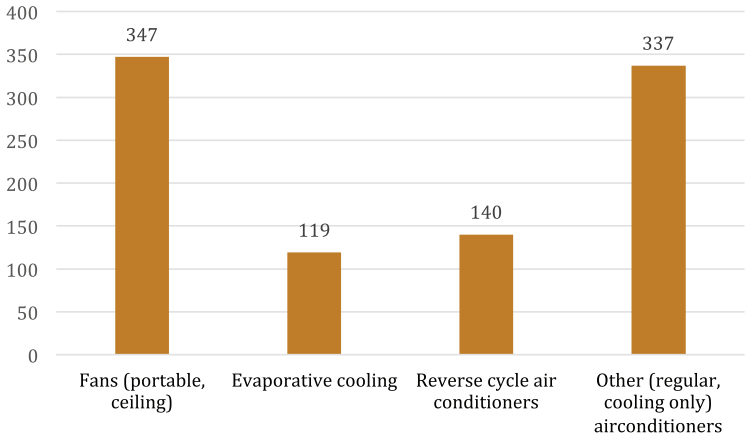


Figure 20: Number of Households Using Different Types of Cooling

For 77% of households, the location of the cooling appliances was captured (669 households). From Figure 21, it is clear that lounge rooms are the most common rooms for cooling followed by bedrooms.

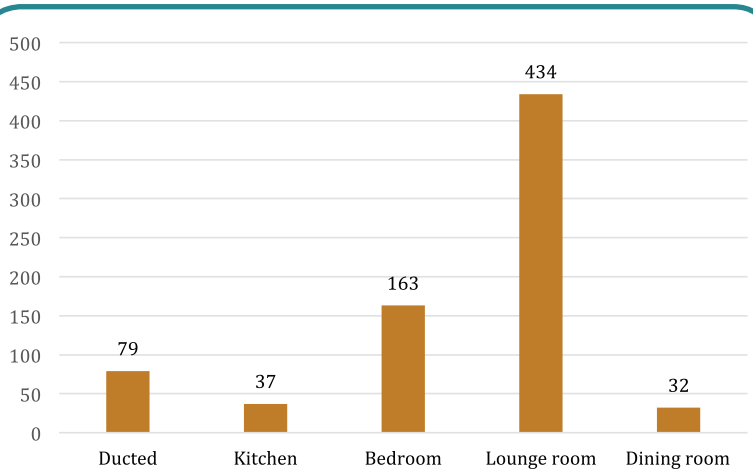


Figure 21: Number of Households Using Different Locations for Cooling

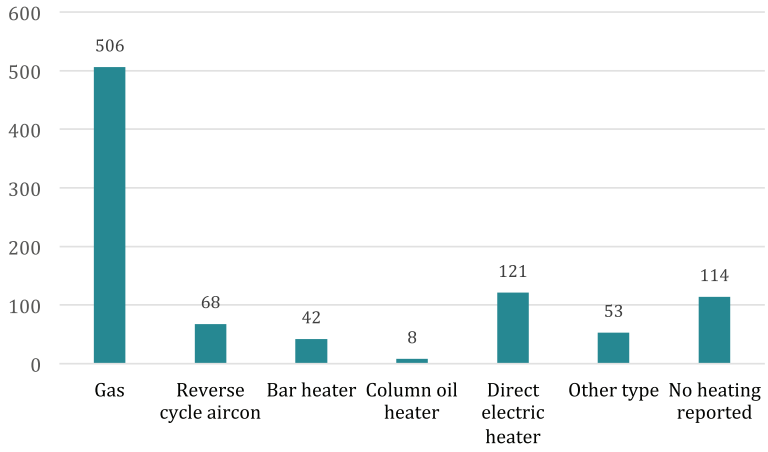


Figure 22: Number of Households with Different Types of Heating Reported

Heating: Heating in homes was captured for 753 KEEP household participants (87%). It is unclear whether the remaining 13% reflect 'information not captured' or that the home had 'no heating'. From Figure 22 it is clear that most homes are heated using gas (67%), and much fewer were heated by direct electric heaters (16%) and reverse cycle air-conditioners (9%). The implication of the high use of gas heating is twofold. First, since gas is a cheaper way to heat a home than electricity, most homes are amenable to lower energy bills. Second, only capturing household electricity usage will be very limited in terms of reflecting household energy consumption. Furthermore, most homes with reported heating were dependent on a single source of heating (95%).

Major Appliances: Information about appliances was captured for most households. Generally, households have one refrigerator, one TV, one or two laundry appliances (washing machine and dryer), several cooking appliances and no computer (see Figure 23). Further, 207 households reported having a dryer. The data are unclear as to whether information is missing, or whether the home did not have an appliance. The following fall into this category: 62 households with refrigerator; 106 households with no kitchen appliances (stoves or ovens); 95 households with no TV.

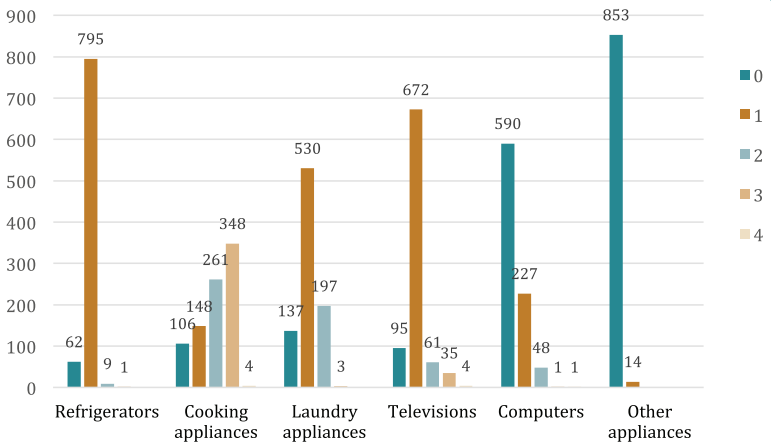


Figure 23: Frequency of Different Types of Appliances per Household

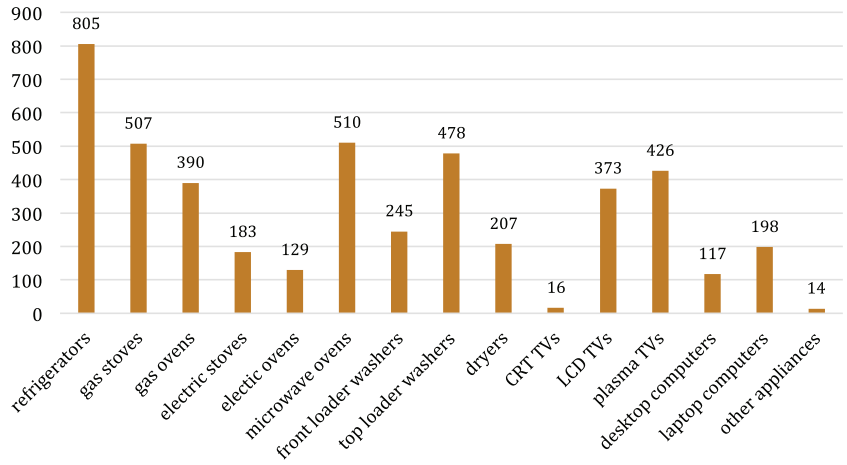


Figure 24: Number of Different Types of Appliances Reported by Households

Figure 24 gives an overview of the number of different types of appliances reported by the households. It shows that the most common cooking devices are operated by gas. If a home does have a computer, it is more likely to be a laptop. The most common cooking appliance is a microwave followed by a gas stove and gas oven.

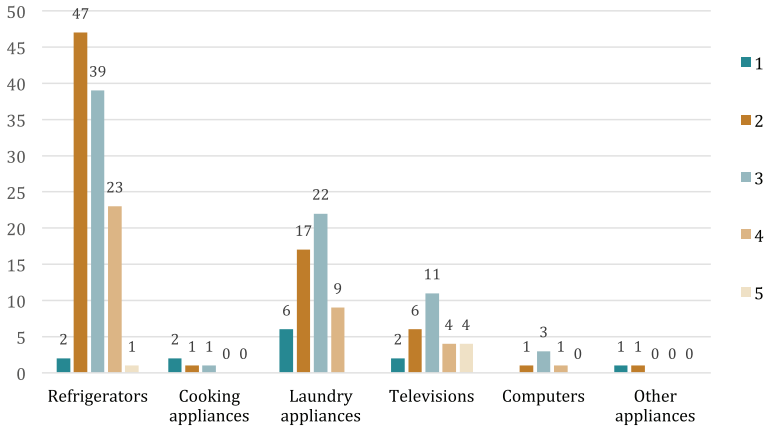


Figure 25: Energy Star Rating of Different Types of Appliances

Energy Star Ratings of Appliances: The energy efficiency of household appliances was partly captured by each appliance's energy star rating (see Figure 25). It is evident that most of these households have appliances that are 2-star or 3-star. None or very few have higher star rating appliances. The most frequent energy rating was captured about refrigerators, which are most typically 2-star or 3-star. Very little information was captured about the energy star rating of other appliances. Overall, it is clear that appliances used in Aboriginal households are not particularly energy efficient.

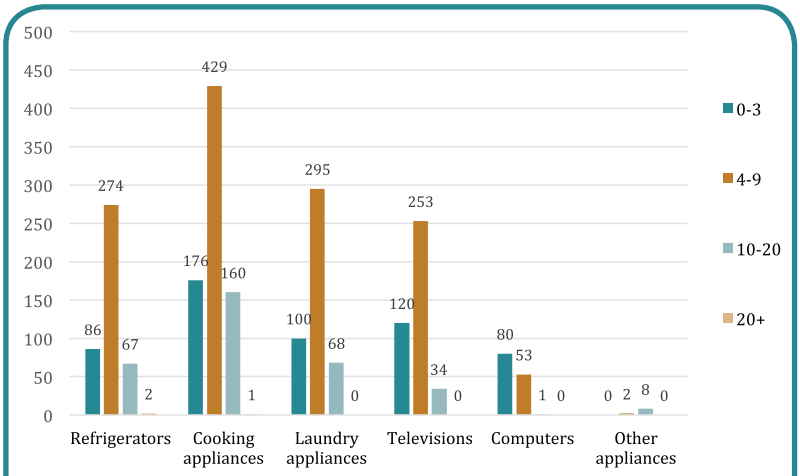


Figure 26: Age Categories of Different Types of Appliances

Age of Appliances: The age of household appliances is most frequently between 4-9 years, with the exception of computers which are more frequently newer (0-3 years old) (see Figure 26). Fewer appliances were relatively new (0-3 years) or old (10-20 years and 20+ years).

Condition of Appliances: As shown in Figure 27, most appliances in households are reported to be in good condition, with some appliances reportedly adequate and few reportedly excellent. Very few appliances are reported as being in poor condition.

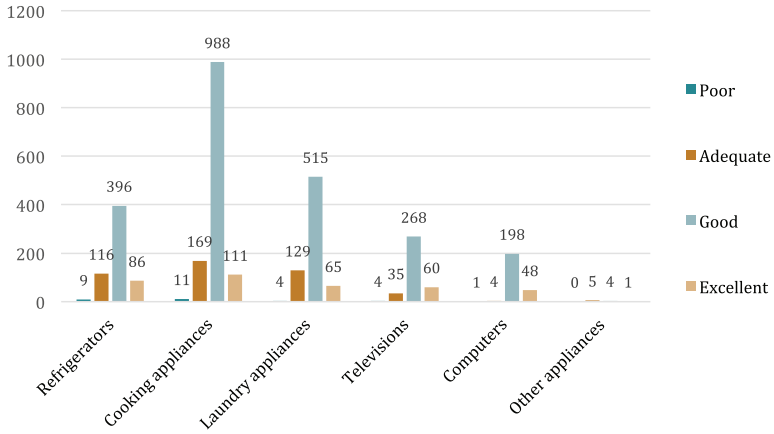


Figure 27: Condition of Different Types of Appliances

In summary, most Aboriginal households who participated in KEEP were drawn from all regions in Victoria and are thus highly representative of the Aboriginal population in Victoria. To this extent, the findings in this section suggest that the majority of Aboriginal Victorians:

- Live in homes older than 20 years which are not structurally energy efficient
- Are tenants (renters) and as such are dependent on landlords to retrofit homes to improve their energy efficiency
- Live in dwellings with higher than average occupancy levels, usually with young or adolescent children
- Heavily rely on gas for heating
- Have limited window coverings to keep heat in and cold out
- Rent in single window glazed dwellings that have some, or no, insulation
- Have one fridge, one TV, one laundry appliance and no computer (26% of households report having one computer) which are between 4-9 years old with a 2 or 3- star energy rating, and in reasonably good condition.

KEEP Project Team and Community Development Officers, April 2014.

4.2.2 Findings from Behavioural Survey Data

4.2.2.1 Aggregated Survey Findings

Forming part of the KEEP evaluation process, CDOs collected baseline survey data from households at the start of a home visit (i.e., prior to energy knowledge and tips being provided), which are called "first home visit" (FHV) surveys. Subsequent to the FHV, households were phoned by CDOs at least 3 months after a HV to complete a similar group of questions. These are "first phone follow-up" (FPF) surveys and thus capture the change in household experiences since the FHV. Some households who received trial 3 were phoned after their second home visit (SHV*2) and completed the same set of questions. These are called "second phone follow-up" (SPF) surveys and provide the ability to track improvements after two HVs.

Trial Type Response Rates

The total number of valid surveys used in this analysis is presented in Table 2 below. A total of 714 baseline surveys were collected (each representing a different Aboriginal household). The reduction from 867 households analysed in the previous section, which provided descriptive statistics, is due to the six month time difference from start of project rollout and the development and implementation of the research instruments for gathering data for evaluation of the HV trials. In addition, all 48 SPFs reflect those SPFs that were matchable with earlier data (in that all previous elements were completed). A total of 72 SPFs were conducted, and 48 were able to be retained.

Table 2 also shows the survey responses per trial type, and which are depicted in Figure 28 below. A substantially higher number of SHVs and SHV-IHDs were delivered to homes and a low number of SHV*2.

Table 2: Valid Survey Responses by Trial Type

Trial Type	Total
SHV	334
SHV-IHD	332
SHV*2	48
Total Household Surveys	**714**

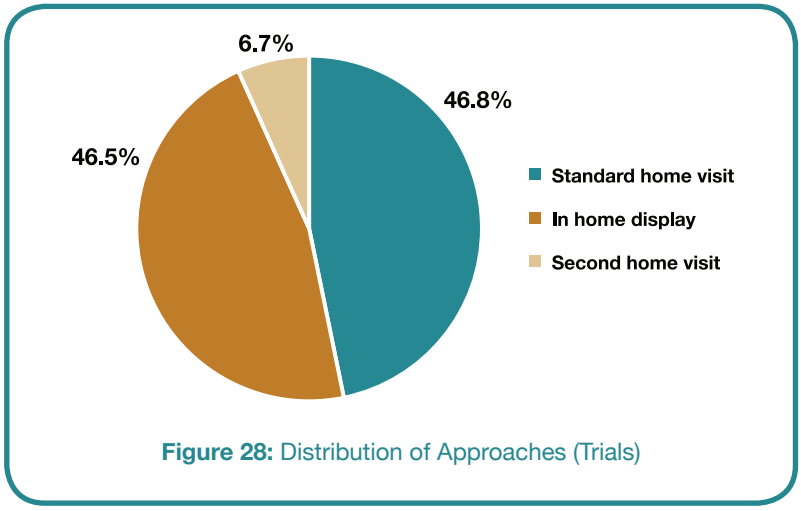


Figure 28: Distribution of Approaches (Trials)

Survey Type Response Rates

From Table 3 it is clear that the total number of valid first follow-up surveys for evaluation is low (193) compared with the 714 homes visited. All SPFs reflect the household having already received a FHV, FPF, SHV*2, and so should not be added to the total of 193. In brief, this means that only 27% of households receiving a HV participated in a follow-up phone call. Subsequent results should be interpreted with this in mind as analyses with smaller sample groups are less reliable than those with larger groups (Hair et al. 2006). Notably, this stands out for evaluation of SHV-IHD (with only 24 FPFs) and the SHV*2 with only 48 SPFs. However, two-tailed t-tests are a robust analytical tool, and can be relied upon with samples above 20 (Hair et al. 2006).

Table 3: Valid Survey Responses for Evaluation Surveys by Trial **Type**

Survey Type & Total Responses	**Trial 1** **SHV**	**Trial 2** **SHV-IHD**	**Trial 3** **SHV*2**
FPF – Evaluation Measure (193)	123	24	48
SPF – Evaluation Measure (46)			46

Note: Two of the SPF respondents did not have a FPF, but could be included in the analysis of the first two trials, but not the last trial.

Developing Robust Measures

A survey instrument was developed with Aboriginal project partners and CDOs and a literature review of household energy efficient measures (see Appendix A). Input into this instrument was thus informed by previous findings and Aboriginal cultural and social knowledge of what would be appropriate. In particular, survey items aimed to measure energy-efficiency household behaviours, stress, discomfort, competency and confidence engaging in the sector (see Bedggood *et al* 2016 for details of this process).

A random sample of 242 respondents for the FHV surveys were used to run exploratory factor analysis (EFA) to determine survey validity and Cronbach's *alpha* was used to test reliability (see Perenyi *et al,* 2016 for further details). The results of the EFA are presented in Appendix B, which produced valid measures of the constructs with an explained variance of 68%, and reduced the original 22 questions to 14, capturing four of the five construct above. Confidence engaging in the energy sector was measured via dichotomous response options and so did not lend itself to EFA analysis. Further, Cronbach's *alpha* scores were above 0.7 for all constructs demonstrating scale reliability.

It should be noted that after a HV, it is expected that behaviours and competency will go up, and stress and (dis)comfort will go down.

Items measuring each construct were grouped and an average (mean) score determined. Table 4 provides the descriptive statistics for each construct per survey type.

Missing data is reported in Appendix C. Also, changes in the mean and median for each survey item in each survey iteration are presented in Appendix D.

Table 4: Descriptive Statistics of Survey Constructs by Survey Type

		Mean	Median	Std. dev.	Range	Minimum	Maximum
(n=714)	Behaviour	**2.84**	**3**	0.83	4	1	5
	Stress	**2.93**	**3**	0.84	4	1	5
	Discomfort	**2.50**	**2.5**	0.61	4	1	5
	Competency	**1.96**	**2**	0.77	4	1	5
(n=193)	Behaviour	**4.17**	**4.25**	0.57	3	2	5
	Stress	**2.30**	**2.33**	0.74	4	1	5
	Discomfort	**2.34**	**2.5**	0.74	3.75	1	4.75
	Competency	**3.08**	**3**	0.75	4	1	5
(n=48)	Behaviour	**3.98**	**4**	0.52	2	3	5
	Stress	**3.01**	**3**	0.79	3.33	1	4.33
	Discomfort	**3.07**	**3.25**	0.83	3	1.25	4.25
	Competency	**3.06**	**3**	0.52	2.33	2	4.33

* Green shaded means show an improvement after the HV, and orange shaded means show a decline
(note: a "decline" for stress and (dis)comfort mean an increase in the mean score)

These aggregated results of a KEEP HV according to household self-report measures are depicted in Figure 29 below. The changes captured in the SPF will be discussed under the specific trial type to which this survey type refers (SHV*2) in the next section. The vertical axis represents the mean score out of 5 for the construct, and the figures above each graph indicate the specific score on that construct for the trial type. For example, with the first bar for the FHV, the mean score for behaviour was 2.84 out of a possible 5 (the baseline score) and for the FPF, the mean score increased to 4.14 out of a possible 5.

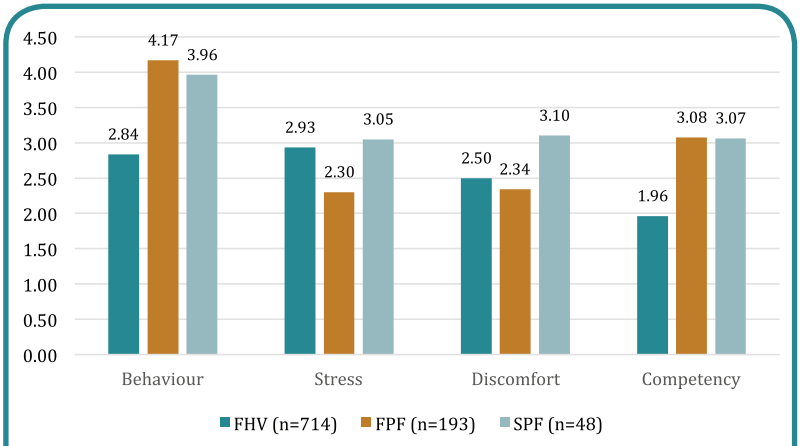


Figure 29: Changes in Mean Scores for Each Construct Measuring Household Energy Efficiency

Aggregate Evaluation of the First Home Visit to First Phone Follow-up

From Table 4 and Figure 29 above, visible improvements were experienced by households with regards to all constructs between the FHV and the FPF. That is, behaviours and competency went up and stress and (dis)comfort went down. To determine whether these improvements are significant, data were subjected to a paired sample t-test measuring the difference in scores from the FHV to the FPF per household (see Table 5). It shows that all changes are significant. Note that significance is determined by a return of p-values that are less than 0.05. These values are shown in Table 5 under the last column "Sig." where the figures are shaded in green, to indicate a positive result, and appear in subsequent tables. From the figures presented in Table 6, we can be 95% certain that energy efficiency behaviours increased both significantly and substantially by 1.366-1.603 points. This is why there is such a jump in the FHV results in the bar graph in Figure 29. Householder competency also increased substantively and significantly (between 1-1.3 points), while stress and discomfort significantly decreased, though this change was not as substantial. In summary, the KEEP HV was highly successful in supporting Aboriginal households with their energy efficiency to the point where they are sharing their knowledge (such as useful tips) with friends and family.

KEY FINDING

After a KEEP home visit, Aboriginal households experienced significant reductions in their energy-related stress and discomfort, and made substantive improvements to the adoption of energy related behaviours around the home, and shared the knowledge of how to make these improvements with friends and family.

Table 5: Paired Sample t-test Between FHV and FPF Responses

	Paired Differences					t	df	Sig. (2-tailed)
	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.				
				Lower	Upper			
FPF Behaviour - FHV Behaviour	1.48446	.83799	.06032	1.603	1.366	24.61	192	.000
FPF Stress - FHV Stress	-.61461	1.12649	.08109	-.455	-.775	-7.58	192	.000
FPF Discomfort - FHV Discomfort	-.19301	1.00778	.07254	-.050	-.336	-2.66	192	.008
FPF Competency - FHV Competency	1.14010	1.00009	.07199	1.282	.998	15.84	192	.000

4.2.2.2 Evaluation of Trial 1: SHV

After analysing the aggregate results, the next step is to determine the changes based on trial type, and thus determine whether the SHV, SHV-IHD or SHV*2 approach achieved the greatest result (improvement). It will also reveal whether aggregate findings are consistent across trial types, or whether one trial type has dominated the change. Table 6 shows the mean scores for each construct for those receiving a SHV, where the household responses of the original FHV are paired with the FPF responses. All constructs improved since the FHV.

Table 6: Mean Values of Survey Responses from FHV to FPF with Matched Households Receiving Trial 1: SHV

	Behaviour	Stress	Discomfort	Competency
FHV (n=123)	2.80	3.03	2.63	2.03
FPF (n=123)	4.25	2.22	2.25	3.13

These responses were subjected to a paired sample t-test (n=123). The results of this analysis are presented in Table 7 showing a significant change in each construct. In comparison with the aggregate results, 3 constructs showed higher improvement (mean difference scores are higher). Whereas the 4th construct (competency) showed about the same improvement.

Table 7: Paired Sample t-test between FHV and FPF Responses for Trial 1: SHV

	Paired Differences					t	df	Sig. (2-tailed)
	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.				
				Lower	Upper			
FPF Behaviour - FHV Behaviour	1.44919	.74104	.06682	1.582	1.317	21.69	122	.000
FPF Stress - FHV Stress	-.81293	1.08720	.09803	-.619	-1.007	-8.29	122	.000
FPF Discomfort - FHV Discomfort	-.38008	1.04722	.09442	-.193	-.567	-4.03	122	.000
FPF Competency - FHV Competency	1.10016	1.01921	.09190	1.282	.918	11.97	122	.000

The household changes for Trial 1 – SHV – are depicted in Figure 30 below.

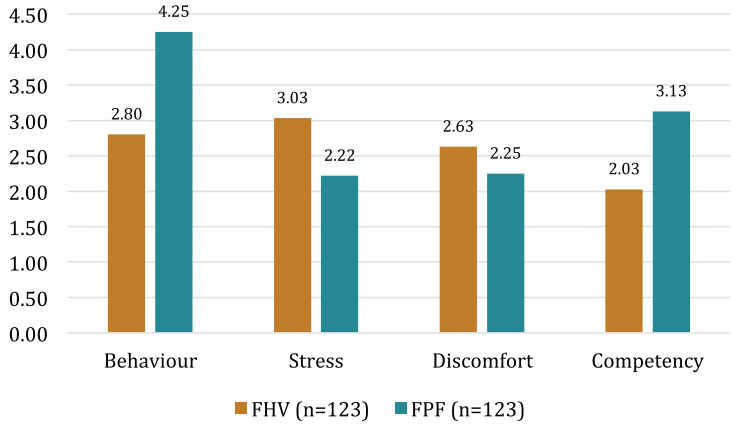


Figure 30: Changes in Energy Efficiency Constructs for Trial 1: SHV
(Note: all show significant improvement)

4.2.2.3 Evaluation of Trial 2: SHV-IHD

The second trial type involved providing a standard HV together with monitor and visual cues (SHV-IHD). Unfortunately, fewer households that had received a monitor participated in a phone survey compared with those who had received a SHV, and so the following analysis was conducted on the 24 responses that were captured. Mean scores for each construct are provided for both the FHV and FPF survey responses (n=24) (see Table 8).

Table 8: Mean Values of Survey Responses from FHV to FPF with Matched Households Receiving Trial 2: SHV-IHD

	Behaviour	Stress	Discomfort	Competency
FVH (n=24)	2.40	2.96	2.51	1.65
FPF (n=24)	4.01	2.39	2.39	2.92

Table 9 provides the details of the results of conducting paired sample t-tests on this data. The results show significant improvements in behaviour and competency and that the improvement is slightly higher than the aggregate, and higher than that for trial 1. Although the change in stress is 'just' significant, due to the small sample size, it is prudent to consider there to be no change. There is no significant improvement in discomfort (no significant reduction).

Table 9: Paired Sample t-test between FHV and FPF Responses for Matched Households Receiving Trial 2: SHV-IHD

	Paired Differences					t	df	Sig. (2-tailed)
	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.				
				Lower	Upper			
FHV Behaviour - FPF Behaviour	1.61458	1.01344	.20687	2.043	1.187	7.81	23	.000
FHV Stress - FPF Stress	-.56875	1.27206	.25966	-.031	-1.106	-2.19	23	.039
FHV Discomfort - FPF Discomfort	-.12500	.88772	.18120	.250	-.450	-.69	23	.497
FHV Competency - FPF Competency	1.26458	1.17074	.23898	1.759	.770	5.29	23	.000

The changes in household energy efficiency for trial 2 – SHV-IHD – are depicted in Figure 31 below.

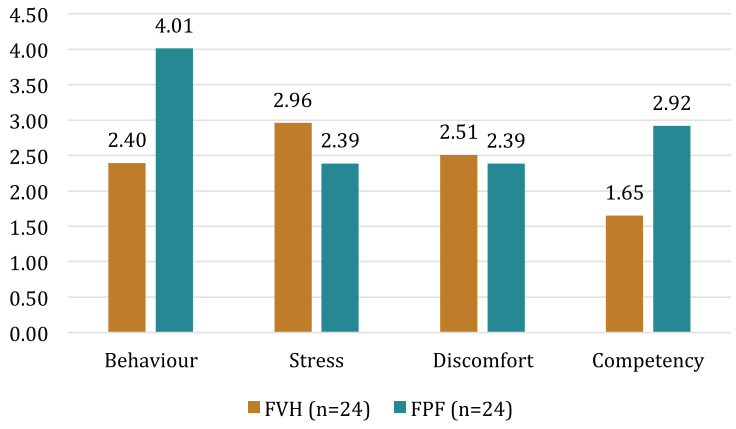


Figure 31: Changes in Energy Efficiency Constructs for Trial 2: SHV-IHD

In summary, the analysis so far reveals that, in order of the degree of improvement, the most significant change was in behaviour, followed by competency. This was echoed for both trial types and in the aggregate findings. However, the SHV-IHD (trial 2) showed the highest change in both constructs. The next construct to show significant change was stress, where this was the third most significant change in the aggregate, and was consistently the third most significant change for trials 1 and 2. However, stress reduced more for the SHV than it did for the SHV-IHD trial. Lastly, discomfort in the home was the least to change in the aggregate data, and this was reflected in both trials. However, discomfort reduced more for the SHV than it did for the SHV-IHD. To achieve the most change in behaviours and competency, organisations should provide a SHV-IHD, whereas to achieve the most changes in comfort and stress, organisations should consider providing a SHV.

KEY FINDING

KEEP HV trials 1 and 2 were both successful in motivating more energy efficiency household behaviours, improving the competency of householders, increasing their confidence to deal with the sector and reducing energy-related stress and discomfort.

4.2.2.4 Evaluation of Trial 3: SHV*2

The third trial type involved providing households with two visits – the FHV and a second HV which included the same coverage of energy efficiency support. This trial, the SHV*2 had 46 responses from the FPF to the SPF (whereas there were 48 in the previous section, because two respondents had no FPF).

Two levels of comparison were used in this analysis: First, analysis was conducted to determine the difference between the baseline measures (FHV) to the SPF where, in between, two HVs were experienced by the household. Second, analysis was conducted to determine the difference between the FPF to the SPF where, in between, the household experienced only one HV (the second of the SHV*2 trial).

FHV-SPF: The mean responses between the FHV and the SFP scores show improvement in behaviours and competency, but stress and discomfort levels went up (see Table 10).

Table 10: Mean Values of Survey Matched Responses from FHV to SPF for Trial 3: SHV*2

	Behaviour	Stress	Discomfort	Competency
FHV (N=48)	2.55	2.60	2.31	1.88
SPF (N=48)	3.98	3.01	3.07	3.06

Data were then subjected to a paired sample t-test to determine the significance of the changes. As presented in Table 11, all constructs showed a significant increase, which means that the improvements in behaviours and competency meaningful, as are the heightened levels of stress and discomfort.

Table 11: Paired Sample t-test between FHV and SPF Matched Responses for Trial 3: SHV*2

	Paired Differences					t	df	Sig. (2-tailed)
	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.				
				Lower	Upper			
FHV Behaviour - SFP Behaviour	1.43750	.86372	.12467	1.688	1.187	11.53	47	.000
FHV Stress - SFP Stress	.41021	1.18395	.17089	.754	.066	2.40	47	.020
FHV Comfort - SFP Comfort	.76042	1.04926	.15145	1.065	.456	5.02	47	.000
FHV Competency - SPF Competency	1.18833	.87484	.12627	1.442	.934	9.41	47	.000

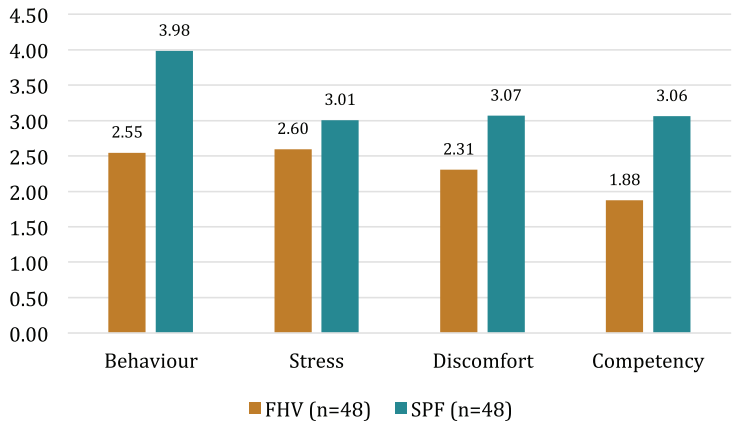


Figure 32: Changes in Energy Efficiency Constructs from FHV to SPF for Trial 3: SHV*2

The scores for the FHV and SPF for each construct are depicted in Figure 32 below.

FPF – SPF: The mean responses for each construct from the FPF to SPF were determined, and are presented in Table 12. These means paint a different picture from the previous analysis. It shows a very slight decline in behaviours, a very slight increase in competency, and a substantive heightening of stress and discomfort.

Table 12: Mean Values of Survey Matched Responses from FPF to SPF for Trial 3: SHV*2 (Over and Above the First HV)

	Behaviour	Stress	Discomfort	Competency
FPF (N=46)	4.04	2.49	2.57	3.02
SPF (N=46)	3.96	3.05	3.10	3.07

To establish whether any of these changes are significant, data were subjected to a paired sample t-test and the results are presented in Table 13. It is evident that the changes for behaviour and competency are slight and not significant; hence no change in these constructs can be reported. However, the increases in stress and discomfort are both significant. These results suggest two things: firstly, that "improvements" evident in the previous analysis in behaviour and competency are actually captured in the FPF and not the SPF. Secondly, that the SHV*2 trial did not improve any aspects within the household. This finding should be interpreted with caution due to several limitations, discussed at the end of this section.

KEY FINDING

KEEP's Trial 3 (two HVs) quantitative survey data did not show meaningful improvements in the home. However, data to evaluate this trial was limited.

Table 13: Paired Sample t-test between FPF and SPF Matched Responses for Trial 3: SHV*2 (Over and Above the First HV)

	Paired Differences					t	df	Sig. (2-tailed)
	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.				
				Lower	Upper			
SPF Behaviour - FPF Behaviour	-.07609	.65589	.09671	-.11869	-.27086	-.787	45	.436
SPF Stress - FPF Stress	.56522	.86073	.12691	.82082	.30961	4.454	45	.000
SPF Discomfort - FPF Discomfort	.53261	.84263	.12424	.78284	.28238	4.287	45	.000
SPF Competency - FPF Competency	.04348	.69478	.10244	.24980	.16285	.424	45	.673

* Note: also stress and comfort returned “significant” results, they were in the opposite direction of what was expected (or desired in that stress and comfort increased, rather than decreased.

The scores for the FPF to SPF per construct are presented in Figure 33.

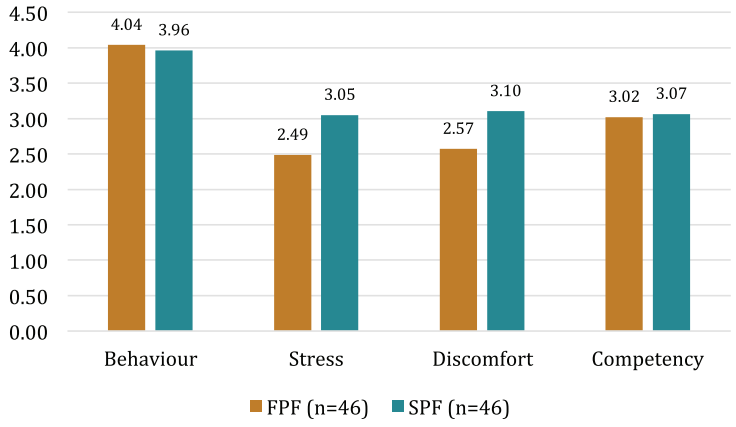


Figure 33: Changes in Energy Efficiency Constructs from FPF to SPF for Trial 3: SHV*2

In conclusion, based on the statistical comparison of the responses collected from households, and the changes within these, the SHV, SHV-IHD and SHV*2 showed improvements in energy efficiency behaviours and competency from the baseline data (FHV). Further, both SHV and SHV-IHD showed improvements in stress and discomfort by returning lower scores than the FHV, although the SHV achieved this more so than the SHV-IHD.

While the SHV*2 showed improvements in behaviours and competency, it failed to do so more than the SHV or SHV-IHD. Table 14 provides a summary of the outcomes.

Table 14: Overall Significant Changes in Energy Efficiency by Trial and Construct

	Behaviour	Stress	Discomfort	Competency
SHV	Improved	Improved	Improved	Improved
SHV-IHD	Improved	Improved	No Change	Improved
SHV*2	No Change	Declined	Declined	No Change

4.2.2.5 Evaluation of Other Survey Items

Single Item Analysis:
'Willingness to Reduce Energy Use'

The first question in the survey explored the degree to which respondents were willing to reduce their energy use. This question was repeated in all survey iterations (types). As shown in Table 15 the mean score was reasonably high to start with (FHV) and increased further for the FPF and SPF. The exception is the change from the FPF to SPF where willingness to reduce energy use declined.

Table 15: Means Scores of Willingness to Reduce Energy Use in FHV, FPF and SPF

	Responses and means	Responses and means	Responses and means
	n=190	n=48	n=46
FHV	3.77	3.65	
FPF	4.29		4.41
SPF		4.06	4.09

This data was subjected to a paired sample t-test where it is evident that significant willingness to reduce energy use was apparent between the FHV and FPF (see Table 16). There was no significant change from the FHV to the SHV*2, and there was a reduction in willingness from the FPF to the SPF.

KEY FINDING

Overall, as a result of KEEP home visits, Aboriginal households became increasingly willing to reduce their energy usage.

Table 16: Paired Sample t-test between FHV, FPF and SPF on General Willingness to Reduce Energy Use

		Paired Differences							
	n	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int. of the Diff.		t	df	Sig. (2-tailed)
					Lower	Upper			
FPF Willingness - FPF Willingness	190	.521	1.383	.100	.719	.323	5.194	189	.000
SPF Willingness - FHV Willingness	48	.417	1.456	.210	.840	-.006	1.982	47	.053
SPF Willingness - FPF Willingness	46	-.326	.896	.132	-.060	-.592	-2.469	45	.017

The decrease of willingness to reduce energy use demonstrated by the second phone follow-up survey coincides with increased stress levels and decreased comfort also indicated in the second phone follow-up survey. Possible explanations to this may include:

- Saturation of the household with energy efficiency education
- An increased knowledge level of the households that shows understanding of energy efficiency issues beyond issues of immediate control – in other words: 'know too much – worry too much'
- A change of seasons – all SPFs were conducted in January-February, in summer, when heating and lighting is less of an immediate burden (though this does not account for the increase in stress and discomfort).

Attended a CommEd Session

Just over half the households who received a HV also attended a CommEd Session (54%). Only 34 of these households responded to the question about their view on the usefulness of the CommEd with 79% reporting that it was very highly useful and 21% reporting that it was very useful.

Usefulness of the In-Home Display

Of the 332 households, 29 responded to this question. Relative to the CommEd session, householders report it being less useful, though the most frequent response was still 'very useful' (72%).

Usefulness of SHV*2

Of the 48 households receiving a second phone follow-up, 23 responded to this question. Most households found it very highly useful (70%) and 30% found it to be very useful. Interestingly, this level of usefulness did not translate strongly with previous survey questions for this trial type.

Multiple Items: 'Confidence in Dealing with the Energy Sector'

Aggregate Results: Six questions exploring the confidence of the respondents in dealing with the energy sector were included in the survey with dichotomous response options of 'yes' or 'no'. As shown in Appendix D, there was a strong increase in the proportion of yes to no responses between the first home visit and the first phone follow-up, showing a marked improvement in householder confidence after a FHV. Improvements were also apparent from the FHV to the SPF, though not to the same extent (see Table 17).

Table 17: Aggregate Percentage Changes in People Saying "Yes" to Items Capturing 'Confidence'

Confidence item	Baseline 'yes'	FPF 'yes'	SPF 'yes'
Regularly checks bills	32%	88%	69%
Knowledge of concessions	32%	95%	85%
Afford to contact energy provider	56%	90%	76%
Find energy providers easy to deal with	27%	55%	63%
Know providers charge different rates	42%	89%	83%
Know it is easy to change energy providers	24%	86%	51%

A paired sample t-test indicates that changes from the FHV to the FPF are significant for all six items, while another paired sample t-test indicates that changes from the FPF to the SPF are significant for five items (the change in 'afford to contact energy provider' was not significant (see Tables 18 and 19).

Table 18: Paired Sample t-test between FHV and FPF Confidence Questions

		Paired Differences							
	n	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.		t	df	Sig. (2-tailed)
					Lower	Upper			
Check energy bills FPF - FHV	181	.641	.525	.039	.718	.564	16.416	180	.000
Know concessions FPF - FHV	181	.624	.529	.039	.702	.547	15.865	180	.000
Can afford contact FPF - FHV	181	.254	.518	.039	.330	.178	6.600	180	.000
Ease of dealing FPF - FHV	180	.289	.593	.044	.376	.202	6.534	179	.000
Different rates FPF - FHV	178	.472	.574	.043	.557	.387	10.965	177	.000
Ease of changing FPF - FHV	178	.635	.506	.038	.710	.560	16.749	177	.000

Table 19: Paired Sample t-test between FHV and SPF Confidence Questions

		Paired Differences							
	n	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.		t	df	Sig. (2-tailed)
					Lower	Upper			
Check energy bills SPF - FHV	48	.479	.545	.079	.638	.321	6.087	47	.000
Know concessions SPF - FHV	46	.565	.583	.086	.738	.392	6.573	45	.000
Can afford contact SPF - FHV	46	.065	.646	.095	.257	-.127	.684	45	.497
Ease of dealing SPF - FHV	45	.378	.684	.102	.583	.172	3.706	44	.001
Different rates SPF - FHV	45	.489	.549	.082	.654	.324	5.978	44	.000
Ease of changing SPF - FHV	46	.304	.662	.098	.501	.108	3.117	45	.003

Trial 1 – SHV Results: In order to evaluate the effectiveness of the SHV for Confidence dealing with the Energy Sector from the baseline measure to the FPF, paired sample t-tests were conducted (n=116) and the results are presented in Table 20. As can be seen, all items showed significant and substantial increases.

Table 20: Paired Sample t-test for Confidence Dealing with Energy Sector for Trial 1: SHV

		Paired Differences							
	n	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.		t	df	Sig. (2-tailed)
					Lower	Upper			
Check energy bills FPF - FHV	116	.647	.498	.046	.738	.555	13.986	115	.000
Know concessions FPF - FHV	116	.612	.507	.047	.705	.519	13.006	115	.000
Can afford contact FPF - FHV	116	.293	.494	.046	.384	.202	6.394	115	.000
Ease of dealing FPF - FHV	116	.310	.534	.050	.409	.212	6.256	115	.000
Different rates FPF - FHV	114	.430	.564	.053	.534	.325	8.138	113	.000
Ease of changing FPF - FHV	114	.649	.479	.045	.738	.560	14.459	113	.000

Trial 2 – SHV-IHD Results: Confidence dealing with the Energy Sector was also explored for households who received an in-home display. Accordingly, paired sample t-tests were conducted between the baseline measure and the FPF (n=22), see Table 21. It is evident that all five of the six questions are significant with the notable exception of 'can afford to contact provider'. It is thus clear that the households receiving the SHV-IHD did not benefit in this regard compared with those receiving a SHV.

KEY FINDING

KEEP home visits (across all trials) showed marked improvement in the confidence of Aboriginal households around managing their energy and bills, and dealing with the energy sector.

Table 21: Paired Sample t-test for Confidence Dealing with Energy Sector for Trial 2: SHV-IHD

		Paired Differences							
	n	Mean Diff.	Std. Dev.	Std. Error Mean	95% Con. Int.of the Diff.		t	df	Sig. (2-tailed)
					Lower	Upper			
Check energy bills FPF - FHV	22	.727	.631	.135	1.007	.447	5.405	21	.000
Know concessions FPF - FHV	22	.500	.740	.158	.828	.172	3.169	21	.005
Can afford contact FPF - FHV	22	.091	.526	.112	.324	-.142	.810	21	.427
Ease of dealing FPF - FHV	22	.409	.734	.157	.735	.084	2.614	21	.016
Different rates FPF - FHV	22	.500	.673	.143	.798	.202	3.487	21	.002
Ease of changing FPF - FHV	22	.636	.581	.124	.894	.379	5.137	21	.000

In summary, the survey data analysis so far has revealed that after a KEEP HV, Aboriginal households experienced consistent and significant improvements across all observed constructs, including improved energy efficiency behaviours, competency and confidence around energy efficiency, and a reduction in their energy-related stress and discomfort at home. The improvements were evident from the SHV and SHV-IHD trials, whereas the SHV*2 trial showed no improvement over having a single HV. The following table (Table 22) summarises these findings and reports the percentage of improvement from the baseline to evaluation measures. It should be noted that for the last construct 'confidence' the scale differed from the others used, and the percentage changes indicate the proportion of people who responded 'yes' at the baseline measure (FHV) compared with the proportion who responded 'yes' at the evaluation measure (FPF or SPF) per trial.

Table 22: Summary of Improvements in Aboriginal Household Energy Efficiency after a KEEP HV

Improvements after a KEEP HV	**SHV**	**SHV-IHD #**	**SHV*2 ##**
Energy efficient *behaviours* in the home	+ 52%	+ 67%	- 8%
Competency with energy efficiency	+ 54%	+ 77%	+ 2%
Energy-related *stress*	- 27%	- 19%	+ 22%
Home *discomfort* due to energy	- 14%	- 5%	+ 21%
Confidence with managing energy/dealing with sector	+150%	+238%	- 7%

Sample is very small (n=24, except for last row "Confidence" where n=22)
Difference between first HV to second HV only

4.2.2.6 Evaluation of Open-Ended Survey Items

Several open-ended survey questions were included in the FHV, FPF and SPF surveys. Key themes in the responses were identified, and tallies of similar-grouped responses recorded (frequencies). An example of a survey response for each theme is included. For many of the survey items presented below, invalid responses were not included in the analysis. Examples of invalid responses are "no, nothing", or when the question required detail such as "what did you like best?" and the response was "yes". It should be noted that, throughout the open-ended questions, that virtually no negative comments were recorded. This may be due to the householder only experiencing positive things from a KEEP HV, or it may reflect an unwillingness of the householder to reveal negative experiences. However, the pervasive frequency of positive responses suggests KEEP was well received by households.

Open-Ended Question during First Home Visit

A total of 315 responses were recorded for the survey item 'Is there anything else you would like to share with us about your energy use?' with 128 containing valid content. Responses were grouped into six main themes: comprehension, knowledge, cost, energy efficiency issues and energy efficiency goals (see Table 23).

Results show that most participants commented on their concerns about their high bills (n=49) and are trying to set new targets to reduce their energy (n=30). Examples include, *"I don't understand where my power is going",* and *"Who is the best retailer?"* and *"why are my bills so high?".*

Barriers to energy efficiency in participants' households appear to be dominated by family, water usage and dryer usage. For example, 15 comments were made about relatives (either those who come to visit, or those who dwell in the house also) and how this prevents the achievement of energy efficiency goals. Further, shower times and unnecessary use of dryers were identified as common barriers.

Table 23: Themes and Frequency of Responses for 'Is there anything else you would like to share with us about your energy use'?

Theme	Frequency
Comprehension "Don't understand bill"	15
Knowledge "I would like to know how much things cost to run"	8
Costs "Bill very large this quarter, I need help to reduce it"	49
Energy Efficiency Issues "Other relatives stay over - makes it hard"	26
Energy Efficiency Goals "Trying keep kids to 5 min shower"	30
TOTAL	**128**

Open-Ended Questions in First Phone Follow-Up

FPF 1: For the survey item asking 'have you done anything else around the home to reduce energy use?' a total of 219 responses were recorded, with 125 containing valid content. Responses were grouped into five main themes: general implementation of tips, thermal comfort, water, electricity and monitoring (see Table 24).

The most prevalent response related to improvements around thermal comfort efficiencies (n=53). Minor retrofits was a popular action for thermal comfort among participants, with 25 comments claiming that external blinds and draft stoppers were put in place. Others also managed their appliances better, with 14 comments made about reducing the use of heating and cooling systems, using alternative cooling means, for example, "using portable fans instead of air con", removing inefficient appliances or modifying temperature settings on the thermostat.

The next most frequent responses referred to water management and reducing electricity use. Householders revealed that since the FHV, they are now encouraging the family to have shorter showers and have set lower temperatures for their hot-water system. Interestingly, reducing showers was identified as a common barrier to energy efficiency in the previous survey item. Similarly, responses indicate that participants have made efforts to be more efficient with their energy usage. Some claimed that they *"changed the way I use appliances",* while others installed *"energy efficient light globes".* However, the most common response under the electricity theme was power control, with 13 comments made about *"keeping to my routine with switching everything off".*

Overall, 124 responses reflect a change in behaviour by the adoption of more energy efficiency activities around the home.

Table 24: Themes and Frequency of Responses for 'have you done anything else around the home to reduce energy use?'

Theme	Frequency
General "Put to use energy saving tips"	18
Thermal Comfort "Disposed of … blow heaters"	53
Water – Shorter Showers "Making sure the household keeps to 5 minute showers"	25
Electricity "I've stopped using my dryer as often as I was"	24
Monitoring - Appliances and Bills "I read my bill more to make sure I'm not being over charged"	4
Residents "I've had family move out which has really reduced my bills"	1
TOTAL	**125**

FPF 2: Next, householders were asked 'What did you like about the home visit? Were there any parts you did not like?' A total of 8 responses were recorded for this survey item, with all of them containing valid content. Responses were grouped under knowledge, financial, interpersonal and 'other' (see Table 25). None of the responses consisted of negative feedback.

Half of the responses (n=4) showed participant's appreciation for the knowledge they gained, and found the information helpful *(e.g., "helpful hints").* Two comments were made that revealed an appreciation for being given support.

Table 25: Themes and Frequency of Responses for
'What did you like about the home visit? Were there any parts you did not like?'

Theme	Frequency
Knowledge: "Good tips on how to cut back"	4
Financial: "$100 savings on bill"	1
Interpersonal: "Grateful for the call"	2
Other: "Appreciated power put back on"	1
TOTAL	**8**

FPF 3: During the phone follow-up, householders who had received both a HV and attended a CommEd were asked 'what did you like about the Community Education Session?" A total of 64 responses were collected for this survey item, with 54 containing valid content. Responses were grouped into three main themes: engaging, informative and incentives (see Table 26).

Most of the responses (n=24) were from participants who enjoyed the information they learned about energy efficiency and 20 people commented they found the CommEd to be engaging, for example, *"very funny and conversational".* Overall, attendees expressed that the session was helpful to them (e.g., "explained energy bills" or "learned about home visit"). A further 10 people specifically referred to the lunch that was provided at the CommEd they attended.

Table 26: Themes and Frequency of Responses for 'What were you given? Was it useful?"

Theme	Frequency
Incentive: "Show bag; especially thermometer"	58
Support: "Help with dealing with energy company"	5
Bill help: "Negotiated a more affordable payment plan and URGS"	13
Information (tips/brochures etc): "Like the brochure; information was very useful"	87
Visit: "All of visit was useful"	1
General: "All very useful"	4
TOTAL	**168**

A total of 172 responses were recorded for this survey item, with 168 containing valid content. Responses can be grouped into 5 main themes: incentive; information; bill help; and support.

The largest theme was information with 87 responses commenting on the types of information received. Participants found all forms of information helpful: 65 comments on tips and hints; 12 general comments; 4 comments on the brochure (refer to Appendix E) and 6 comments on other knowledge, for example, "Understanding how bills are calculated gave me confidence".

The next largest theme was incentives, with 35 responses commenting on the KEEP show bag and 23 responses commenting on the voucher. Most participants enjoyed all the contents of the show bag (e.g. "The show bag enabled me to be more energy efficient"), while others made special mention to the thermometer (e.g. "The thermometer was very handy").

Thirteen responses indicated an appreciation for the assistance with Bill help they received with URGS and payment plans for their bills. While 5 responses revealed that participants appreciated the advocacy shown on their behalf, for example, "Help with dealing with energy company".

Another 5 comments revealed the HV was useful overall.

FPF 4: Households that received a monitor (trial 2) were specifically asked 'how did you find the monitor/visual cues/goal setting? Which worked best for you and which made no real difference?" Responses indicate that it is likely that only the first part of the question was asked and/or responded to (see Table 27). There were four comments that directly commented on the in-home display, and another three, groups under general, that may have also referred to the monitor, e.g., "easy to use" or which may have referred to the cues, e.g., "useful". Too few responses were captured on this question for a clear outcome. It seems that some householders used the visual support and some did not.

Table 27: Themes and Frequency of Responses for 'how did you find the monitor/visual cues/goal setting? Which worked best for you and which made no real difference?"

Theme	Frequency
In-Home Display "Easy to set up and use"	5
Visual Cues "my kids can see them on the fridge"	4
General "Easy to use" or "bit hard to understand"	7
TOTAL	**16**

FPF 5: During the phone follow-up, householders who had received both a HV and attended a CommEd were asked 'what did you like about the Community Education Session?" A total of 64 responses were collected for this survey item, with 54 containing valid content. Responses were grouped into three main themes: engaging, informative and incentives (see Table 28).

Most of the responses (n=24) were from participants who enjoyed the information they learned about energy efficiency and 20 people commented they found the CommEd to be engaging, for example, *"very funny and conversational".* Overall, attendees expressed that the session was helpful to them (e.g., "explained energy bills" or "learned about home visit"). A further 10 people specifically referred to the lunch that was provided at the CommEd they attended.

Table 28: Themes and Frequency of Responses for 'what did you like about the Community Education Session?'

Theme	Frequency
Engaging "Everyone felt at ease; funny"	20
Informative "Explained energy bills"	24
Incentives "Free lunch"	10
TOTAL	**54**

FPF 6: Householders were then asked "was it useful to attend a Community Education Session before the home visit?" A total of 38 responses yielded 37 valid "yes" responses.

Open-Ended Questions during Second Home Visit

During the SHV*2 (in which only 92 in total were conducted) households were asked two general open-ended questions.

SHV*2 1: Responses to the question 'how have things been going with your energy savings since our last visit? Were the tips we provided last time useful?' were evaluated. A total of 132 responses were captured, with 127 containing valid content. Responses were grouped into 10 main themes: praise, general positive outcomes, bills, payment management, appliance management, energy efficiency issues, educating others, living arrangements, incentives/ rewards and other (see Table 29).

Similar to earlier questions, householders identified ‘family’ as a barrier to achieving energy efficiency goals. Still, visiting family members have been recorded as a barrier to achieving energy efficiency in the household, and resulting in higher bill prices. Two comments were recorded in which the participants claimed they were still struggling with bills (e.g., I have had the power cut off!”).

In contrast, 23 comments were made which reported savings on bills and 13 comments which reported affordable payment plans were helping. In addition, 3 responses indicated confidence in the energy provider (e.g., “Contacted our company for a better deal we got 28% discount on electricity and 18% on gas”).

Many responses consisted of participants understanding more about energy use in their household. Twenty-one responses consist of comments, such as “I have been more aware of the way I use energy and making sure I turn the appliances off at the switch every time I leave the house” and “after having my home visit, I now set the correct temperatures which I did not know before”.

Some participants reported that they have been passing on their learning’s to others. Comments revealed that information was being shared with children, partners, external family and friends. For example, *“I am teaching my partner energy saving tips to apply in their home”.*

Generally speaking, 45 respondents made claims praising the usefulness of the information they have received and indicated that they have been doing well. For example, one respondent said, *“the program is very useful and the tips provided has helped me a lot”.*

Table 29: Themes and Frequency of Responses for 'how have things been going with your energy savings since our last visit? Were the tips we provided last time useful?'

Theme	Frequency
Praise "Very useful program – has helped me a lot with the tips that were provided"	27
General Positive outcomes "Things have been good have been using the tips provided at first home visit and sticking to them the program has help a lot."	18
Bills "Things are going really well bills have dropped and now feel a lot more relaxed"	23
Payment Management "Contacted our company for a better deal we got 28% discount on electricity and 18% on gas. My company is a lot easier to talk to now"	17
Appliance Management "I changed most of my light globes and I try not to use my heating as often as I know how expensive it is to run now"	21
Energy Efficiency Issues "Have had family staying – so bills were a little high"	7
Educating Others "I was able to pass info on to friends and family members that were helpful. Some even had a home visit"	4
Living Arrangements "We moved into a new house with a 5 star energy rating"	4
Incentives/Rewards "I love the show bag and make use of everything in it"	4
Other "It been great that my kids can now have hot showers instead of having to go to the pool once a week to do it"	2
TOTAL	**127**

SHV*2 2: Secondly, householders were asked "have there been any problems which made it hard for you to do energy efficient things that you had hoped to do?" A total of 118 responses were provided for this survey item, with 65 containing valid content. Responses were grouped into five main themes: family, financial, thermal comfort, appliances and personal (see Table 30). Family continues to be a common theme emanating from the survey items, with 25 comments stressing 'family' as a barrier to achieving energy efficiency. Specifically, household members appeared to be the biggest barrier, and visiting family as a barrier reported less frequently.

Almost half of the responses (n=30) referred to the household's financial situation. Predominantly, 25 comments were made regarding affordability being a key barrier to achieving energy efficiency (e.g., "I have no money to do anything"). However, 5 responses reported the opposite. For example, one participant claimed they were having no problems: "No. the advice was good, and I felt that I was given strategies which have helped to lower my electricity bill". One person reported that they were now saving $50 per bill, another $200 per bill, and another $600 per bill.

Additionally, some participants reported that they struggle in both the hottest and the coldest months, with 5 comments revealing that participants found it difficult to save money during summer or winter.

Table 30: Themes and Frequency of Responses for 'have there been any problems which made it hard for you to do energy efficient things that you had hoped to do?'

Theme	Frequency
Family "Family visiting"	25
Financial "No money – trouble with bills" or "No problems, $200 saving on each bill"	30
Thermal Comfort "The summer/winter months make it harder to save energy because of using air con/heating more"	5
Appliances "Fridge needs to be replaced"	1
Personal "Sick in hospital"	4
TOTAL	**65**

Open-Ended Question for Second Phone Follow-Up

SPF 1: After households had a second HV, they were phoned and asked three questions. The first was 'what did you like about the second home visit? Were the tips we provided last time useful?'

A total of 75 responses were collected for this survey item, all of which were valid (see Table 31). Of these, 24 responded with "yes". The remaining 51 responses can be grouped into six main themes: support; incentives/reward; memory; education; praise and general.

Mostly, participants enjoyed educational aspects of the SHV*2 the most, with comments recorded. Some responses commented on the helpfulness of the information provided18, for example, "I had some family move in with me it was good to get some more tips on how to save money on my bill". Others specifically identified the knowledge they had gained, such as knowing what temperature to set the heating/cooling at to improve energy efficiency.

Secondly, 11 responses expressed appreciation for receiving tangible incentives/rewards. Nine comments were in regards to the voucher (e.g., "I like the voucher"); three comments were in regards to the show bag.

Lastly, 11 responses expressed appreciation for the support given by the workers during the home visit. Participants enjoyed being able to clarify questions (e.g., "I had a few more questions that were able to be answered during the visit") and receive help with payment plans and Utility Relief Grant.

Table 31: Themes and Frequency of Responses for 'what did you like about the second home visit? Were the tips we provided last time useful?'

Theme	Frequency
Support: "I was able to ask more questions". "Going over bills, making sure billed correctly"	11
Incentive/rewards: "I liked the $50 voucher"	11
Memory: "Told me about tips again"	2
Education: "I had some family move in with me it was good to get some more tips on how to save money on my bill"	18
Praise: "Yes, very useful"	4
General: "Everything"	5
"Yes"	24
TOTAL	**75**

SPF 2: Householders were then asked 'was it worth having a second home visit?' All 70 respondents answered a resounding "yes". It is noted here that this finding contrasts the quantitative survey findings where the SHV*2 did not yield higher results than the FHV.

SPF 3: Lastly, householders were asked 'were there any parts you did not like?' A total of 72 responses were obtained (see Table 32). Most responded with the answer "No", indicating that they liked all aspects (62). Only 10 responses indicated they did not like something, for example 1 commented that he/she did not like the show-bag, another commented he/she did not like the voucher and 7 revealed they found the paperwork burdensome (having to sign so many pieces).

Table 32: Themes and Frequency of Responses for 'were there any tips you did not like?'

Response	Frequency
Show bag / Voucher	2
Paperwork	7
"Yes"	1
"No"	62
TOTAL	**72**

In summary, the analysis of the open-ended survey questions broadly supports the findings in other areas of the survey, and reflects CDOs' descriptions (discussed shortly in the qualitative findings, and evident in the case studies displayed throughout this report). Aboriginal household revealed they:

- Are struggling with their utility bills and lack of money generally
- Have family visit a lot which adds strain to managing bills and implementing energy savings practices
- Appreciated what they learned, and the tips provided, from a HV
- Mostly adopt energy efficiency behaviours involving thermal comfort and managing appliance use
- Observe their bills have dropped since the HV
- Found the second HV worth having (100% responses indicated this) as it helped to remind them of the energy savings tips and allowed them to ask more questions (note: this finding is in contrast to the earlier finding that the SHV*2 added no benefits beyond what was established during the first HV)

4.2.3 Findings for Energy Consumption Data

To determine whether households, having experienced a HV, actually consumed less energy, KEEP collected energy consumption data. Households who chose to participate in this aspect signed a "billing consent form" which was then forwarded to their energy provider. Obtaining this information is problematic in Victoria due to the high number of energy retailers (est. 26). Accordingly, rather than obtaining billing data, KEEP obtained consumption (usage) data from 5 energy distributers instead. Despite the reported high number of households using gas, most of the billing data consent forms provided electricity information rather than both electricity and gas. For example, 851 electricity accounts compared with 256 gas accounts (note, this means 1107 out of 1124 households willingly provided consent to access their energy providers). Given the expected high mobility of the Aboriginal community, and the high proportion renting, it was expected that KEEP would be only able to collect around 30% of valid consumption data (needed to span two years). A decision was made to only contact electricity distributors to ensure sufficient numbers to conduct the required longitudinal analysis.

Electricity consumption data was successfully obtained for 340 homes which represented 40% of the total group, so higher than expected. It was important to establish that the 340 households did not differ in any meaningful way from the rest of the households included in the earlier analyses as this could obscure the results. Below is a brief synopsis of dwelling information for this sub-group alone:

- Single story buildings: 91%
- Single person dwelling: 10%
- 2-3 persons dwelling: 20%
- 4-5 persons dwelling: 22%
- 6+ persons dwelling: 6%
- Predominant number of bedrooms: 3 (50%)
- Predominant number of bathrooms: 1 (79%)
- Predominant wall type: brick (77%)
- Predominant roof type: tiles (80%)
- Roof colour: dark (37%); intermediate (40%); light (23%)
- Single glaze dwellings: 79%
- Window coverings: blinds (38%); Curtains (32%); none provided (31%)
- Dwelling type: houses (56%); other (44%)
- Property tenanted: 84%
- Attended a Community Education Session: 62%
- Household received KEEP standard home visit (trial 1): 36%
- Household received KEEP in-home display (trial 2): 59%
- Household received KEEP two standard home visits (trial 3): 3%

Missing data in some categories was high, see Table 31 below.

Missing data in some categories was high, see Table 33 below.

Table 33: Missing Data for Dwelling Characteristics

Dwelling Characteristic	Number of Households with Missing Data
Household Size	18 (5%)
Window Glazing	65 (19%)
Window Covering	108 (32%)
Number of storeys	22 (7%)
Number of bedrooms	18 (5%)
Number of bathrooms	19 (6%)
Number of living rooms	26 (8%)
Colour of roof	56 (17%)
Tenure	4 (1%)
Type of Trial	9 (3%)
Attendance at a Community Education Session	14 (4%)

Given the low numbers in trial 3 (11 households), comparisons will be made between just two instead of three sub-groups: those that received an IHD (SHV-IHD), and those that did not (SHV). This is further appropriate because a lack of complete data recording rendered the date of the SHV*2 unknown in many households, so that before vs. after comparisons of consumption cannot be readily made.

To determine the impact of a HV with trial participants, changes in average daily electricity consumption were determined from energy consumption data for each household, for 12 months before and 12 months after the first home visit. It is worth noting here that while the intent was to obtain 12 months of data post the HV, this was only possible for approximately half of the 340 households. In some cases, 12 months has not yet passed since their HV. See Figure 34 below.

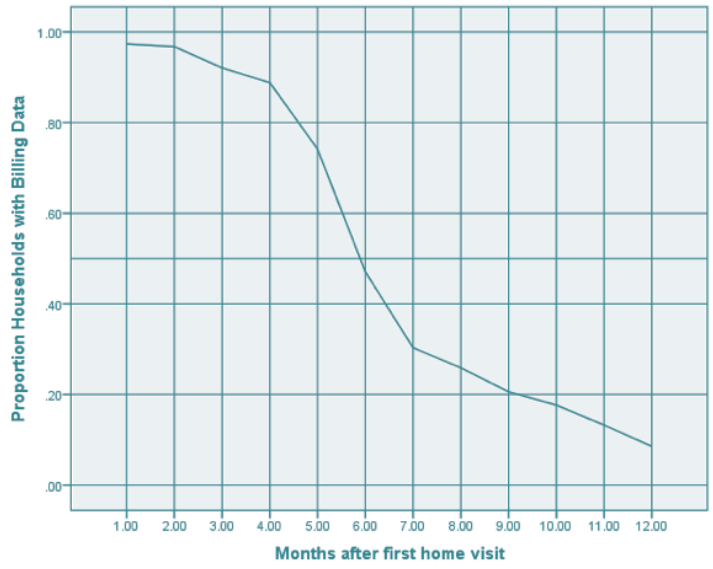


Figure 34: Duration of Consumption Data Obtained after the First Home Visit

As indicated by Figure 34, this has meant that for almost 50% of the 340 households considered we only have 6 months of consumption data after the first home visit. In addition for only 20% of the 340 households we have more than 9 months of consumption data after the first home visit. It is expected that this will therefore limit the interpretation of the final results.

In total, average consumption data was available for a total of 5788 months (representing all months of data accumulated across all households) with average daily consumption ranging from nothing to 960 kWh. Average daily energy consumption per day for each month of the year, before and after a HV, together with the total number of households, is reported in Tables 34 and 35 below. It is evident that the SHV trial shows a reduction in energy use for most months after the HV, whereas the SHV-IHD trial shows an increase in energy consumption for most months after the HV.

Table 34: Average Electricity Consumption per Day (kWh) for SHV Trial with Mean Change after a HV

	Before First Home Visit			After First Home Visit			Mean Change
Month	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**%**
Jan	122	18.27	13.79	93	19.52	16.16	+ 6.8%
Feb	124	15.13	12.73	70	14.34	12.28	- 5.2%
Mar	124	16.21	11.35	28	13.69	12.14	- 15.6%
Apr	126	20.62	10.82	37	11.46	10.75	- 44.4%
May	128	18.33	13.54	57	15.22	12.05	- 17.0%
Jun	127	17.45	13.66	62	16.88	13.32	- 3.3%
Jul	128	19.56	16.04	71	17.63	13.24	- 9.9%
Aug	128	35.29	16.25	74	21.45	15.35	- 39.2%
Sep	131	21.55	13.99	77	17.90	14.00	- 16.9%
Oct	122	13.29	11.14	102	15.11	12.09	+ 13.7%
Nov	120	12.20	10.19	111	13.30	10.16	+ 9.0%
Dec	121	17.06	11.81	112	14.60	12.68	- 14.4%

Table 35: Average Electricity Consumption per Day (kWh) for SHV-IHD Trial with Mean Change after a HV

	Before First Home Visit			After First Home Visit			Mean Change
Month	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**%**
Jan	190	22.80	15.26	189	21.75	18.40	- 4.6
Feb	192	17.35	14.96	163	19.75	16.46	+ 13.8%
Mar	193	17.09	13.76	17	22.30	21.75	+ 30.5%
Apr	191	17.11	12.57	21	17.70	16.90	+ 3.4%
May	191	21.13	15.51	23	22.98	20.53	+ 8.8%
Jun	190	23.30	17.65	25	26.68	19.06	+ 14.5%
Jul	189	26.75	18.74	27	44.65	27.22	+ 66.9%
Aug	189	27.01	19.28	34	30.11	20.57	+ 11.5%
Sep	191	26.02	16.40	78	22.91	16.60	- 12.0%
Oct	193	17.16	13.52	163	17.55	14.21	+ 2.3%
Nov	194	15.78	11.77	186	15.72	12.77	- 0.4%
Dec	192	15.56	12.79	191	17.36	13.78	+ 11.6%

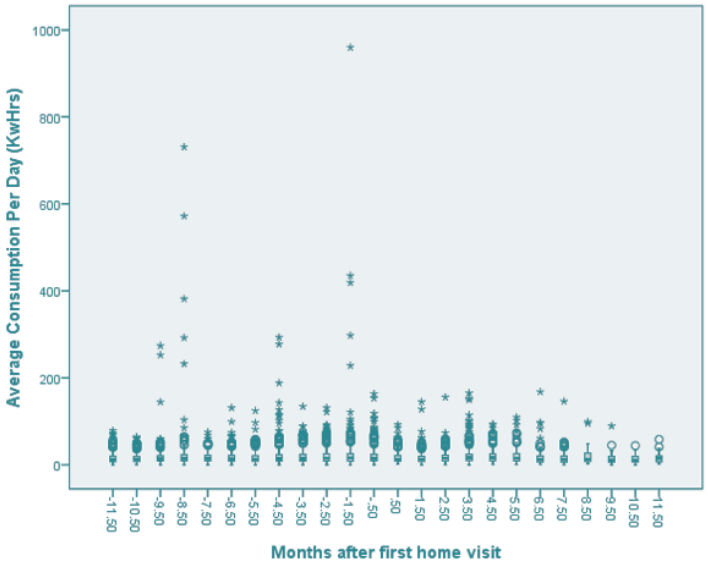


Figure 35: Distribution of Average Daily Electricity Consumption over Time

Note: Months prior to the first home visit are given as negative values.

As indicated by the Box-Plot in Figure 35, the distribution for average daily consumption over time is very right-skewed (high data points on the left of the graph). This means that the more extreme usage cases were greatly reduced following the first home visit, as hoped.

To facilitate more appropriate statistical comparisons for such skewed data, a logarithmic transformation is appropriate. Zero consumption months were therefore excluded in the following analyses, since the logarithm of zero is undefined (and this is further appropriate since zero consumption is almost certainly due to a meter error). Figure 36 shows the suitability of using the log-transformation as it reveals less skewness of the data. Also, Figure 36 suggests at least three very low consumption values, presumably when the dwelling was at least partially empty, but otherwise the consumption distributions are reasonably symmetric. There is some indication of a reduction in variation after the first home visit, most apparent by the reduced number of outliers.

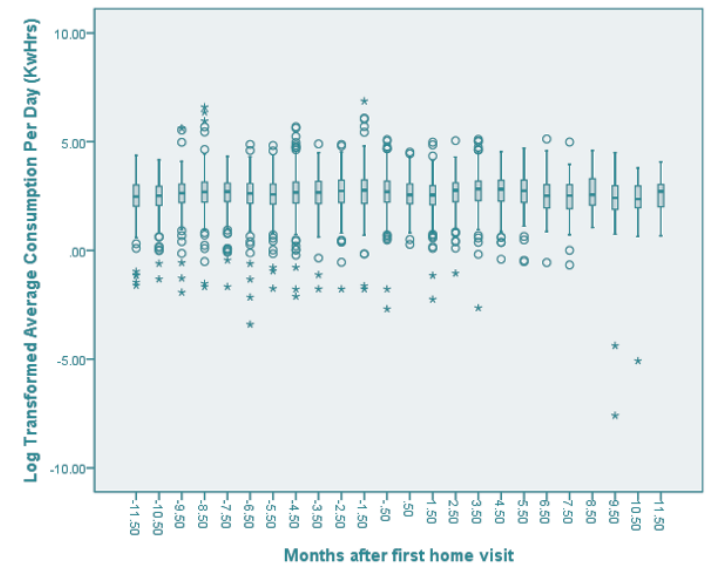


Figure 36: Distribution for average daily electricity consumption after a logarithmic transformation, correcting for the right-skewed data evident in Figure 35.

Interestingly, Figure 37 shows how energy consumption varied according to the month of the year. It is apparent that consumption oscillates greatly, with highest consumption in the colder months (July and August) but also a peak in January and February when cooling, such as air conditioners and fans, is important. It should be noted that the consumption data used for this analysis after the first home visit is very unbalanced, as shown in Figure 38. In the post-home visit period there was three times as much billing data collected over the summer than the winter months. This asymmetry will no doubt be corrected in the coming months as we obtain a full 12 months of post-home visit data for all households. Upon receiving this additional data in the coming months, it is the intention of the research partner of KEEP (Swinburne) to re-conduct the analysis in this section and following which Kildonan will submit an amendment to this report to the DIIS.

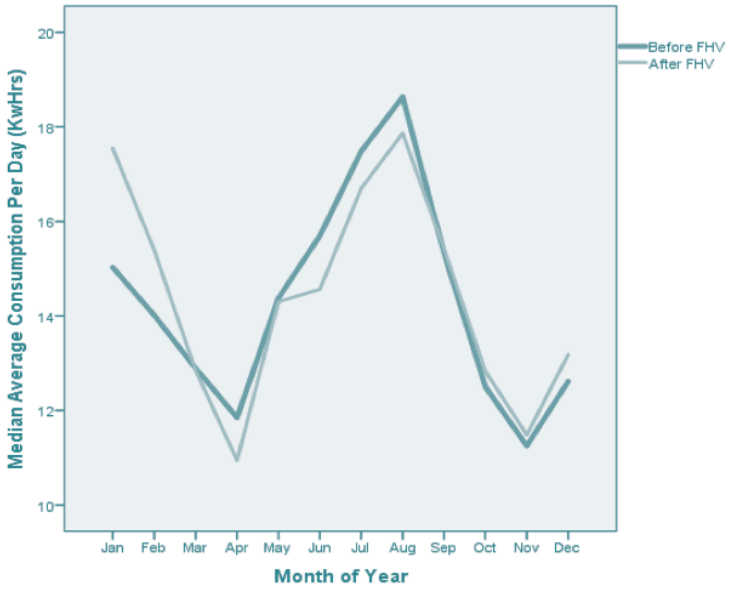


Figure 37: Median Electricity Consumption Rate by Month of the Year

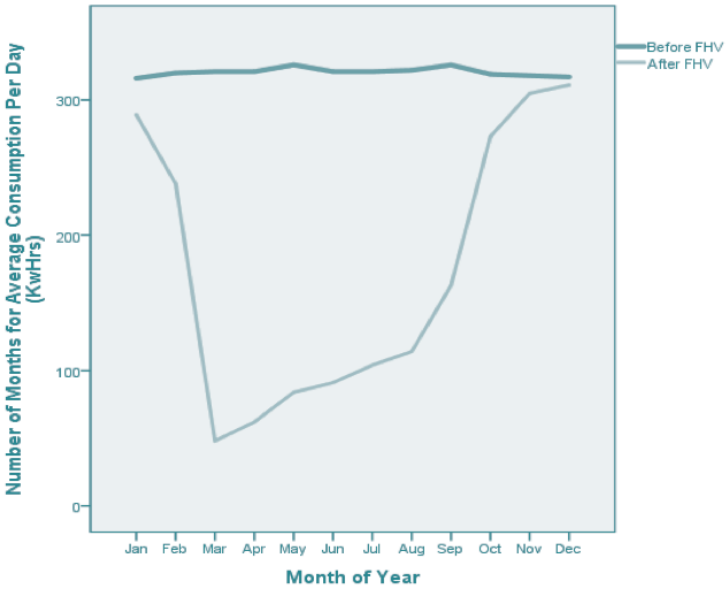


Figure 38: Number of Consumption Rate Measurements by Month of the Year

As depicted in Figure 37, the data showed dramatic differences in consumption according to month of the year. Accordingly, controlling for local temperature variations was important. This was achieved by grouping households into one of 14 major regions across Victoria, as shown in Table 36. Daily minimum and maximum temperatures were extracted from Bureau of Meteorology weather station data at each location.

Table 36: Weather Station Data

	Number of dwellings	Percent
Bairnsdale	16	4.7
Ballarat	12	3.6
Bendigo	35	10.4
Echuca	48	14.2
Essendon	67	19.9
Geelong	11	3.3
Horsham	21	6.2
Mildura	7	2.1
Morwell	5	1.5
Scoresby	28	8.3
Shepparton	53	15.7
Swan Hill	22	6.5
Warrnambool	5	1.5
Wodonga	7	2.1
Total	**337**	**100.0**

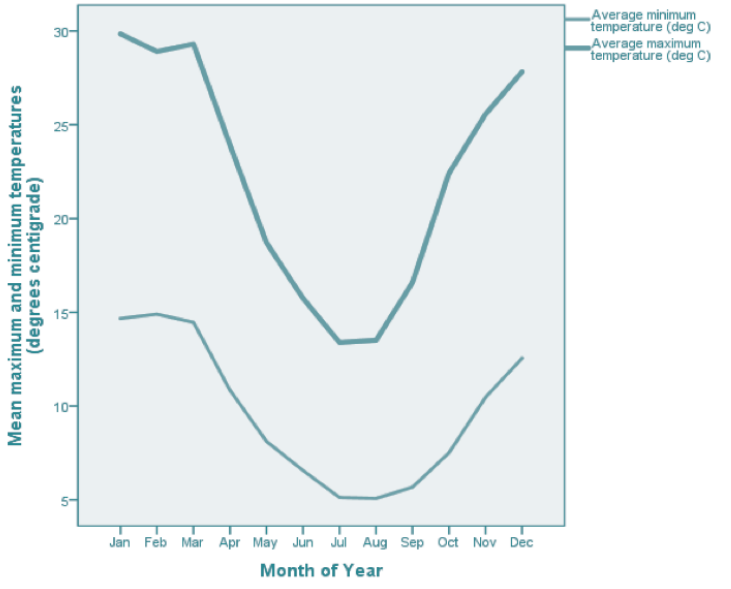


Figure 39: Averages for Maximum and Minimum Temperatures

Figure 39 shows how the average of the minimum and maximum temperature changes over the months of a year.

Before proceeding with statistical analysis it is important to determine whether there was any bias in the allocation of trial type, in this case whether all households had an equal chance of receiving a SHV-IHD. While it is not possible to prove such bias "to a certainty", a Chi-Square test may be used to determine the likelihood of observing such bias when there was not actually any bias. The lower this probability, the more confidence we have that bias did really occur. This probability is expressed as a "p-value", with $p < 0.05$ typically interpreted as a significant association.

Using this analysis, many variables were considered, and those which were significant indicate a significant bias in regards to the allocation of households into the SHV-IHD trial. For example, 35% of homes receiving a SHV-IHD had 5 or more occupants, and 60% had 4 or more occupants. For those homes receiving the SHV, these percentages were just 18% and 37% respectively, and Chi-square tests showed this difference was significant (Chi-Square = 24.3, df=5, p<.001). In a similar vein, homes were more likely to receive a SHV-IHD if they lacked window covering (Chi-Square = 16.6, df=2, p<.001), with 32% of these homes having blinds compared with 42% of those in the SHV group. Homes were also more likely to receive a SHV-IHD if they reported single glazed windows (Chi-Square = 6.385, df=1, p=.012), with 81% of homes in this group having single glazing and only 66% for the non-IHD group. Households were also significantly more likely to receive a SHV-IHD if they were recruited through a community education session (Chi-Square = 36.5, df=1, p<0.001). Of the households that received a SHV-IHD, 78% had previously attended a community education session, compared with 45% in the non-IHD group. An overview of this analysis is depicted in Table 37.

In general, a SHV-IHD was more likely to be delivered to homes that were probably perceived as having greater need of improved energy efficiency (e.g. homes with many occupants, lack of window covering) or who attended community education sessions. Accordingly, the bias evident from this analysis will be addressed below by controlling for household size, the type of window glazing, window covering and prior attendance at a CommEd.

Table 37: Areas where Significant Differences between Trials were Observed

Variable	Values	SHV (Trial 1) Number (%)	SHV-IHD (Trial 2) Number (%)
Household Size	1	16 (12.8)	15 (8.0)
	2	32 (25.6)	28 (14.9)
	3	31 (24.8)	32 (17.0)
	4	23 (18.4)	48 (25.5)
	5 or more	33 (18.4)	65 (34.6)
Glazing	Single	86 (65.6)	162 (81.4)
	Doublie/Tinted	6 (4.6)	11 (5.5)
	Missing	39 (29.8)	26 (13.1)
Window Covering	Blinds	55 (42.0)	64 (32.2)
	Curtains	24 (18.3)	79 (39.7)
	Missing	52 (39.7)	56 (28.1)
Attended CommEd	Yes	58 (45.0)	153 (77.7)
	No	71 (55.0)	44 (22.3)

Variation in electricity consumption comes from two sources, differences between households and differences over time within the same household. An initial model showed that 59% of the total variation in the consumption data can be attributed to differences between households. This means that the consumption within each household needed to be modelled before combining the results over the entire sample. This is done using multi-level modelling, which is a data analysis technique capable of handling longitudinal data (such as weather data and energy consumption data) for a set of independent households. These models can describe variation in consumption within households over time as well as variation between households. The statistical software package used to conduct this analysis was “HLM7”.

The purpose of this analysis was to determine whether, on average, a significant reduction in electricity consumption took place after the first home visit. This was tested after removing the effect of minimum and maximum temperatures. As shown in Table 38 this initial analysis considered 330 dwellings for which trial data was available. For some months there were some missing values for the temperature and/or electricity consumption data which meant that these months were ignored in the analysis.

Table 38: Descriptive Statistics for Initial Multi-level Analysis

Level 1 Monthly Data	Number Observations	Mean	Values	Minimum	Maximum
Minimum Temp (oC)	6503	10.22	4.00	2.81	18.57
Maximum Temp (oC)	6503	23.19	6.43	9.21	35.57
FHV: Before (0), After (1)	7944	0.50	0.50	0.00	1.00
Average Daily Consumption (Log Transformed)	5788	2.60	0.88	-7.60	6.87
Trial 1: SHV and Trial 2: SHV-IHD(2)	330	1.60	0.49	1.00	2.00

As shown in Table 39, there were only 2082 measurements of average daily electricity consumption after the first home visit and 3848 measurements of average daily electricity consumption before the first home visit. As the project team are still gathering consumption data, this accounts for this difference in the available data. In addition it can be seen that the median daily consumption of electricity is very slightly higher after the first home visit than before the first home visit, but this may be due to temperature effects, since temperatures were on average higher after the first home visit than before.

Table 39: Comparison of Temperatures and Average Electricity Consumption Before and After the First Home Visit (FHV)

		Average minimum temperature (deg C)	Average maximum temperature (deg C)	Average Consumption Per Day (kWh)
Before FHV	No. Homes	4056	4056	3848
	Median	8.97	22.08	13.99
After FHV	No. Homes	2644	2645	2082
	Median	12.17	26.76	14.06
Total	No. Homes	6700	6701	5930
	Median	10.04	24.10	14.01

Table 40 shows the model fitted to explain (log transformed) daily electricity consumption in terms of minimum and maximum temperature as well as the effect of a home visit (Before HV = 0, After FHV = 1). The model suggests that in each dwelling, on average:

- increases in minimum temperatures are associated with an increase in electricity consumption
- decreases in maximum temperatures are associated with an increase in electricity consumption

However, after controlling for these temperature effects, no significant change in consumption was observed after a HV. Observable in Table 40 are the shaded green areas, showing that the coefficients for both average minimum and maximum daily temperatures are significant. However, the larger absolute t-value for maximum temperatures suggests that this effect is dominant, with lower maximum temperatures associated with higher electricity consumption. When maximum temperatures are controlled (fixed), a decline in minimum temperatures produces a decline in electricity consumption, suggesting that lower night temperatures reduce consumption (perhaps people go to bed earlier), while higher minimum temperature increase consumption (perhaps encouraging socialising). Note that shaded areas in the following tables are used to denote significance (green) and non-significance (orange) for the factors of interest.

Table 40: Results for Initial Analysis: Model for Average Consumption (Log Transformed)

	Estimated Coefficient	Standard Error	t-ratio	Degrees of freedom	p-value Consumption Per Day (kWh)
Intercept	3.069	0.073	42.17	326	<.001
Minimum temperature	0.039	0.007	5.81	5424	<.001
Maximum temperature	-0.038	0.004	-8.81	5424	<.001
Before FHV(0) After FHV(1)	0.021	0.029	0.70	5424	0.481

Several models were then fitted to the data. Firstly the above model was fitted while controlling for the type of trial (SHV vs. SHV-IHD) and while controlling for household size, attendance at a CommEd, window glazing and window covering (factors known to differ between the trials). The glazing and blind variables were dichotomised as 'Single Glazing' and 'Blinds' (Yes/No), with missing values incorporated as a No response. As shown in Table 41 only household size was newly significant, with larger families having higher consumption. CommEd attendance, glazing and blinds were therefore dropped from the model for the next steps.

Table 41: Initial Comparison of Trials Controlling for Household Size, Glazing, Blinds and Attendance at a Community Education Session Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.627	0.281	9.333	299	<.001
Household Size	0.133	0.027	5.029	299	<.001
Single Glazing (1) Other Glazing (0)	-0.049	0.100	-0.495	299	0.621
Attended CommEd Yes(1),No(0)	-0.086	0.097	-0.884	299	0.377
Trial SHV(1), SHV-IHD(2)	0.133	0.087	1.529	299	0.127
Blinds Yes(1), No(0)	-0.054	0.080	-0.73	299	0.501
Minimum Temperature (degrees centigrade)	0.044	0.006	6.784	304	<.001
Maximum Temperature (degrees centigrade)	-0.043	0.004	-9.728	304	<.001
Before FHV (0) After FHV (1)	0.020	0.030	0.642	304	0.521

The model was then re-run including household size, and this time, the effect of Trial on the Before/After FHV coefficient was tested in order to determine whether there was a significant difference between the trials in their effectiveness. Data for 312 households was included in this analysis. Table 42 shows a significant difference between the trials ($t(308)=2.505$, $p=.013$). However, it is not clear whether this was due to the SHV-IHD or whether it was due to the characteristics of these households. For example, before receiving the SHV-IHD a household with many occupants may have been quite frugal with energy use in an attempt to reduce the size of their electricity bill, but after enjoying the SHV-IHD, they may have gained greater confidence in meeting energy needs (thus increasing consumption). Indeed, earlier survey data analysis indicates greater confidence in dealing with, and managing, energy use.

Table 42: Comparison of effectiveness of trials controlling for household size Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.598	0.121	21.55	308	<.001
Household Size	0.140	0.026	5.35	308	<.001
Minimum Temperature (degrees centigrade)	0.041	0.007	5.70	4816	<.001
Maximum Temperature (degrees centigrade)	-0.040	0.004	-9.04	4817	<.001
After FHV (Yes=1,No=0)	-0.197	0.103	-1.92	308	0.056
After FHV for a SHV-IHD Trial (Yes=1,No=0)	0.142	0.057	2.51	308	0.013

Before continuing the analysis for the individual trials, it was worth exploring two more aspects. First, the effect of ceiling insulation on energy consumption, since the descriptive statistics conducted earlier showed many households to have no insulation (36%). Also, the willingness of a household to reduce energy consumption (a KEEP survey item) may influence their actual consumption behaviour. The following two sections cover both aspects.

Effect of Ceiling Insulation on Average Electricity Consumption

The following table indicates that when minimum and maximum temperatures are controlled, as well as household size and the effect of home visits (standard or SHV-IHD), there is no significant affect for ceiling insulation (t(307)=-0.15, p=.881), highlighted in orange in Table 43.

Table 43: Effect of Ceiling Insulation
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.604	0.129	20.20	307	<.001
Household Size	0.141	0.027	5.31	307	<.001
Ceiling Insulation (Yes=1, No=0)	-0.013	0.086	-0.15	307	0.881
Minimum Temperature (degrees centigrade)	0.040	0.007	5.69	4817	<.001
Maximum Temperature (degrees centigrade)	-0.040	0.004	-9.04	4817	<.001
After FHV (Yes=1,No=0)	-0.198	0.104	-1.91	308	0.057
After FHV for a SHV-IHD Trial (Yes=1,No=0)	0.143	0.057	2.50	308	0.013

Effect of 'Willingness to Reduce Energy Consumption' on Average Electricity Consumption (after a Log Transformation)

Evident in the following table (Table 44), responses to the survey item 'willingness to reduce energy use' were grouped as "none or a little" (yes=1, no=0) and "a lot or completely" (yes=1, no=0). The analysis showed that neither of these variables had a significant influence on the response to the home visit (t(286)=0.729, p=.467; t(286)=1.118, p=.264) when minimum and maximum temperatures and the effect of the home visit (SHV or SHV-IHD) were controlled.

Table 44: Effect of willingness to reduce energy use after the first home visit
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.625	0.129	20.28	288	<.001
Household Size	0.136	0.028	4.76	288	<.001
Minimum Temperature (degrees centigrade)	0.041	0.007	5.51	4520	<.001
Maximum Temperature (degrees centigrade)	-0.041	0.005	-8.85	4520	<.001
After FHV (Yes=1,No=0)	-0.307	0.150	-2.05	286	0.041
After FHV for a SHV-IHD Trial (Yes=1,No=0)	0.172	0.064	2.68	286	0.008
After FHV: Not or only a little willing to reduce energy use (Yes=1, No=0)	0.052	0.071	0.73	286	0.467
After FHV: Completely or a lot willing to reduce energy use (Yes=1, No=0)	0.091	0.081	1.12	286	0.264

Similarly, as shown in Table 45 below, neither of these variables had a significant influence on energy consumption in general (t(286)=0.977, p=.329; t(286)=-0.577, p=.564) when efforts were made to control for minimum and maximum temperatures and the effect of the home visit (standard or SHV-IHD).

Table 45: Effect of Willingness to Reduce Energy Use in General
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.627	0.142	18.41	286	<.001
Household Size	0.137	0.029	4.764.77	286	<.001
Not or only a little willing to reduce energy use (Yes=1, No=0)	0.117	0.120	0.98	286	0.329
Completely or a lot willing to reduce energy use (Yes=1, No=0)	-0.057	0.099	-0.58	286	0.564
Minimum Temperature (degrees centigrade)	0.041	0.007	5.58	4520	<.001
Maximum Temperature (degrees centigrade)	-0.041	0.005	-8.90	4520	<.001
After FHV (Yes=1,No=0)	-0.220	0.112	-1.96	288	0.051
After FHV for a SHV-IHD Trial (Yes=1,No=0)	0.155	0.061	2.53	288	0.012

4.2.3.1 Findings for Standard Home Visit (SHV) – Trial 1

Of the 340 dwellings included in the analysis of consumption data there were a total of 124 dwellings that experienced a SHV. As shown in Table 46, there was no significant effect for the SHV (t(2124)=.840, p=.401) confirming that the decline in daily electricity consumption was not significant for these households. As found earlier, electricity consumption declined as maximum temperatures rose but the increase in consumption as minimum temperatures rose was not quite significant.

Table 46: Analysis for Standard Home Visit Dwellings
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.403	0.156	15.38	121	<.001
Household Size	0.154	0.037	4.11	121	<.001
Minimum Temperature (degrees centigrade)	0.023	0.012	1.92	2124	0.056
Maximum Temperature (degrees centigrade)	-0.027	0.007	-3.66	2124	<.001
After FHV (Yes=1,No=0)	-0.045	0.053	-0.84	2124	0.401

When the households receiving two home visits were excluded 114 households remained and very similar results were obtained as shown below in Table 47.

Table 47: Analysis for Standard Home Visit Dwellings Excluding Dwellings Receiving a Second Home Visit
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.408	0.171	14.11	111	<.001
Household Size	0.154	0.042	3.65	111	<.001
Minimum Temperature (degrees centigrade)	0.023	0.013	1.81	1967	0.071
Maximum Temperature (degrees centigrade)	-0.027	0.008	-3.46	1967	<.001
After FHV (Yes=1,No=0)	-0.051	0.057	-0.90	1967	0.370

Although ceiling insulation was not found to be significant in earlier models (see Table 43), its impact “after a HV” was almost significant (p=0.057). Hence, it was worth conducting analysis on the SHV alone to determine whether having “no ceiling insulation” had an effect. As shown in Table 48, results indicate that for households with no ceiling insulation, there is a significant reduction in their electricity consumption after the SHV (t(109)=2.134, p=.035), and no significant reduction in households with ceiling insulation (t(109)=1.54, p=0.127).

Table 48: Analysis for Standard Home Visit Dwellings when Controlling for Ceiling Insulation

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.405	0.168	14.28	109	<.001
Household size	0.166	0.041	4.07	109	<.001
Minimum Temperature	0.027	0.014	1.20	1812	0.046
Maximum Temperature	-0.031	0.008	-3.84	1812	<.001
With No Ceiling Insulation Before FHV(0), After FHV(1)	-0.157	0.073	-2.13	109	0.035
With Ceiling Insulation Before FHV(0), After FHV(1)	0.155	0.101	1.54	109	0.127

The following explanation is provided as a way of understanding these results. For households without ceiling insulation, higher energy consumption and bills are likely. So while ceiling insulation showed no effect "per trial" when run together, it is clear that a SHV significantly helps the household reduce their energy consumption. For example, one of the energy efficiency tips provided in homes is placing draught seals on doors. This may have only a minor effect on reducing energy use in homes that are well insulated, but may have more dramatic effects on homes without insulation and where energy is escaping from the home at higher rates.

4.2.3.2 Findings for Home Visit with Monitor and Cues

A total of 188 households received a SHV-IHD. As shown in Table 49, there was a significant effect for the SHV-IHD approach (t(2999)=2.41, p=.016) confirming that an increase in daily electricity consumption after the SHV-IHD was significant for these households. Interestingly, the temperature effects were very significant for these households too, suggesting that these homes were poorly insulated. Again electricity consumption increased as minimum temperatures rose and as maximum temperatures declined.

Table 49: Analysis for Households receiving a SHV-IHD
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.761	0.182	15.18	185	<.001
Household size	0.122	0.037	3.28	185	0.001
Minimum Temperature (degrees centigrade)	0.047	0.009	5.54	2999	<.001
Maximum Temperature (degrees centigrade)	-0.045	0.005	-8.29	2999	<.001
After FHV (Yes=1,No=0)	0.080	0.033	2.41	2999	0.016

4.2.3.3 Comparison across Home Visit Approaches

It appears that larger, poorer households experienced the SHV-IHD more so than other groups. These dwellings were less likely to have double glazing and less likely to have blinds suggesting that energy saving was harder in these dwellings. In addition, there were more people in these households suggesting that reductions in daily energy consumption would have been more difficult. Despite receiving a SHV-IHD, and being more likely to attend a community education session, electricity consumption in these households did not materialise, as evident in the current electricity data used. The 8% increase in average daily consumption exhibited by these households may be a little disappointing, but it could be argued that these households cannot afford to reduce their energy consumption. Their consumption is very sensitive to minimum and maximum temperatures, confirming that their homes are not sufficiently insulated. Further, if reductions were made after a KEEP visit, it is possible that tips were put into place regarding gas, and focused less on reduction of electricity use.

In contrast, there was evidence to suggest that households receiving a SHV were able to slightly reduce their electricity consumption, but only by approximately 4%. The consumption of these households was less sensitive to temperature and there were fewer people in these households on average, suggesting that they may have been in a better position to adopt energy savings practices in their homes. However, in the case of dwellings without ceiling insulation a significant reduction in electricity consumption of about 15% was observed. It is expected that with more complete energy data (longer duration of post-HV data and the inclusion of gas data) more significant reductions in electricity consumption will be found.

4.2.4 Extended Analysis

Since the profile of the home seemed to impact energy use, it was worth conducting one further piece of analysis, particularly on dwelling size and dwelling profile. To do this, cluster analysis was conducted to determine the impact of HV trials on size of home and other profile elements. Findings are presented below.

Comparison across Household Clusters (3 categories)

Three clusters of homes were formed for the purpose of this analysis: densely occupied homes; standard family homes; empty nester homes. The results presented in Table 50 confirm that electricity consumption is higher in larger households than in empty nester homes (2 persons). However, there was no indication that the effect of the home visit differed for these three types of households.

Table 50: Effect of Household Clusters:
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	2.796	0.092	30.45	286	<.001
Densely Occupied Homes (median of 6 persons) (Yes=1, No=0)	0.673	0.141	4.76	286	<.001
Standard Family Homes (median of 4 persons) (Yes=1, No=0)	0.504	0.089	5.65	286	<.001
Empty Nester Homes (median of 2 persons) (Yes=1, No=0)	0				
Minimum Temperature (degrees centigrade)	0.041	0.007	5.44	4504	<.001
Maximum Temperature (degrees centigrade)	-0.040	0.005	-8.74	4504	<.001
After FHV (Yes=1,No=0)	0.067	0.047	1.40	286	0.161
After FHV: Densely Occupied Homes (Yes=1, No=0)	-0.210	0.268	-0.78	286	0.435
After FHV: Standard Family Homes (Yes=1, No=0)	-0.050	0.055	-0.91	286	0.365
After FHV: Empty Nester Homes (Yes=1, No=0)	0				

Comparison across Dwelling Clusters (6 categories)

Six types of dwelling clusters were formed for this analysis: small modern houses; small traditional houses; small traditional apartments; large modern houses; medium modern houses; large traditional homes. Table 51 confirms that, on average, electricity consumption is significantly higher in large traditional houses (cluster 6) than in small modern houses (cluster 1) and small traditional apartments (cluster 3). However, there was no indication that the effect of the home visit differed for these six types of dwellings.

Table 51: Effect of Dwelling Clusters:
Model for Average Consumption (Log Transformed)

	Coefficient	Standard error	t-ratio	Degrees of freedom	p-value
Intercept	3.393	0.145	23.45	283	<.001
Cluster 1:small modern houses (Yes=1, No=0)	-0.642	0.176	-3.65	283	<.001
Cluster 2: small traditional houses (Yes=1, No=0)	-0.061	0.146	-0.42	283	0.676
Cluster 3: small traditional apartments (Yes=1, No=0)	-0.718	0.172	-4.16	283	<.001
Cluster 4: large modern houses (Yes=1, No=0)	-0.312	0.269	-1.16	283	0.247
Cluster 5: medium modern houses (Yes=1, No=0)	-0.297	0.157	-1.90	283	0.059
Cluster 6: large traditional houses (Yes=1, No=0)	0				
Minimum Temperature (degrees centigrade)	0.040	0.007	5.46	4504	<.001
Maximum Temperature (degrees centigrade)	-0.040	0.005	-8.77	4504	<.001
After FHV (Yes=1,No=0)	0.035	0.082	0.43	283	0.668
After FHV: Cluster 1 (Yes=1, No=0)	0.007	0.097	0.07	283	0.944
After FHV: Cluster 2 (Yes=1, No=0)	-0.095	0.093	-1.02	283	0.311
After FHV: Cluster 3 (Yes=1, No=0)	0.037	0.109	0.34	283	0.734
After FHV: Cluster 4 (Yes=1, No=0)	0.332	0.235	1.41	283	0.159
After FHV: Cluster 5 (Yes=1, No=0)	0.009	0.113	0.08	283	0.935
After FHV: Cluster 6 (Yes=1, No=0)	0				

Although controlling for household and dwelling clusters the results failed to suggest any differences between the clusters in terms of the effect of the HV on electricity consumption. However, it was found that, as expected, the general level of electricity consumption was higher for larger households and lower for smaller modern houses and small traditional apartments.

In summary, the electricity consumption data indicated a small, though non-significant reduction in use after a SHV, which became significant for homes without ceiling insulation. Further, electricity consumption data indicated a small, though significant increase in use after a SHV-IHD. Due to limitations of the data and the data representing an incomplete set, these results should be interpreted with some caution. Some of these areas are explained in the following section.

4.3 Quantitative Data Limitations

The data collected for KEEP has some limitations that should be considered. The positive side is that *baseline measures* for energy consumption and survey data were solid: high in number (340 and 714 respectively) and demonstrated breadth of respondents and can thus be considered as representative of KEEP participants and to the broader Victorian Aboriginal population. Energy consumption data collected before a HV was 12 months in duration, and allowed for seasonality differences to be controlled in the analysis. Survey data was collected across most homes visited which represented all regions across Victoria. Together, the data are highly representative of the Aboriginal populations in Victoria.

On the down side, *evaluation data* collected was limited in scope. This means the data collected after the HV was fewer in number and different in nature than is ideal. Energy consumption data was plagued with limitations as more than half of it had less than 12 months of information after the HV. This data was 3-6 months in duration, and many of which did not cover the winter months where energy consumption is known to increase (electricity use increases by an average between 7-30% in winter months, whereas gas use increases by an average of 158%) (Sustainability Victoria, 2014; p4). Of more importance is that only electricity consumption data was collected for KEEP. Since most Victorians use much higher quantities of gas than electricity, experience 4.5 times more cold days that hot days (homes require more heating than cooling), and that heating is predominantly sourced from gas (Sustainability Victoria, 2014), then solely using electricity data is limited in painting a picture of household energy consumption. This means that reported increases in energy consumption and no change in energy consumption may reflect limited adjustments to electricity-related use in the home, and not adjustments to gas usage. Future projects should ensure that both electricity and gas information is collected, and that sufficient time passes after a HV (or other approach) to allow for 12 months of data after the approach to be collected.

The survey data was also not without problems. Only 193 households participated in phone follow-up calls and 48 in second phone follow-up calls. Collecting survey data over the phone is problematic and may not lend itself to the face-to-face preferences of many Aboriginal people. This means survey responses collected over the phone may not have fully captured actual household responses due to the data collection method, especially with the baseline survey data, which was collected in person. Further, CDOs experienced competing priorities when they were under constant pressure to 'do a home visit' to reach their, and the project's, milestones compared with undertaking follow-up surveys. This pressure increased as the project progressed and the volume of milestones increased, such that phone follow-up data was delayed until milestones had been met. In the end, only 27% of the 714 households were contacted for a phone follow-up, and most were not collected 3 months after a HV, as was planned. This means that responses that were 3 months later were grouped with responses that were 12 months later. Due to memory fading over time, it is likely that the responses sooner after the HV were stronger (showed more significant improvements) than those collected a year after a HV. These differences could not be ascertained by trial type due to overly small response numbers. Similarly, 52% of the 92 households who received a second HV were phoned. All SPFs were conducted within a few days (late Jan 2016) despite when the actual SHV*2 was conducted. Some were a month later, and some were 18 months later. The same shortfalls apply.

Baseline and all phone follow-up data was collected and entered into the database by the CDOs. It is possible that some households responded in a 'socially desirable' way to ensure they did not offend the CDO, particularly given the close network ties amongst the community. This meant that, on many occasions, CDOs were visiting households where they knew the person (family, distant family, friend, distant friend) or was recommended to them by a friend or family member. While this is listed here as a potential "problem" with the clarity of the data, it is important to realise that these network ties were actually a main "strength" of KEEP as they allowed KEEP to access many communities and homes, and thus provide much needed support. It is because of these network ties that KEEP was so successful. It simply means that other mechanisms to collect and manage the data might be worthwhile considering in future.

Another limitation with survey data was the difference between a HV and a HV that was conducted via a 'bring in your bills day'. These refer to the situation where a householder came to the CDO with their bills. During conversations about the bills, the householder would learn about how to interpret their bills, obtain financial support if needed, and learn about household tips they could implement around the home. In some cases, schema-type data was collected during these conversations, as well as KEEP survey data. No delineation of how the "home visit" was conducted was made in the database, and as such, no analysis could be conducted between the two. Ideally, the 'bring in your bills day' could have been used as a trial itself, and data collected so that the approach of providing support to community in this way could be determined. In discussions with CDOs about this method, where it was asked "but how could that be a 'home visit' if you are not in their home?" they explained that many 'home visits' are conducted on the front porch, or front yard. If someone felt uncomfortable about having a KEEP CDO in their home, then that was respected and no pressure was made for that householder to acquiesce. This means that HVs were conducted in three ways (inside the home, outside the home, and somewhere other than the home). From a service delivery lens, this meant that many more Aboriginal people were able to access KEEP support and receive energy-related assistance. From a data analysis perspective, no delineation among these three approaches was possible, thus all were grouped as trial 1 as no other option was possible.

Lastly, an important element of KEEP was the Community Education Sessions. These helped many households who were not able to have a personal HV (due to other commitments, timing, feeling uncomfortable about having some in their home, or other matters) to learn about how to manage their household energy use and bills. Originally, they were thought to target this group (those not wanted a HV), but as KEEP progressed, it became apparent that they served as an engagement tool as many people who, after enjoying a CommEd would then ask for a HV too. The latter may have been partly facilitated by getting to meet the CDO prior to that person coming to their home, and thus reduce any discomfort about 'stranger intrusion'. It appears that the CommEds thus served a threefold purpose: as a communication source, educational tool, and barrier reducing mechanism. Unfortunately, very limited data was collected about the CommEds (8% of those attending, n=34), and only one question asked during a HV. This meant only those who had a HV could comment on the CommEd, and even then, the response rate is very low. So no meaningful evaluation of this important method for reaching people could be conducted.

In summary, while the analysis conducted on the quantitative data was robust, the data itself was limited in being able to paint a full picture and in some cases, was simply not collected. Future projects are advised to ensure higher collection rates of post-approach data that is useable for evaluation and to embed these efforts into project milestones.

4.4 Qualitative Findings

The data analysed to report findings in this section of the report were drawn from numerous sources, including: householders via face-to-face in-depth interviews (15 respondents); CDOs via a focus group (six participants) and the documentation of stories they shared of their HV experiences over a period of six months (25 case studies); and a project partners meeting towards the end of the project where key questions were asked and responses discussed (7 participants). The findings reported here will be presented in the following sections:

- *Key Struggles of Aboriginal Households*
- *Key Benefits from Aboriginal Households Receiving a KEEP HV*
- *Views Regarding the LIEEP and/or KEEP Project:*
    - *From the Householder Perspective*
    - *From the CDO Perspective*
    - *From the Project Partners Perspective*

Case Study 5

Key Struggles

Ellie had a history of managing her bills well on her small income. However, she had incurred a sizable electricity bill following a period where a family member and her children had lived with her when they had no alternative accommodation.

Ellie had contacted her retailer who had put her on a payment plan, however the amount she was paying was unsustainable and affecting Ellie's capacity to pay other bills and put food on the table for herself and her son. Even though she was doing everything her energy retailer asked her to, she was struggling to manage financially and ***sometimes went without food so that her son could eat.***

Ellie brought her electricity bill along for KEEP to review during a VACSAL Bring in Your Bills Day. The KEEP CDO reviewed her bill with her, showing her how to read it properly, and identified that Ellie's payments of $110 per fortnight far exceeded her average household energy usage.

The KEEP CDO immediately rang the retailer and renegotiated Ellie's payment plan, reducing it by $50 per fortnight, which significantly relieved the financial pressure Ellie was experiencing.

The following day the KEEP CDO conducted a Home Visit with Ellie and provided her with energy saving tips which she found extremely helpful. Ellie implemented many of the suggestions made by the KEEP CDO and contacted him when the next bill came in to let him know how delighted she was that her bill had been reduced. The $50 supermarket voucher had also helped Ellie cover living costs at a time when she most needed it.

"We explain the bill to people so they can get it, they understand, and they feel more confident about managing it themselves." (KEEP CDO)

4.4.1 Key Struggles of Aboriginal Households

Most of the Aboriginal householders who participated in the qualitative research component of KEEP reported having **large energy bills** and **difficulties in paying them.** This came through most clearly in the case studies reported by the CDOs, but was also echoed by the householders themselves in the interviews. A typical example was the case study about John's family. John received a large winter electricity bill that he was unable to pay along with a disconnection notice. He had tried to negotiate a payment plan with the provider, but his electricity was disconnected the day after the payment plan was agreed upon. John sought help from one of the partner organisations which referred him to KEEP.

KEY FINDING

Many Aboriginal Households:

- Have large energy bills and find it difficult to pay them
- Are caring for other family members which increases their energy burden
- Are falling further and further behind in paying their bills
- Worry that their power will be turned off
- Feel stressed about their situation
- Are afraid to deal with their energy providers due to past negative experiences.

Less common, though not a-typical, was the situation of the 'D' family. The D's water bill was over $3000, an amount they could not pay, and they were threatened with a reduced water supply by the water service provider. The family was referred to KEEP by an NGO. The KEEP CDO identified that a high water bill was likely due to a constantly running toilet. In addition to the usual assistance provided, the CDO advocated for the toilet to be fixed to the landlord, which resulted in lower bills.

The case studies also identified that health problems in some cases led to significant increases in energy usage and/or higher bills. For example, one older woman needed to use electricity for her nebuliser on a constant basis. In another case, an older man developed cognitive troubles after a stroke which led him to not remember to pay his energy bills. Both of these individuals have significant debts which caused stress for them and their families. Hence, it is evident that health and wellbeing are integrally tied to energy consumption and bills such that for some, home energy use can lead to health and wellbeing declines, and health and wellbeing issues can lead to higher energy use and/or bills.

One of the interviewees was taking care of her grandchildren because their home was too cold and their daughter had fallen behind in her bills. However, taking in the grandchildren had led to a significant increase in the grandmother's bills:

> *"'[I said] well come on down to my place for the winter time. We'll get the kids in school'… My bills go through the roof [but it] gives her a chance to pay her bills … without the usage going up"* (Aboriginal householder).

In addition to the finding that participants in KEEP had large energy bills that many found difficult to pay, the in-depth interviews also revealed that many home visit recipients were struggling. They were on very low incomes and spent a great deal of time and energy juggling bills and family responsibilities in order to keep their 'heads above water'. People spoke of falling behind in paying their bills, worrying that their power would be turned off, and feeling stressed about their situation.

The findings from the householder interviews were largely consistent with the findings from the CDO focus group and evident across many other case studies. For example, according to the CDOs, many households struggled to pay their utility bills and have built arrears to a point where they were unable to pay, and felt overwhelmed by their situation. People needed help with managing their bills. Numerous stories were recounted of Aboriginal people who got behind in their bills and/or were disconnected and were not helped by their energy company. For example, Andrea, a single parent to 2 young children, was disconnected from her gas supply even though she was up to date with her bills. She was afraid to call the gas company because she had had previous negative experiences in dealing with energy retailers. With the assistance of a KEEP CDO, she learned that the disconnection was wrongful and was able to get reconnected and received compensation.

Case Study 6

Problems with Energy Provider

Rick had been struggling to make ends meet for several months. Unpaid bills had been mounting up and he had accumulated arrears of $6000 in utility bills. He was extremely stressed and worried about his deteriorating financial situation and found speaking with utility providers frustrating and pointless. The stress affected his physical and mental health to the point where he'd been hospitalized for a heart attack.

When Rick was referred to KEEP he was under threat of disconnection from essential services and he was extremely anxious about how he would manage. The KEEP CDO contacted each of his retailers – electricity, gas and water – and had Rick placed on a financial hardship payment plan with each company. The KEEP CDO negotiated for Rick's payments to be set at a level he could afford to maintain during the three month hardship probation period, ensuring he wouldn't be disconnected.

The KEEP CDO then applied for a Utility Relief Grant, which went some way toward clearing the large arrears he owed. Once KEEP had alleviated Rick's financial concerns, the CDO talked Rick through some energy saving tips to help his reduce his energy usage and his bills.

When the KEEP CDO checked in with Rick at the three month review point, Rick was more relaxed, happier and healthier. He had not only managed to sustain his hardship payments, but he'd also implemented the energy saving tips and had noticed a reduction in his energy use and bills. As a direct result of KEEP's intervention, Rick was more in control of his financial situation and more confident in his ability to manage his energy usage and utility bills.

This fear of dealing with retailers due to negative previous experiences was not uncommon. As one person put it:

> *"You get a lot of these big companies ripping off mob, and you're frightened to ring up and - just in case you say the wrong thing, or … question a bill and stuff like that'* (Aboriginal householder).

During interviews, some expressed they were afraid to contact their energy providers. As one householder put it:

> *"Look, I should change companies, I know that, but I think I'm scared"* (Aboriginal householder).

These individual householder views were shared by CDOs who, after visiting hundreds of homes, observed that a large number of Aboriginal households are under bill-stress from their energy usage or due to difficulties with providers. The CDOs also reported that many of the householders they had met were not confident in dealing with energy providers and had previously had poor experiences. One CDO recounted the following in regards to how people could be 'caught out' and then have difficulties with their bills:

> *Direct debits are the worst because they go to your account when there is no money there. When the money is there, you [think you have it, thinking] it's sitting there [ready for] the following week… The moment you get it, [you discover] they've gone to your account to take that money and then you've defaulted.* (CDO focus group)

The CDOs felt that most households wanted to lower their energy bills, but were unsure of how to do so. In particular, they were unaware of what they could do around the home to achieve this. Many households were unaware of their concession rights, financial support options, or their ability to negotiate workable payment plans with their energy providers. Many were also ashamed of their situation and worried about asking for help. One CDO explained:

> *"I had to go to a visit with a single mum. She had four kids. One of them was very disabled. For her, you could see she was flat out. She was so worried when we got there about the mess. She was like I'm so sorry about the mess'* (CDO focus group).

From the stories shared during interviews and case studies, it is evident that 'shame' is a major barrier to asking for, and receiving, help, particularly for those people who are struggling the most.

More generally, CDOs corroborated householders' descriptions of their situations as generally involving competing pressures from family obligations, lack of income and high energy bills. Of these, CDOs emphasised the high bills most frequently.

Overall, the situation that many of these Aboriginal households find themselves in is dire. Having to go without food so the children can eat, or having to go without hot water and heating because the gas had been disconnected, caused undue stress and hardship. These findings corroborate earlier work conducted by CUAC (2012) attesting to the energy-related disadvantage faced by many Aboriginal families. More support is needed to arrest the situation, and help these families lift out of their current plight. Minor energy efficiency behavioural changes around the home are unlikely to make any real impact for many Aboriginal homes who face larger financial issues and who generally live in older homes built before 2005 which are reported to be highly energy inefficient (Sustainability Victoria, 2014). Significant changes to tenanted housing stock are needed in Victoria if the broader 'quality of home life' is to be improved for Aboriginal people.

RECOMMENDATION

Significant changes to tenanted housing stock are needed in Victoria if the broader concept of 'quality of home life' is to be improved for Aboriginal People.

4.4.2 Key Benefits for Aboriginal Households Receiving a KEEP HV

As discussed earlier in this report, CDOs visited Aboriginal households to conduct an energy audit and provide energy-saving tips. At the home visit they also provided a show bag with energy-saving items and would sit with the householder and explain their bills. Householders participating in HVs were also offered a $50 voucher as an incentive for participating in the project. During interviews, Aboriginal households comments reflected this service provision, as they reported that CDOs came to their homes and:

- provided them with a 'show bag' of energy-savings items (e.g., thermometer, blanket, timer)
- taught them useful energy savings tips
- helped them to interpret their bills
- helped them deal more effectively with their service providers

KEY FINDING

Aboriginal households report the benefits of a KEEP Home Visit:

- Energy savings items
- Energy savings tips
- Help interpreting utility bills
- Help dealing with utility providers.

While the householders interviewed indicated that they found the items in the 'show bags' useful, the analysis of the interviews/yarns with households indicates that recipients found the home visits to be particularly beneficial in terms of energy saving tips which led to lower household bills and lower household stress. For example, as one Aboriginal householder said: *"…well I definitely think the program is a good thing. It definitely helped me with my bills and all my stress regarding bills".* Similarly, another householder reported a large drop in their bills after the home visit, and commented *"…my bills have dropped $300 - $350".*

However, it is also noted that other interviewees did not report a drop in bills, nor indicated any dollar savings after having a HV. Householders reported that, from a HV, they learned about, and starting to incorporate, energy savings practices such as not needing to have their refrigerator on the coldest setting or their water heater on the hottest setting; turning off appliances at the plug/wall; using curtains to maintain a pleasant temperature indoors; and keeping doors closed when heaters or air-conditioners were running. Many have incorporated these practices into their daily lives. The survey findings support this finding as there was a significant increase in energy efficiency behaviours adopted in the home after a HV. In addition, several householders explained in the interview that they share the new information with family and friends, particularly family and friends who were staying with them. Once again, this finding is consistent with the survey analysis which showed significant improvements in energy-related competency.

The **most important benefit** of the HV to the householders was learning about how to negotiate with energy companies when they experience difficulties in paying bills. As one person put it, the most beneficial support they received from the HV was: "the ability to negotiate a late bill" (Aboriginal householder). Another said:

> *…[W]hen you speak to [the energy companies], they going to be pushing for what they want. But you might be able to do other things that they are not suggesting - the energy company is not suggesting. Because I remember when I spoke to them, they were quick to work out a payment plan for me but they didn't suggest anything about the grant. I had to bring that up. Yeah, so it's things like that. It would be nice if people had a clear knowledge about what their rights are regarding electric companies or gas/power companies.* (Aboriginal householder)

There were some barriers to adopting new behaviours as well. While many were able to adopt small energy-saving practices, one of the larger ways that a person can save money on their bills is to change power companies and most found that to be just too hard, even when there was someone, such as a CDO, offering to help. Passive loyalty, mistakes and overcharging by the provider, unhelpful staff at call centres, and the type of payment plan offerings were some of the reasons given for changing or not changing providers.

It was therefore unsurprising that, of the activities involved in the home visits, the CDOs emphasised the provision of assistance with managing bills as most important. In many cases CDOs would call energy providers on behalf of the household to arrange for payment plans or for the household to receive a concession they were entitled to. They found that arrangements previously organised with energy companies were often not feasible for the householder. From the CDO focus group, the following comments capture this sentiment:

> *It's [the energy company's] fault in the first place because they've set the client up for a fall. Then, 'the amount we need from you is $70 per week,' and that's just not achievable for a lot of the families that we see …. a lot of them are single parents and stuff like that, they're not making ends meet. So they're going to not be able to go through with that payment.* (CDO-1)

KEY FINDING

Barriers to Changing Energy Providers:

- Passive householder loyalty ("it's just too hard to change")
- Unhelpful staff at call centres
- Type of payment plans available

Problems with Energy Providers

- Over-charging
- Disconnection threats and action
- "Not caring"
- Not offering all available concessions/ support grants

RECOMMENDATION

Energy providers should consider employing Aboriginal people to work with Aboriginal communities including call centre team members.

They should also consider training their staff who deal with customer enquiries so that flexibility and the offering of support options take precedent over phone 'scripts'.

It appears, then, that energy providers have people who answer customer enquiries, and who are pressured to follow a verbal script when on the phone, and/or who may not be encouraged to suggest other support options to Aboriginal people who are struggling with their bills.

> *I'm fairly confident that half the people that we speak to on the phone [to the energy provider] are aware that the person [Aboriginal Householder] is not going to be able to make the payment but they're just so concerned with meeting their script.* (CDO-2)

The key benefit of the HVs reported by the CDOs was helping households manage their bills, which is consistent with the key benefit identified by householders too. As one CDO put it:

> *"We have people crying … with relief [after our HV]. Because it's just so stressful for them to be able to ring up and do that. They don't think they can do it"* (CDO).

In some cases, CDOs helped the householder obtain financial support (Utility Relief Grant (URG)) to pay their bills or arrears, and on occasion, helped sort out the household's non-energy related debt.

The support provided with bills often continued after the home visits:

> *I have seen, talked, and seen people three, four, five, six, seven times. People just come in here [at work] with their bills some days and sit on your desk. (*CDO-3).

Overall, householders found the KEEP home visit to be beneficial. CDOs reported that many householders felt relieved of financial burden and stress. Householders would often contact the CDO later, to reveal how happy they were now that their bills were lower. Many households were placed on affordable payment plans which meant the householder felt they were on top of things and able to manage their finances.

4.4.3 Views of the Project from the Householder Perspective

Aboriginal households were enthusiastic about the services provided by KEEP. As shown above, they found the HVs to be helpful, even when they had difficulty changing their behaviour by implementing more energy efficiency tips. A key finding, one that accords with the views of the CDOs as will be shown below, is that recipients of HVs felt that it was **very important that the service be delivered by Aboriginal service providers.** Culture and cultural sensitivity were important. For the D family, it was essential as they had previously refused to let a non-Indigenous person into their home to assist with their energy situation.

RECOMMENDATION

Projects should be designed by Aboriginal People and delivered by Aboriginal People when they are for Aboriginal People.

The in-depth evaluation interviews were conducted by a non-Aboriginal interviewer who was provided an introduction to the interviewees by a CDO, someone who had already been into the home and whom they knew. When asked about the need for an Aboriginal CDO, householders were polite to the non-Indigenous interviewer, but expressed that they were pleased that the CDOs were Aboriginal. A typical interchange was:

Interviewer:	*Would you say that having the guy who came out … [being] from the Indigenous community…*
Respondent:	*Yeah…it matters.*
Interviewer:	*It matters? Yeah?*
Respondent:	*Yeah. Not so much for me - but - I can talk to anyone.*
Interviewer:	*Yeah?*
Respondent:	*But when someone's Indigenous and we talk about stuff. Like… I know that… [they've] been part of the community and stuff like that and I can link with that. I can see where … [they're] coming from.*

As the interchange indicates, it mattered that the CDOs were Aboriginal, and this view was shared consistently by everyone interviewed. While respondents were happy to speak with the non-Aboriginal interviewer, either due to the confidence the householder had in speaking with others generally, or because they felt a compassion and rapport with the interviewer who had worked with Aboriginal people before, they were concerned that most other Aboriginal householders would not be. This concern was validated by the difficulty the research partner had in accessing households to participate in the qualitative component of the research. Although CDOs recommended households and often spoke with the household prior to being phoned by the research partner, there was still a reluctance to engage. This reluctance was not easily overcome, even with the promise of a $100 voucher for participating. Together, this suggests that it is important that services, outreach programs and future research for (or with) Aboriginal people are conducted by an Aboriginal person. Indeed, one respondent revealed that she did not really benefit from her HV as she already implemented many energy savings tips, but she opened her home to invite a stranger in, only because the person visiting was Aboriginal and that he/she was from an Aboriginal organisation. This was summed up by another person who commented:

> *"Even though we're educated and that, it's just good to have another black fella come along … I just think of the other mob that don't have that little extra bit of education, and stuff like that, they get really intimidated"* (Aboriginal householder).

Overall, the Aboriginal householders were very enthusiastic about KEEP and the assistance provided in helping them to manage their energy use and bills. It was important to them that those providing the advice were also of an Aboriginal background.

4.4.4 Views of the Project from the CDO Perspective

Like the householders, the CDOs stressed the importance of cultural sensitivity in working with Aboriginal households. They unanimously agreed that, because of this, it was essential for those going into Aboriginal households to be Aboriginal themselves. Also, as members of the community they were often familiar with Aboriginal households and householders were familiar with them and were more likely to invite them into their homes:

> *[We're] Aboriginal workers that work and live in the community. Because we see them all the time and then they'll remember, oh I need to see you about this.* (CDO focus group) .

> *You go to basketball with the kids and you're talking about energy bills because the rest of the crew is there you know? The rest of the community is there [and] they might have a problem.* (CDO focus group).

Many of the CDOs had done community service work with the Aboriginal community previously and so knew people from other contexts:

> *It's the many hats of an Aboriginal worker. We change our hats. My background is drug and alcohol. I go in and do an energy visit and you're getting a referral for drug and alcohol. So it's just many hats that an Aboriginal worker wears when they're working with the community.* (CDO focus group).

There were two additional factors that CDOs mentioned regarding the importance of the service being delivered by Aboriginal workers that householder interviewees did not. These were that Aboriginal households may fear government surveillance, and, perhaps relatedly, that Aboriginal households may fear that government officials would remove their children if the home was not perfect. These factors also affected the CDOs willingness to collect data for the project.

Perhaps the most talked about aspect of KEEP in the focus group with the CDOs was the data collection for LIEEP and KEEP. CDOs found it very difficult to ask householders for what they, the CDOs, found to be very personal information about household structures, appliances and the residents themselves. The CDOs' concerns were threefold and interconnected.

First, they were embarrassed to 'inspect' households as part of the energy audit (CDO focus group). The CDOs were uncomfortable and embarrassed to ask to inspect the household infrastructure and appliances. The embarrassment at inspecting the households was expressed as it was: *"Like you're casing the whole house pretty much"* (CDO focus group). They felt that asking the age of a person's appliance was *"very judgmental"* and the condition of the appliance to be "intrusive" (CDO focus group). In their discussion of this part of the data collection, they expressed empathy with what they perceived the householders' would think:

> *It might look like rubbish, but they will love it. You know what I mean? They might have [an] old TV and love it and not want a plasma.…* (CDO focus group).
>
> *A lot of them are poor black fellas [who] … haven't had anything new in their whole life. It's a second-hand TV that's probably been handed down or bought from the op shop or the Brotherhood or Salvation Army. Things like that.* (CDO focus group).

The second concern of CDOs was that the Aboriginal householders would be (and in some cases were) embarrassed about the condition of their households and the fact that they were behind in their bills. As one CDO put it:

> *A lot of time they're embarrassed that they're even behind in their bills, so it's like a big deal for them to ask you for help in the first place. You don't want to be like, 'Now that I'm here helping you in this time [of need, which is]… a little bit awkward for you, do you mind if I go through your entire house?* (CDO focus group).

This empathy appeared to make CDOs reluctant to actually ask many of the questions required for the project, which leads to the second CDO concern: they felt that the survey questions were intrusive and unnecessary. Of the data collection questions they said:

> *"They can be really invasive when you're going into someone's home"* (CDO focus group).

The most intrusive questions were those that required asking personal questions such as age, income, education and so on, and those which required the CDO to 'inspect' various rooms in the home to collect data about light bulbs, appliance make and models, and so on, or walk around the outside of the home trying to find meter boxes and water heaters. In other words, the schema data questions that were required were inappropriate for Aboriginal people and required a level of home inspection that people from any cultural background would feel uncomfortable conducting, or having done in their homes. This is evident by the high proportion of missing data for these aspects, reported earlier (see *Descriptive Statistics* section). Further, the KEEP survey items, while not an ideal method of collecting data for Aboriginal people (as 'having a yarn' is usually considered the best option (Yunkaporta & Kirby, 2011) were, at least, developed with CDO input, and approved by KEEP Aboriginal project partners as being acceptable (see Bedggood et al 2016 for details regarding culturally appropriate survey design). The high level of response rates to the KEEP survey items, and the corresponding low number of missing data points, attests to them being more culturally suitable.

RECOMMENDATION

Avoid data collection requirements that are intrusive to someone's home or privacy, obtain information that is not necessary, and that are not culturally pre-approved.

If conducting surveys for Aboriginal People, ensure they are developed with Aboriginal People.

However, CDOs made an even stronger point when it came to data collection. They expressed that they felt a great deal of pressure regarding the need to collect data for the project. They said that, as Aboriginal people, they were distrustful of the government and not sure what would happen with information that they were collecting from people:

> *"we have to take information from them and then hand it in to someone we don't necessarily know or trust or know what's going to happen with it"* (CDO focus group).

As a result, they were not at all convinced that any sort of data collection was required and were not keen to assist. In their view, their main role was to help people. As one CDO put it:

> *We all took on the job to help people. That's why we all want to be doing that. We want to help people. We don't want to be taking from people. You give and you help and that's all good. But then you got to take – oh it [participation] needs eight signatures* (CDO focus group).

Another said:

> *I'm more about giving information than taking information. That's why I took the job. That's why I enjoy the job. But the taking information started to outweigh the giving of the information.*

The CDOs appeared to view the data collection requirements as an 'option' rather than being a fundamental component of the project. They believed that the assistance they were providing to Aboriginal households was helping those households, and they did not believe they needed to prove its value:

> *"We didn't sign up to be data collectors"* (CDO focus group).

However, as the project went on, the CDOs were under increasing pressure to provide the required data and they began to resent it:

> *So … if they [the householder] weren't offering up information, I wasn't taking that at the start. For the first 12 months. I wasn't pushing anyone for anything. Now, that's all come back to bite me because there's these sheets of missing information and I'm trying to chase them up and so they can verify. It's like, I did my job, I went into the house, gave them their energy information, helped them. They love me being there, I love being there. But here I am without a stat for it.* (CDO focus group).

This CDO's comments exemplify the approach taken by some of the CDOs regarding the data collection, and their feelings about being asked for the data. As the project intended to measure change over time, evidence of the change had to be sought. This proved to be an ongoing problem throughout KEEP and future programs need to re-consider "data collection" and processes for it, and perhaps separate data collection from service provision.

The incredible discomfort experienced by the CDOs in the gathering of household and survey data also raises questions about the appropriateness of this research approach for Aboriginal households. It is quite clear that KEEP would not be possible without the assistance of Aboriginal organisations and CDOs. It is also quite clear that asking the types of questions that were required for both LIEEP and KEEP was incredibly difficult for the CDOs. The CDOs experiences raise the question of whether the collection of data for LIEEP, as currently conceived, is culturally appropriate for Aboriginal households.

Despite having the purpose of the project explained to them numerous times, CDOs retained the concern that they did not know where the data was going and what it was going to be used for, and this made them reluctant to collect it. In addition, CDOs felt a great deal of pressure, personally, around the data collection; pressure that they felt was unfair and unreasonable. More than half way through the project, as milestones became increasingly intense, one of the CDOs resigned due to *"too much pressure".*

These three concerns were related to the broader context of government interventions into Aboriginal lives, a fear of government surveillance of Aboriginal Peoples and a related fear that governments might remove Aboriginal children from their families. This is understandable, given the history of Aboriginal Peoples in Australia, where they have experienced untold mistreatment by mainstream Australians (Austin, 1997; Long, 1998; Victorian Health Promotion Foundation, 2005; McGinn, 2012).

4.4.5 Views about the Project from Project Partner Perspectives

Project partners provided responses to five questions during an informal meeting and conversation towards the end of the project. Questions pertained to the project, its strengths and challenges, working in a cross-cultural collaboration, and how future projects should be run for Aboriginal Peoples.

The project partners felt that there was a need for support for Aboriginal Victorians regarding managing energy usage, and explained that *"utility stress is magnified for Aboriginal consumers [due to them having] larger … households, … more dependent children, and have more prevalent health issues."* All were pleased to have been involved in KEEP and felt that KEEP had helped families to both manage their energy bills and reduce their electricity usage. Specifically, they believe that *"the project has prevented a lot of disconnections",* which was a very positive outcome. They explained that the project was "more than just energy assistance" as it had a large reach and made a long term difference to many Aboriginal households. Like the CDOs, the project partners emphasised the *"wonderful support families have received"* and of having Aboriginal people integrally involved in the project design and delivery. They described their involvement in the project as *"emotionally very rewarding".*

Despite the positive outcomes, the project partners also identified a number of key challenges. The three most pressing challenges were staff turnover, the pressure to evaluate the services they provided, and the need to conform to 'government' requirements that did not reflect issues on the ground for Aboriginal people. Staff turnover: *"meant we needed to keep re-educating others about the project".* Staff changes occurred at the CDO level, but also at senior levels across the partnership.

Project partners, like CDOs, felt a great deal of pressure around the data collection for both the schema-data requirements and for the evaluation. It was felt that the former was intrusive and the latter complex. The difficulties embracing the research component were understandable given that the research design (RCTs) felt forced upon the project, and that the research component of the project commenced after project partners had begun delivering home visits and CommEds. From their perspective, the research changed what they had thought they were meant to deliver, which was captured in the project milestones. They identified: *"external issues such as milestones and changing timelines impacted on the project internally".* They felt that the research requirements 'changed the goalposts' and affected their ability to deliver the contracted services. As one partner put it: *"the project changed – it wasn't what we started out doing".* They expressed how difficult it was to manage *"the Department squeezing the timeframe that required more in a shorter space of time".* It was felt that this meant them "doing extra due to goodwill."

In general the project partners reflected that the project should not have started until after the evaluation methods were agreed upon. In the initial phases of the project, recruitment of a suitable research partner took longer than anticipated. Hence, evaluation was not designed until over six months into the project. Partners felt that the project deliverables changed considerably after its inception, making it difficult for them to implement change management with the CDOs who were delivering the service.

In addition, they identified the issues with the database as being somewhat problematic: it was not easy to enter the data or extract reports. The project partners also felt that the extent of the schema-data questions, and the randomised controlled trial model, was difficult to organise and deliver and was also not culturally appropriate. They strongly advocated for a qualitative approach to evaluation. As one expressed: *"asking families in crisis lots of questions is not how we operate!"* In explaining their difficulty with a heavily weighed quantitative design, they agreed:

> *Quantitative data collection is not the best way to go when working with Aboriginal people. Questions, surveys and signatures up front is not the Aboriginal way. (Aboriginal Project Partner).*

The partner organisations felt it essential that Aboriginal people be involved from the start in the project design and decisions about how to deliver and evaluate the services. As they put it: *"Having Aboriginal workers delivering services and advice to Aboriginal families is crucial".* KEEP established a governance group consisting of the project partners and later included the research partner. The partners worked together on project design and agreed on project structure with 12 Aboriginal people directly employed across the partnership.

The project was initiated by Kildonan, which was the lead organisation. However the partner organisations in reflecting on the project, expressed that: *"partners other than Kildonan should have taken more of a lead role on things".* It is not clear whether this would have been possible in the partnership agreements, however it should be considered in the development of future projects.

In terms of operational delivery of the project, the project partners identified some issues. The partnership group were in charge of managing the project, however each of the CDOs was employed by one of the three Aboriginal partner organisations and these three organisations were in charge of their day to day management. The CDOs reported to their employer but also to Kildonan, which employed several team members with roles intersecting with the CDOs. The partner organisations agreed that: *'Documented processes could have been done better',* although this was in contrast to their view at the start of the project of wanting to maintain autonomy.

RECOMMENDATION

It is important that Government and mainstream organisations develop a deeper awareness, appreciation and understanding of the cultural differences with Aboriginal Peoples and design projects and evaluations with this in mind.

"Quantitative data collection is not the best way to go when working with Aboriginal people. Questions, surveys and signatures up front is not the Aboriginal way."

Aboriginal Project Partner

Like the CDOs, the partner organisations felt that the data collection that was required of the project was problematic: *"the way in which data was collected was very complex and difficult to understand".* They also identified a need for ongoing services: *"as once KEEP stops the same old problems will come back again. An ongoing concern for community is that people come to help and then funding and services go".* Given the importance of 'trust', the continuity of relationships and services is important for Aboriginal communities. The partners advised that future projects requiring *"evaluation should be qualitative [and involve] case studies and story-telling."* This is consistent with comments made earlier where 'having a yarn' is the ideal way of collecting data (Yunkaporta & Kirby, 2011). This highlights the importance of government and mainstream organisations developing *"an awareness and appreciation of the cultural differences (practices, customs, values) and issues unique to Aboriginal people"* when designing future programs and research designs.

4.4.6 Qualitative Conclusions

The qualitative component of the KEEP evaluation found that Aboriginal households enthusiastically embraced the services offered and found them to be very beneficial. In particular, assistance with managing high bills was both desperately needed and warmly welcomed. Aboriginal households expressed difficulties in engaging with energy companies. These difficulties included being overcharged, being threatened with disconnection, and, when the companies were contacted, not offering culturally appropriate assistance. Many Aboriginal families were falling further and further behind in their bills, and were worried that their power would be turned off. Many were also afraid to deal with the energy providers due to previous negative interactions. This combination of high bills and fear of dealing with power companies led Aboriginal families to experience high levels of stress about the situation.

Importantly, the qualitative evaluation found that one of the most successful aspects of KEEP was that the services provided were delivered by Aboriginal workers which enabled them to access to Aboriginal households. Aboriginal households were distrustful of non-Aboriginal service providers and reluctant to permit them to enter their homes. KEEP's success was thus based on its ability to engage with Aboriginal communities, which would not have been possible without the guidance and network connections of the Aboriginal organisations involved, and their Aboriginal CDOs. Even with Aboriginal service providers, some households were ashamed of the condition of their home and worried that engaging with KEEP might attract additional scrutiny, which raised their concerns that their children would be removed. This suggests that the most vulnerable households may be the least likely to seek or receive assistance.

Case Study 7

Helping those who help others

Emily is a high profile community member on whom others rely for support. Her three bedroom home is often a haven for visiting family and community members who need somewhere to stay. As well as working, Emily volunteers a lot of her time to caring for members of her community, bearing the costs of her contributions alone.

Over a period of three years Emily's utility bill arrears had accumulated to about $3,500, mostly due to the additional people living with her over that time. She contacted KEEP seeking help with the building arrears amounts because her retailer was running out of patience with her inability to pay the arrears off.

She was overwhelmed by the situation she found herself in and didn't know how to ask for help. The arrears were worrying her and she'd set her payment plan at a high amount in an attempt to pay it off, however that often left her short of funds. She would then miss payments which put her even further back.

Because Emily was working she wasn't eligible for any concession discounts, however her car had broken down, creating an unexpected expense, and on those grounds the KEEP CDO applied for a Utility Relief Grant for her. The CDO also advocated with the retailer on Emily's behalf and managed to move Emily onto their hardship program. This allowed the CDO to negotiate lower payments based on Emily's usage only and gain an agreement from the retailer that they would contribute to Emily's arrears every fourth payment provided Emily made her payments on time.

Energy usage patterns in Aboriginal households reflect the collective culture these Aboriginal Victorians belong to in contrast to the individualistic assumptions that underpin energy billing. Aboriginal communities are 'family communities' – collective communities. Assumptions about individualism that underpin energy billing practices do not align with collective cultural practices. For example, participants revealed that people in Aboriginal communities look after each other's children, lend money to each other even when they have very little (older parents lend money to adult children especially when they have children themselves), all attend funerals when a family member dies, people stay at each other's houses unannounced and for long periods. At the heart of these collective practices are relationship ties amongst family members. The nature of these ties leads to households that are part of a greater family community. Therefore, billing each household may lead to one household paying for many other individuals beyond those registered with the energy organisations, causing an undue burden for some, as expressed by some of the people interviewed for this evaluation.

Feedback from CDOs and project partners revealed that KEEP successfully engaged Aboriginal communities across Victoria, but ongoing, changing and additional project demands, together with government and research requirements were taxing and often resented. Future projects are advised to consider the array of issues captured in this analysis, and ensure Aboriginal people are 'at the table' from inception through to project completion, with a lens of accommodating and being flexible to ensure Aboriginal values and customs are observed.

4.5 Evaluation of the Shared-Leadership Model

4.5.1 Introduction

This section provides the evaluation of the effectiveness of the Shared-Leadership (SL) approach to governance adopted in KEEP.

The overall partnership was managed by Kildonan which provided contract and project management services, as well as playing a mentoring and support role.

The evaluation of this component of KEEP was based on two rounds of informal "yarns" with members of the partnership. These yarns provided an understanding of the SL approach in order to evaluate it efficacy, as per the objective in the funding agreement:

- To evaluate the use of an innovative and evolving approach of SL throughout the life of KEEP towards the practice of Aboriginal 'self-determination'.

To ensure privacy, pseudonyms have been used and quotes have been adjusted to ensure participants are not identifiable.

4.5.2 Understanding Shared Leadership

The following comment from a project partner in KEEP encapsulates the general view of the SL approach:

> *I think it's that people bring their different expertise to the table and they apply that different expertise to the project. So instead of just coming from my point of view and from one organisation's point of view, we've got three different organisations with three different sorts of business, and you've got people who have got different abilities and talents that come to the table, including Kildonan. That's what shared leadership is about, it's getting the best - it's kind of like a smorgasbord of expertise and you can just pick out the best you need for the project.* – Amanda

Pearce and Conger define SL as a "dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organisational goals or both" (2003: p.1). SL is an alternative to traditional vertical or 'top-down' leadership, with leadership taking a horizontal approach. This type of management model is based on the shared governance philosophy (Jackson 2000); a framework which has an accountability-based structure in which there is a clear expectation that all members are to participate in its work and ensures that the processes of empowerment operate effectively (Porter-O'Grady, Hawkins & Parker 1997; Porter-O'Grady & Wilson 1995).

Central to the SL approach to governance is the principle that organised networks which pool resources, expertise and information can be more effective and efficient than traditional hierarchical models (Conger & Pearce 2003; Wister et al. 2014). Typically, organisations implementing a SL approach do so through a collaborative partnership or network. Provan and Kenis (2008) define network as:

> *"groups of three or more legally autonomous organisations that work together to achieve not only their own goals but also a collective goal. Such networks may be self-initiated, by network members themselves, or may be mandated or contracted, as is often the case in the public sector"* (p. 231).

There are three types of network governance structures. These are: -

1. Participant Governed Networks: This form is governed by the network members themselves with no separate and unique governance entity.
2. Lead Organisation-Governed (LOG) Networks: This form is governed by a single, primary organisation that assumes responsibility for co-ordinating all major network-level activities and decision making.
3. Network Administrative Organisation Networks: This form is governed by a separate body that acts as a broker for the network members and governs the network on their behalf (Provan & Kenis 2008).

The KEEP management and governance model was one of shared leadership, where leadership is shared between the KEEP Partnership Group organisations. Kildonan was responsible for: co-ordinating the partnership network; the funding agreements and budget; liaising with the DIIS; and signing off on external communications on behalf of the partnership. As a result, the KEEP partnership could be considered as a LOG Network.

Based on Coluccio and Havlick's (1998) research, there are four characteristics that serve to describe shared leadership, regardless of the organisation type:

1. A decentralised organisational structure.
2. A balance of staff autonomy, managerial guidance, collaborative decision making and individual accountability.
3. An environment that ensures excellence and dignity of the client.
4. A shared vision within the partnership network.

These four characteristics will form the basis for broadly evaluating KEEP's SL approach.

4.5.3 Evaluating KEEP's Shared Leadership

4.5.3.1 Broad Level Evaluation

Upon evaluating the KEEP management and governance model (see appendix F for the KEEP Project Structure) against these characteristics, it is evident that:

1. There was a decentralised organisational structure in which leadership was shared between the KEEP Partner organisations.
2. There was:
    - Staff autonomy at all levels;
    - Managerial guidance was provided overall by Kildonan;
    - Decision making was collaborative and there was evidence of individual accountability through contractual obligations and milestone reporting.
3. The partner organisations are renowned for their excellence in community service and operate in such a way that they preserve the dignity of the client which could be evidenced by their longevity in their respective communities.
2. Analysis of the interview data suggested there was a shared vision within the partnership network.

Therefore, it appears that KEEP's governance structure aimed to reflect a SL approach and achieved this through Coluccio and Havlick's (1998) four characteristics of SL. Although the broad level analysis is useful, it is not sufficiently insightful. Further, the type of shared leadership approach is important to consider. For example, it appears the SL structure that KEEP was operating under could be appropriately called a cross-cultural LOG network. The effectiveness of a LOG network SL approach adopted is based on the contingencies – trust, size, goal consensus and nature of the task (Provan & Kenis 2008). These elements serve as specific evaluation points.

4.5.3.2 Specific Level Evaluation

Trust

The KEEP cross-cultural LOG network is a type of shared leadership that requires low density, highly centralised trust (Provan & Kenis 2008). In this circumstance, the governance is brokered through the lead organisation, that being Kildonan. The trust across the network is built on the individual ties Kildonan had with the existing organisations. The existence of the co-leader model including the three Aboriginal organisations representing the Victorian Aboriginal communities increases the trust density of the network than would otherwise be the case with a hierarchical or vertical governance structure. For example, if KEEP was led by only one of the organisations, the level of trust would be considerably lower. Under the KEEP structure, decisions made by KEEP's co-leaders were supported to a greater degree leading to greater effectiveness. For instance, one participant said:

> *"It's discussed and agreed, it's a consensus … I've never disagreed. After we've had a discussion we've never actually disagreed on the end product."* - Amanda

Therefore, while the trust may have been low density overall as the organisations had not worked together previously, except for collaboration with Kildonan, the role of the lead organisation brokering the trust between the other partners was critical to the effectiveness of the cross-cultural partnership. If this approach was adopted again in the future for a cross-cultural collaboration, we would recommend ensuring a strong lead organisation taking time to develop trust between network members and ensuring adequate trust density between members.

Size

The biggest difficulty in shared governance is accommodating the needs and activities of all the members (Provan & Kenis 2008). Under this approach, both collective/shared leadership and individual leadership are important in achieving shared leadership of a network (Weibler, 2010). The KEEP partnership was a relatively small network of organisations, under these conditions, shared self-governance is highly desirable by network participants and this was the case within the KEEP partnership. As issues arose, the partnership preferred to meet face-to-face to discuss and resolve issues. However, SL was highly inefficient as time was spent trying to co-ordinate the partnership which, on occasion, led to a delay in addressing critical issues. This appears to have impacted on the effectiveness of the approach. However, while this was slightly alleviated through the use of the LOG network, in order to be more effective, we would recommend organising structured processes to ensure efficiency.

Goal Consensus

For effective shared leadership, a high level of goal consensus is necessary (Margerum, 2002; Wister et al. 2014), although, in a LOG network, goal consensus can be relatively low if the lead organisation assumes most of the strategic and operational decisions (Provan & Kenis 2008). In the KEEP cross-cultural LOG network, the overarching goal of addressing energy hardship in the Aboriginal communities in Victoria was consistent throughout the partnership. However, in reaching that goal the partnership encountered conflicts about operational goals (i.e. funding requirement milestones and evaluation targets) which resulted in members of the partnership being only partially committed to certain operational goals. This appears to have impacted on the effectiveness of the approach and in the future it is recommended that partners reach agreement through consensus early in the project about the shared task that is being undertaken and the role each member will play.

Nature of the Task

Shared governance LOG networks are most effective when the need for network level competencies is moderate (Provan & Kenis 2008). Two issues must be taken into consideration to determine the level of network-level competencies required; firstly, the nature of the task being performed; secondly, the external demands and needs of the partnership. If the internal demands (i.e. the nature of the task being performed) requires considerable interdependent interaction between members, the governance structure needs to be able to facilitate this. For example, coordinating skills and task specific skills will need to be present (Provan & Kenis 2008). External demands include acquiring funding, building external legitimacy and adjusting to shifts in government policy and/or requirements. Responding to these demands may require certain competencies at the governance level. IIn the case of KEEP, internal demands required considerable interaction between members as they shared expertise on areas of: energy efficiency;Aboriginal hardship and participation in the sector; cultural knowledge; and research. External funding requirements required the partnership to be highly responsive to its demands which required centralised action which may have been difficult if the response was decentralised. It appears that KEEP's SL LOG network was particularly effective in this case, moderating and negotiating the internal and external environments of the task that the partners were collectively undertaking. As one project partner said:

> *"Because as an Aboriginal organisation, we don't have the resources that mainstream do … it's important for us to have those sort of partnerships, relationships with … [other organisations] like that."* – George

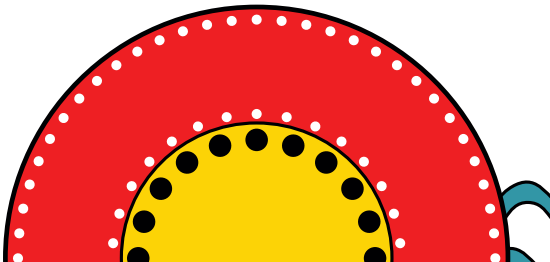
Trade-Offs

The KEEP cross-cultural LOG network structure was susceptible to the trade-off's listed below;

1. Efficiency Vs Inclusiveness: In a LOG network, trade-offs will occur and typically favour efficiency (Provan & Kenis 2008). The more partners are involved in the decision making process, the more time consuming and resource intensive the process will be and thus become inefficient. Due to the nature of KEEP, it appeared that inclusiveness was paramount to ensure the cross-cultural governance structure was both culturally respectful and shared between each partner.

   > *"So that's part of why I've been really firm on wanting to have the shared decision making, because otherwise we could be making decisions on a day to day basis that affect the workers that are not actually … our overall responsibility or line [of] management."* - Gemma

Further, the structure allowed the lead organisation to increase the administration efficiency of the network. While there appeared to be more efficiency, this resulted in a trade-off with inclusiveness and a reduction in the commitments of the other organisations to focus on the needs of the lead organisation. In the case of KEEP, this appears to have hindered the effectiveness of the overall partnership.



2. Internal Vs External Legitimacy: A LOG form of SL is especially suited to addressing the needs of external legitimacy (Provan & Kenis 2008). The lead organisation may already have legitimacy which may be leveraged by the network as a whole. The lead organisation gives the network a 'face' which can secure funding, deal with government, and allow the network to be seen as an entity in their own right, rather than as a disparate group that come together opportunistically. Accordingly, the lead organisation should maintain and build trust among participants to increase internal legitimacy. In the case of KEEP, Kildonan, as lead organisation, worked effectively on developing internal legitimacy within the partnership to ensure tensions and conflicts between partners were minimised, contributing to the effectiveness of the partnership. One participant stated:

   "It doesn't feel [like we are Kildonan's client] ... I think they know we need them as much as they need us so I think there's a mutual respect and admiration for what we do." – Felicity

   Partners were also able to leverage off Kildonan's external legitimacy when forging relationships with the energy hardship teams. However, it appears that the research partner needed to be included during the earlier building of the internal legitimacy as it was invariably viewed as an outside organisation and this hindered the effectiveness of the overall partnership.

3. Flexibility Vs Stability: In LOG networks the trade-off between flexibility and stability will favour stability (Provan & Kenis 2008). As part of Kildonan's mandate as lead organisation, they ensured a formalised structure that was sustained overtime in order to continue the funding and the stability of the partnership network. In the case of KEEP, Kildonan, as lead organisation impelled the partnership to meet milestone targets to ensure the project's funding was not at risk and milestone payments were made and distributed among the partnership. Kildonan also played the role of advocating to the Department in relation to the need for flexibility and the impact of changing timelines and additional requirements on the project. Meeting the funding agreement demands however created tension within the partnership as Aboriginal partners required flexibility in working within their respective communities and meeting the milestone targets. Without flexibility, the time pressure created a burden on the Aboriginal organisations and their employees delivering the project. As one project partner said:

   "It's three years of nonstop pressure. It's been the hardest - probably this has been the hardest quarter and so the pressures, we're feeling really frustrated with that. But when you think about the workers, they're never without the pressure. A three-year project is just full of pressure for three years, I would get sick of it. You can't do it; you can't continually do it." – Amanda

   Notwithstanding this burden, each milestone was met; however, in the case of KEEP this appears to have hindered the effectiveness of the partnership as this was not resolved over the course of the project.

   Analysis of the interviews conducted suggests that a SL approach is not easily implemented between Aboriginal and non-Aboriginal organisations. There are many reasons for this, including issues relating to trust, size, the nature of the task at hand and efficiency, but the primary reason appears to be goal consensus. A shared consensus about the shared task that was being undertaken and the role each member will play in this was not reached early in the life cycle of the project. Further, the KEEP cross-cultural LOG network structure was susceptible to the trade-off's. In the case of KEEP, these trade-offs appear to have hindered the effectiveness of the SL approach.

4.5.3.3 Benefits of the Approach

The development and implementation of the SL approach in KEEP was unique among other LIEEP projects. The approach enabled community service organisations, both Aboriginal and mainstream, to build effective partnerships, with the aim of developing and delivering highly effective energy efficiency strategies to Aboriginal communities. Analysis of the interviews conducted with KEEP project partners and CDOs revealed a range of positives that resulted from using this approach (for further details, see Johansson et al, 2016a and Johansson *et al,* 2016b). Numerous benefits have been identified and grouped according to "project" and "partner" benefits.

Benefits for the Project:

- Project components and project evaluation were designed and informed by all partners which allowed for optimal delivery of support to Aboriginal households;
- In-home service support initiatives, together with promotional material, were designed by partners together, so that cultural suitability and reach was achieved;

  "the development of the materials, I mean the logo, the flyers, the posters, it all looks great. The 10 energy saving tips poster that we've got is mainly diagrammatic, that stuff's inspired, you know? That's exactly the culturally appropriate material that we needed; that's been an achievement." - Peter
- Identifying and solving problems was optimised as Aboriginal partners informed what would be culturally appropriate solutions while non-Aboriginal partners informed what would be robust and acceptable to the government funding body;

  "For us, I think the biggest thing is the cultural elements because I think Kildonan can do all the rest. But I think culturally we've had to really fill in all the gaps for them, you know? And then the team. I mean there's a good team of Aboriginal people there, but also we've been able to [fill the gaps] at a leadership level, … we've been able to bring in those cultural discussions and implications of whatever they were putting forward or whatever the case might be." – Felicity
- Aboriginal organisations have the trust and confidence of the community and thus provided the project with access to, and participation of, Aboriginal households. This 'reach' could not have been achieved without their involvement, and similarly, it is unlikely that the multi-million dollar grant to fund the project would have been won without the involvement of the non-Aboriginal partners.

Benefits for the Partners:

- Understanding the challenges involved in delivering a large scale project to Aboriginal people were heightened for all, as issues were discussed, and decisions made, in unison by sharing both cultural knowledge and relative expertise;
- By 'sitting at the table' together, partnerships between Aboriginal organisations, and between all partners, were forged, leading to both a shared understanding in the project, and the strengthening ideal to work collaboratively in future projects.

  "A major accomplishment is bringing the team together. Us working together as a team, nothing more important than that. They've gotten to know each other a lot better. And that's a benefit for the community because it creates a bit more trust. They can support each other more now ... So that opens up doors as well. So it's created that friendship and trust factor as well. So that's the most important thing that come out of the project, to support the delivery of the project" – John

- The KEEP partnership involved significant capacity-building of participating organisations. This included building staff knowledge and understanding of energy efficiency, increasing organisational ability and staff skills in producing high-quality social marketing material, enhancing capacity to build partnerships with other Aboriginal and mainstream community organisations and to deliver a large scale project. The role of Kildonan was significant in building organisational capacity in the KEEP Project. The experience also resulted in a significant number of CDOs suggesting that they are likely to continue to work in the energy efficiency space.

  "I think what's worked well, in my observation, is when the Aboriginal services started to deliver the services in a way that worked for them. So I think that there have been real benefits for employment, training [and] service delivery … that's all really positive." – Vera

  "That this project is actually doing things with Aboriginal people and it's actually being done by Aboriginal people" – Emma

4.5.3.4 Challenges of the Approach

Challenges of the Approach

The shared leadership approach in KEEP highlighted some key challenges in its implementation. A range of over-arching key factors were identified from the analysis of those interviewed. They are summarised as follows:

- Balancing the tensions between funding body requirements, ethical research requirements and the Aboriginal organisation's requirements for culturally appropriate service delivery was a challenge.

  "Balancing the tension … the real purpose that Aboriginal people see the project as being to assist families, and all this other stuff; reporting to Canberra, … collect data, get it in the database, get consent forms signed, blah, blah, blah, that's all white fella stuff. It's that continual tension all the time. [But] it's what we have to do. It's just all the time, this tension. That's the biggest challenge. I think also trying to get that message across to the federal government has been really difficult… You need to understand that … sitting in an office in Canberra, designing a project, isn't necessarily going to suit our practical people out in the field. You've got to get that." – Peter

- The roles, tasks and responsibilities for each person were not clear for everyone, and there seemed to be different views around accountability.

  "if there was a clear agreement in place of each other's responsibilities … [and] clarity on each other's roles [then] a lot of these issues would've been overcome at the start." – John

Conclusion of Shared Leadership Evaluation

The effectiveness of a LOG network SL approach adopted was evaluated in two ways: firstly against Coluccio and Havlick's (1998) broad understanding of SL where it was clear that KEEP satisfied all the requirements of having a decentralised structure; created a balance of individual and group autonomany and decision making; implemented practices towards excellence whilst ensuring dignity of those involved; had a shared vision towards supporting the Aboriginal community. Secondly, KEEP's SL approach was evaluated more specifically against Provan and Kenis's (2008) four contingencies for effectiveness – trust, size, goal consensus and nature of the task. It also examined the trade-offs that occurred and provided the benefits and challenges experienced from and during the project. It was found that trust, size, goal consensus and nature of the task were partially fulfilled. The findings suggest that a SL approach was not easily implemented between Indigenous and non-Indigenous organisations. The primary reason for this appears to be difficulty establishing trust among all partners, CDOs and other KEEP workers, followed by goal consensus, as only a moderate level of achieving shared consensus about the tasks that were being undertaken was reached. Further, although roles were defined, there remained a lack of clarity about the role each member was meant to play. Further, the SL approach was susceptible to trade-offs such as efficiency over inclusiveness, external over internal legitimacy and stability over flexibility, which, to some extent, hindered the effectiveness of the partnership.

However, many benefits of using this approach were uncovered which in themselves served as a trade-off to the difficulties. The positive outcomes of the KEEP SL approach included the enabling of community service organisations, both Aboriginal and mainstream, to build effective partnerships; and to, in unison, develop and deliver highly effective energy efficiency support to Aboriginal communities in a culturally appropriate way. This enhanced the knowledge and skills of all partners. Challenges that were uncovered included balancing the tensions between funding body requirements, ethical research requirements and the Aboriginal organisation's requirements for culturally appropriate service delivery.

Overall, the SL approach was found to be an effective approach to deliver the KEEP project in a culturally appropriate manner. It appears that more Aboriginal families and households were able to receive support due to the collaboration and SL adopted by KEEP. Further, skills and knowledge development of Aboriginal partners and employees, as well as knowledge development of non-Aboriginal partners were enhanced. Therefore, this approach should be considered when implementing other projects that are seeking collaboration between mainstream and Aboriginal organisations.

Some key considerations in adopting this approach in future would be to ensure there is a strong and supportive coordination partner in the lead organisation role, and that goal consensus and roles are clarified from the outset of the project. Also, future projects adopting SL should consider allowing ample time to complete tasks which would reduce pressures within the partnership to ensure strong working relationships. This would reduce the trade-offs and optimise outcomes. Funding bodies should also ensure that their requirements are culturally appropriate, for example; allowing for flexibility in delivery time, streamlining and aligning their priorities between the prescribed research objectives and the service delivery priorities of Aboriginal organisations in helping their 'mob'.

5. Project Financial Report

A final audited acquittal will be provided to DIIS following conclusion of the project.

The KEEP Budget is included as Appendix G.

6. Benefit Analysis of KEEP

6.1 Cost-Benefit Savings Analysis

6.1.1 Costs of a Home Visit

The tables below set out the allocated costs for each cost level as requested by the DIIS. Cost figures at the time of writing this report were available up until 31st March 2016. The allocations are based on assumptions made.

All cost levels require knowledge of cost level 1, which reflects the cost of the HVs. Accordingly, the following costs were calculated:

- Cost level 1: The cost of delivering a trial to a participant
- Cost level 2: Cost level 1 plus the cost of recruitment and maintaining a participant
- Cost level 3 : Cost level 1 and 2 plus the cost of running an organisation to do the above
- Cost level 4: Cost level 1, 2 and 3 plus the cost of participating in a Government funded trial

Cost Level 1 Analysis

Cost level 1 calculations reflect the cost of delivering a HV to an Aboriginal household. These were made using a range of items presented in Table 52 below.

The calculated costs are thus determined based on whether the HV occurred in metro-Melbourne, regional Victoria or rural Victoria. From Table 53, it is evident that the average cost per HV was $376.

Table 52: Items Used to Calculate Cost Level 1 for Delivering a HV

Home Visit	Direct Cost Items Included
Metro, Regional and Rural	Salaries and on costs including energy mentor, admin officer based on estimated time spent per visit
	Sub-contract payments – Aboriginal Energy Workers and operational costs based on time spent on each visit
	Accommodation
	A portion of motor vehicle costs
	Incentive vouchers
	Show bags

Table 53: Cost Level 1: The Cost of Delivering a HV

ITEM	Cost per HV	Number of visits to 31 March 2016	Total cost
HV - Metro	$347	930	$322,710
HV - Regional	$448	186	$ 83,328
HV - Rural	$488	124	$ 60,512
Total		**1240**	**$466,550**
Average cost per visit			**$ 376**

Cost Levels 2, 3 and 4 Analysis

The total number of participants in the KEEP project at 31 March 2016 was 4,111 comprising 1240 home energy visits and 2871 participants who attended a CommEd. Table 54 below provides the calculations of the total costs as well as the cost per participant for all participants in the project for cost levels 1, 2, 3 and 4.

Table 54: Cost Calculations in Total and per Household or Participant for All Cost Levels

	Cost level 1	Cost level 2	Cost level 3	Cost level 4	Total costs to 31 March 2016
Cost of delivery – 1240 home visits to 31 March 2016	$466,550	$3,827,973	$4,444,329	$5,029,440	$4,771,040 costs incurred $258,400 in kind $5,029,440 total
Cost per participant given 1240 Home visit participants	$376				
Cost per participant given all 4111 participants		$931	$1081	$1223	

6.1.2 Benefits (Energy Savings) of a Home Visit

The graph below (presented earlier in section 4.2.3) shows the median average consumption by month for participants prior to a HV and then after a HV. Figure 37 shows significant differences in results depending on the month of the year.

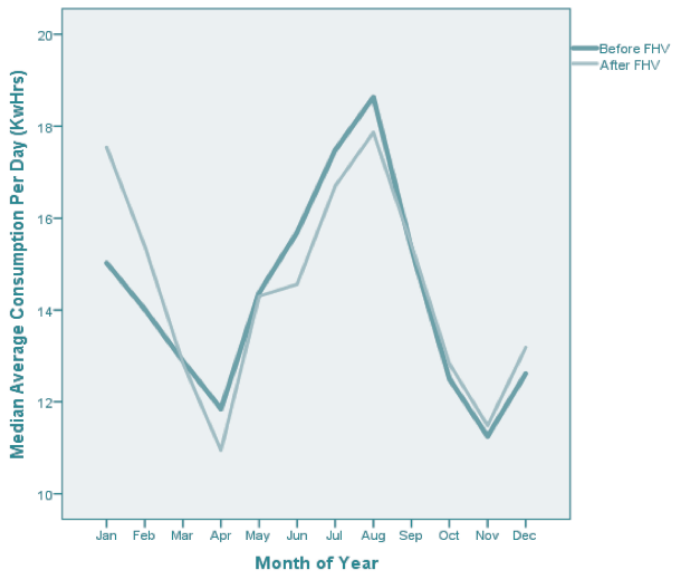


Figure 37: Median Electricity Consumption Rate by Month of the Year

This variation means applying average costs to energy use across the year would produce meaningless results. Accordingly, for the purpose of this analysis, the months of the year were grouped so that April-August reflect “cooler months”; Sept-Dec reflect “milder months” and Jan-Mar reflect “hotter months”. The energy average energy savings per month, per grouping are presented in Tables 55, 56 and 57 below.

Table 55: Median Energy Consumption for Cooler months with Energy Savings after a HV

MONTH	Median Consumption kWh per day BEFORE home visit	Median Consumption kWh per day AFTER home visit	Change (+/-)	No of days	kWh saved
April	12 kWh	11kWh	-1 kWh per day	30	30
May	14.4 kWh	14.4 kWh	0	31	0
June	15.8 kWh	14.2 kWh	-1.6 kWh per day	30	48
July	17.5 kWh	16.5 kWh	-1 kWh per day	31	31
August	18.5 kWh	17.9 kWh	-0.6 kWh	31	18.6
Total kWh saved in cooler months					127.6 kWh
Total days					153 days
Average saved per day					**0.833 kWh**

Table 56: Median Energy Consumption for Milder months with Energy Savings after a HV

MONTH	Median Consumption kWh per day BEFORE home visit	Median Consumption kWh per day AFTER home visit	Change	No of days	kWh saved / increase
Sept	16 kWh	16 kWh	0	30	0
Oct	13 kWh	13 kWh	0	31	0
Nov	11.5 kWh	11.5 kWh	0	30	0
Dec	12.8 kWh	13 kWh	+0.2 kWh	31	6.2 kWh increase
Total kWh saved in Milder months					**0.0 kWh**

Table 57: Median Energy Consumption for Hotter months with Energy Savings after a HV

MONTH	Median Consumption kWh per day BEFORE home visit	Median Consumption kWh per day AFTER home visit	Change	No of days	KWh saved / increase
Jan	15 kWh	17.8kWh	+2.8 kWh per day	31	+86 kWh per day
Feb	14 kWh	15.8 kWh	+1.8 kWh per day	28	+50 kWh per day
March	13 kWh	13 kWh	0	31	0
Total kWh saved in hotter months					136 kWh
Total days					90 days
Average saved per day					**1.5 kWh**

For the cooler months the cost per reduction in kWh can be calculated, as well as the ratios, to reflect the cost-energy savings benefits, see Table 58.

Table 58: Cost-Benefit Analysis and Ratios in Cooler Months after a HV

Cost Level	Associated Calculations
Direct cost	$376
Energy consumption reduction	0.833 kWh per day
Energy cost reduction per quarter (assuming average kWh at $0.20)	$15.32 per quarter
Cost effectiveness ratio	451
Cost benefit ratio	24.54

Conclusion on energy savings benefits

The energy savings were made in the cooler months and this averaged 0.833 kWh per day. This could be explained by changes to draught proofing and space heating methods. Energy consumption increased during hotter months and virtually stayed the same in milder months. Anecdotal evidence and results from the qualitative evaluation work suggest that many Aboriginal families were at the time of the home visit already struggling with bills and were under-utilising their power usage, that is they were going without due to pre-existing financial struggles with bills and no or a poor relationship with their retailer. The home visits resulted in concessions being obtained, grants and payment plans being negotiated which may have given families the confidence to start using their power to meet their needs rather than continue to self-sacrifice. This factor combined with less opportunity to implement energy efficient measures in milder and hotter months may explain the increase in usage.

6.2 Co-Benefit Analysis

Although for many LIEEP projects the primary aim was to reduce household energy consumption, for KEEP, this was a secondary consideration. The primary aim of KEEP was to help improve the quality of life experienced by many Aboriginal Victorian families and households, and so the co-benefits thus assumed a primary focus. As a result of KEEP HVs and being involved in KEEP, numerous benefits ensued. While most of these co-benefits have been presented periodically throughout this report, they are summarised below in two sections: co-benefits for households and co-benefits of those involved in running KEEP.

For Aboriginal Households

1. **Increased implementation of energy-savings activities around the home: 52%-67%**

   Evidence for this is drawn from the quantitative surveys and qualitative analysis. From the surveys, it is evident that an increase in ***the frequency of doing energy-savings activities around the home went up by 52% for trial 1 (SHV) and 67% for trial 2*** (SHV-IHD) (see Table 20a). Analysis of the open-ended survey questions reveals that the most frequent tips implemented include changing light bulbs to more energy efficient bulbs; adjusting thermostats on heaters, coolers and refrigerators to reduce energy use; using more effective heating alternatives (e.g., disposing of blow-heaters); adjusting other appliance usage (e.g., using dryers less, turning off appliances at the wall); managing thermal comfort (e.g., using draught-stoppers, closing doors went leaving a room).

   An additional benefit from implementing such tips is the savings on bills. Many households expressed they were saving, for example, one said *"…my bills have dropped $300 - $350".* For any household experiencing a bill reduction, their ***disposable income will increase,*** allowing them to spend funds on other areas, including essentials such as food.

2. **Increased competency regarding energy efficiency in the home: 54% - 77%**

   Evidence for this is drawn from the KEEP surveys. Competency is described as an understanding of the various parts of an energy bill, explaining energy bills to others and helping out friends and family by sharing knowledge on energy-savings tips with them. From the analysis, it is evident that ***competency increased by 54% for trial 1 (SHV) and 77% for trial 2 (SHV-IHD)*** (see Table 20a). This finding is further supported by the qualitative analysis and open-ended survey responses revealing that help with understanding energy bills was a critically important part of the KEEP HV for Aboriginal households.

   Discussing energy and other wellbeing issues with others also brought about a wider co-benefit of social and family reconnection. For example, CDOs invariably assisted many households to engage with wider social services such as Koorie Connect and other community members. In some instances these interactions resulted in reconnection with extended family members.

Case Study 8

An unexpected co-benefit

A KEEP CDO received a referral from John's financial counsellor and made a time to visit him in his home. The KEEP CDO contacted the retailer and advocated on John's behalf, arranging for the gas to be reconnected the following day and for John to placed on their hardship program with payments he could afford within his tight budget.

A week later the CDO contacted John to see how he was going only to discover the gas hadn't been reconnected. John had lost so much faith in the retailer he was afraid if he contacted them about being reconnected he'd get the same answer he'd always received. The KEEP CDO immediately rang the retailer and arranged for John's gas to be reconnected that day.

Because the retailer had let John down, the KEEP CDO lodged a complaint with the Energy and Water Ombudsman of Victoria. The case was found in favour of John and the retailer ordered to pay an amount toward his accumulated arrears.

While working with John the KEEP CDO asked John about his family connections, as is common within the Aboriginal community. The CDO discovered John was estranged from his father, having been moved away from him when he was quite young, and he hadn't had contact with this father's side of the family for most of his life. Being well connected in community, the KEEP CDO was able to identify some of John's cousins living in Victoria and put him in touch with them. Through these contacts John was also able to be reunited with his father and his father's side of the family.

John is now living more comfortably financially and is enjoying his new found connection with his extended family, which has strengthened his sense of identity and belonging.

3. Increased confidence with managing energy use and dealing with providers: 150% - 238%

Confidence is described as a combination of knowledge (K) and behaviours regarding energy bills (B) and providers (C). The findings demonstrate that Aboriginal household ***confidence increased by 150% for trial 1 (SHV) and 238% for trial 2 (SHV-IHD).*** The mean increases per item for each trial are presented below in Tables 59 and 60.

Table 59: Improvements in Aboriginal Household Confidence with Managing Energy and Dealing with Providers for SHV (Trial 1)with Providers for SHV (Trial 1)

Energy Confidence Items	Yes % *		
	FHV (n=116)	FPF (n=118)	% Change
B: Do you usually check all parts of your energy bills?	26.7%	89.80%	236%
K: Do you know about concessions you can get?	35.6%	97.50%	174%
C: Can you afford to contact your energy provider?	64.7%	94.10%	45%
C: Do you usually find your energy provider easy to deal with?	29.3%	59.30%	102%
C: Do you think energy providers charge different rates?	47.8%	91.50%	91%
C: Do you think it is easy to change energy providers?	25.2%	88.90%	253%
Average Improvement			**150%**

Table 60: Improvements in Aboriginal Household Confidence with Managing Energy and Dealing with Providers for SHV-IHD (Trial 2)

Energy Confidence Items	Yes % *		
	FHV (n=22)	FPF (n=22)	% Change
B: Do you usually check all parts of your energy bills?	18.20%	90.90%	399%
K: Do you know about concessions you can get?	27.30%	77.30%	183%
C: Can you afford to contact your energy provider?	63.60%	72.70%	14%
C: Do you usually find your energy provider easy to deal with?	13.60%	54.50%	301%
C: Do you think energy providers charge different rates?	27.30%	77.30%	183%
C: Do you think it is easy to change energy providers?	18.20%	81.80%	349%
Average Improvement			**238%**

These results indicate that, after a KEEP HV, many households were able to access their retail energy providers in a way they had not experienced before. For example, many participants were able to access services and actions available through their energy retailer which they were not previously aware were available. These included:

- Utility relief grants
- Concessions
- Payment plans
- Debt waiver

A number of households also avoided disconnection due to the CDO advocating on their behalf, or were assisted with their representations to the Energy and Water Ombudsman of Victoria (EWOV), which were all favourably resolved in the householder's favour. Participants told CDOs they did not previously know about this course of action being available to them.

4. Reduced levels of household energy-related stress: 19% - 27%

Reports from CDOs and Aboriginal households reveal a consistent benefit of a KEEP HV was that the householder felt less stressed about their energy bills and energy use. This is evidenced from the survey responses (which especially aimed to capture this distress) and from the open-ended survey questions. From the surveys, it is evident that ***energy-related stress reduced by 27% for the SHV (trial 1) and 19% for the SHV-IHD (trial 2).*** Further evidence is drawn from one of the open-ended survey questions where respondents commonly said that due to a reduction in their bills they *"now feel a lot more relaxed"* (Aboriginal householder). Similarly, CDO case studies presented throughout this report indicate that people felt relieved that someone cared and took the time to explain things to them.

5. Reduced levels of household energy-related discomfort: 5% - 14%

Discomfort in the home due to energy use is captured by thermal comfort (being too hot or too cold), limited appliance usage due to overly high bills and general comfort and well-being due to energy use. After a KEEP HV, analysis of survey responses reveals that ***energy-related discomfort reduced by 14% for SHV (trial 1) and 5% for SHV-IHD (trial 2).*** Examples of this are open-ended survey responses alluding to using heating more frequently, but now on a lower temperature.

6. **Increased willingness to reduce household energy use: 14%**

   A single survey item addressed the notion of 'willingness' and analysis reveals that ***householder's willingness to reduce their energy use increased by 14%*** across trials 1 and 2. Separate analysis per trial was not conducted on this item.

7. **A new refrigerator for some households: 105 by project completion**

   Due to the extreme hardship some Aboriginal households were experiencing, KEEP introduced a "refrigerator replacement program". The criteria was that the family or household had an old and non-efficient fridge, and were on financial support or a hardship payment play with their energy provider. To date, 84 refrigerators have been installed in Aboriginal homes throughout Victoria, with a further 21 to be delivered. Of the 84, 21 households did not have their own refrigerator and were either borrowing an old one from someone they knew, using an "eksy" or living without any form of refrigeration, and many of those had small children. Many householders revealed that they had to regularly throw away food because they had no way of keeping it fresh. With deep gratitude and tears of relief and joy, householders were grateful for the support provided by KEEP in replacing their old refrigerator, or providing them with one.

Case Study 9

Helping with Access to Support

When a KEEP CDO visited Alison she was extremely distressed. She had received disconnection notices from both her electricity and gas retailers, with unpaid bills amounting to $2500, which she'd accumulated over the past 18 months to 2 years, and had no means of paying them. She had broken three or four payment plans the retailers had put in place, so the retailers had lost sympathy and patience with Alison and refused to renegotiate a new payment plan. Instead they were threatening debt collectors if she didn't pay the outstanding bills.

Prior to these unusually large bills, Alison had always managed to pay her utility bills on time and was rarely in arrears. On further investigation the KEEP CDO discovered Alison's bills had increased significantly when she offered to help out a family member and her two children who needed accommodation. The small family came to stay with her for an extended period, and energy usage increased leaving Alison with a large bill she didn't have the capacity to pay. As Alison struggled to meet her various financial commitments, she fell further and further behind, breaking payment plans in favour of paying for other things. Two years on and shut out by the retailers, Alison didn't know where to turn.

The KEEP CDO immediately contacted the retailer's hardship programs. Initially they were reluctant to help Alison, but the KEEP CDO convinced them to keep Alison connected and negotiated a sustainable payment plan that Alison would be easily able to manage within her limited income, with a three month review point.

The CDO also provided Alison with some tips to reduce her energy use and thus her bills. Alison put these into practice and this time was able to maintain the payments. At the three month review Alison was able to increase her repayments a little which allowed her to chip away at her arrears amount. As a reward the retailers agreed that if she kept up with her regular payments they would contribute a one off payment every fourth payment to help her reduce the arrears amount owing. Alison was delighted that KEEP was able to help her resolve a problem that had plagued her for nearly two years. The $50 voucher she received after the Home Visit was also put to good use in filling the pantry for her small family.

"Community help community, it's how things work, and sometimes in doing that people get caught out with a big bill they just can't get on top of. KEEP can help them sort it out and get them back on track again. It's a huge relief for them." (KEEP CDO)

For KEEP Partners and Employees

8. Improved cultural understanding across the KEEP consortia

From the evaluation of the shared-leadership model used in KEEP, together with feedback from project partners and the CDO focus group, it is clear that while some cultural divides remain, both Aboriginal and non-Aboriginal people involved in KEEP now feel a greater understanding of each other's cultures. This means that a two-way cultural exchange took place during the life of KEEP which will stand all parties in good stead for working in future cross-cultural collaborations.

Further, non-Aboriginal people involved in KEEP were able to learn more about the cultural history of Australia, and benefit from learning about Aboriginal Peoples in Victoria, and in general.

9. More insight on project and evaluation methods when working with Aboriginal communities

Understanding the challenges involved in delivering a large scale project to Aboriginal people were heightened for all, as issues were discussed, and decisions made, in unison by sharing both cultural knowledge and relative expertise. By 'sitting at the table' together, partnerships between Aboriginal organisations, and between all partners, were forged, leading to both a shared understanding in the project, and the strengthening ideal to work collaboratively in future projects. This is evidenced from the qualitative analysis of the project partners meeting.

10. Improved capability and skills of Aboriginal community development officers

In total, the KEEP project employed eight Aboriginal CDOS through partner agencies, three team leaders and employed a further three Aboriginal staff within the Kildonan project team. This employment has allowed the workers to learn new skills, earn an income to support their families and add to their employment history thereby improving future job prospects. Skills development was beyond conducting an energy audit itself. For example, one CDO commented *"no way could I present to people when I started".* Whereas now, all CDOs are accustomed to speaking to large groups of people at CommEds, chatting to strangers in a supportive encouraging manner, feeling confident in their own knowledge and ability to help others, and feel they have grown throughout the course of the project.

Furthermore, the KEEP partnership involved significant capacity-building of participating organisations. This included building staff knowledge and understanding of energy efficiency, increasing organisational ability and staff skills in producing high-quality social marketing material, enhancing capacity to build partnerships with other Aboriginal and mainstream community organisations and to deliver a large scale project. The role of Kildonan was significant in building organisational capacity in the KEEP Project. The experience also resulted in a significant number of CDOs suggesting that they are likely to continue to work in the energy efficiency space.

11. Greater insight in working with Commonwealth government departments

As a result of being involved with LIEEP and in developing working relationships with numerous LIEEP employees and managers, KEEP managers and partners all benefited in terms of: having a greater understanding of how to meet government requirements; developing grant applications; meeting national project objectives; and preparing clear reports of the findings. Receiving feedback from various people throughout the project, and in particular, in report preparation, was insightful, helpful and developed the knowledge of those involved.

In addition, in working on a project with a socially valuable outcome in that it helped vulnerable people, and which was funded by the government, was both rewarding and uplifting. It is evident that with government and non-government bodies adopting cross-cultural collaborations, significant and much needed changes can ensue.

12. Heightened opportunities for future research collaborations

For many LIEEP projects, relationships among consortia and research partners were forged, and KEEP is no exception. This has set the foundation for future collaborations where parties understand the skills set of each other and can work more effectively together to design and work on future projects targeting those in need.

From the research partner perspective, the opportunity to develop relationships beyond the project, with researchers across the country on energy efficiency, has enabled a collective and collaborative association to form which aims to continue to support government and non-government initiatives towards supporting energy efficient outcomes for Australia's future (GEEAR: Group of Energy Efficiency Academic Researchers).

Energy Retailer Benefits

13. Improved outcomes for energy retailers

While no specific evaluation was conducted with regard to the benefits of energy retailers, it is reasonable to assume that they accrued some benefits from KEEP. This could include:

- A reduction in EWOV complaints and resultant penalties;
- Aboriginal customers moving onto payment plans or more affordable payment plans which results in less debt write off into the future; and
- Increased customer satisfaction and confidence with the retail business resulting in increased future interaction.

14. Environmental benefits

The environmental benefit of the project is in reduced greenhouse gas emissions and a reduction in carbon pollution over time. A quantification of this outcome has not been undertaken as the extent of greenhouse gas emission benefit cannot be accurately modelled. It is reasonable to assume that these reductions will come about as participants share their knowledge and energy saving tips.

In summary, the stories and data analysis from KEEP reveal a consistent message: that Aboriginal households have benefited in numerous ways, and so have those who were involved in designing, managing and implementing of KEEP. By adopting a shared-leadership model and training Aboriginal people to deliver support to Aboriginal households, KEEP enabled self-determination for Aboriginal people, and householders feel a greater level of empowerment regarding home energy and are less confounded and distressed about how to manage their current and future bills. All involved now feel a greater level of confidence in working on future projects, cross-cultural collaborations, and working with government bodies to achieve improved social outcomes for those who are most vulnerable.

7. Recommendations

1. **Projects should be designed by Aboriginal people and delivered by Aboriginal people when they are for Aboriginal people**

   Explanation: to gain access to vulnerable people, trust is key. For Aboriginal people in particular, especially those on low income and who are struggling financially, there is a reluctance to have strangers come into their home. This is compounded by the negative experiences of many Aboriginal people due to past mistreatments. Accordingly, when trying to help such communities, it is important that support is delivered to them by other Aboriginal people, where building a rapport and trust is a key step before support is received.

   Evidence: the qualitative data analysis with Aboriginal households, CDOs and KEEP project partners revealed that this was paramount for Aboriginal households and that KEEP would not have been successful in supporting so many people had non-Aboriginal people tried to deliver home support. Further, by involving Aboriginal organisation in the consortia, KEEP was constantly well-guided in cultural protocols so that all recipients were treated with respect and dignity. Additionally, it was the Aboriginal community organisations that had network connections with local Aboriginal communities, as well as the community networks of CDOs, that allowed so many households to be reached in a relatively short period of time.

   References: the importance of trust is key to building relationships, which is particularly important when developing collaborative projects and reaching Aboriginal people (see Bedggood, et al., 2016; Christopher, 2008; Bennet, *et al.,* 2011).

2. **Future programs for Aboriginal people should avoid using Randomised Control Trials as a research design, and refrain from using quantitative methods wherever possible**

   Explanation: This recommendation is key for numerous reasons: firstly, that RCTs, while a robust scientific method for determining cause and effect, are rarely useful when conducting studies involving people particularly in social sciences; secondly, that this method is completely unsuitable for research with Aboriginal Peoples, and interpreted by them as being culturally insensitive and disrespectful. *"This means doing experiments on our people!"* was a comment made by an Aboriginal person during a KEEP meeting. Worse, the requirements to conduct RCTs, have been an ongoing source of frustration and stress for all involved in KEEP. There should always be a compromise between theoretically sound approaches to research, as viewed through the lens of scientific researchers, and the practical considerations of obtaining data of that ilk with people with different cultural values and protocols. Research methodology should thus always be guided by respecting cultural differences if the data are to be collected from those people.

   RECOMMENDATION

   Avoid using Randomised Control Trials

   "This means doing experiments on our people!" (Aboriginal KEEP member)

Evidence: KEEP's biggest struggle was the disconnect between how Aboriginal partners, CDOs and households saw the project and how others saw the project. Somewhere in between lay the research partner. But it appeared that the CDOs struggled the most, as evident from the focus group interviews, which was corroborated time and again by project partners throughout the life of KEEP. Although KEEP achieved significant outcomes for Aboriginal communities in Victoria, having to conduct a highly quantitative project, with lots of paperwork, left them pressurised and somewhat resentful. This view was echoed throughout the KEEP partnership (see qualitative findings). Even some households involved in KEEP complained of the paperwork (e.g., consent forms). The following quote captures this well:

Quantitative data collection is not the best way to go when working with Aboriginal people. Questions, surveys and signatures up front is not the Aboriginal way

and

The bulk of evaluation should be qualitative (i.e. case studies and story-telling), not the other way around

(two KEEP members)

It is important that Government and mainstream organisations develop a deeper awareness, appreciation and understanding of the cultural differences with Aboriginal Peoples and design projects and evaluations with this in mind.

References: finding different ways of conducting research is possible, and can produce meaningful outcomes, which are often more insightful than quantitative studies with which people are less willing to engage. When guided by relevant cultural groups, research outcomes can be enriched. For example, there has been an increasing amount of participatory or action-based research conducted with Aboriginal communities over the past 20 years (e.g., Cochran, 2008), where the notion of having a yarn is slowly gaining recognition (Yunkaporta & Kirby, 2011) and is maximising community involvement where "[t]he knowledge, expertise, and resources of the involved community are often key to successful research" (MacCaulay et al., 1999; 774).

3. **When addressing energy efficiency, factors beyond energy consumption should be considered, because ameliorating energy-related disadvantage such as stress and discomfort may be more important outcomes**

Explanation: when households are struggling to pay their bills, as is the case with many low-income households, it becomes difficult for them to adopt even small energy efficiency practices when they are facing a crisis. Addressing stress and discomfort are likely to appease the person's pressures and allow them to get back on top of things. Once this has occurred they are in a better position to adopt new behaviours. Also, programs that focus on an energy reduction outcome may miss the bigger picture regarding 'quality of home life'. In some cases, supporting the improvement of people's wellbeing, may actually mean an increase in energy use, if the outcome is using energy to affect positive changes in the home. This takes a more holistic approach to energy use.

Evidence: KEEP survey results indicate that Aboriginal household stress and discomfort significantly declined for a SHV and SHV-IHD after a HV. Further, open-ended survey questions and qualitative analysis of interviews revealed how "relieved" householders became after a HV, and how they were more relaxed and confident about using and managing their energy. Further, the case studies and barriers identified in this report reveal that many Aboriginal people face untold stress and hardship.

References: health outcomes for Aboriginal people are highly linked with the more holistic approach of considering "all of health" matters, including social and emotional well-being (Grieves, 2009; Zubrick *et al.,* 2004). The interconnectedness between well-being outcomes and energy reduction have rarely been explored, but as energy use affects wellbeing via increasing stress and discomfort, then priority should be given to those aspects.

4. **Avoid data collection requirements that are intrusive to someone's home or privacy,**

   The questions needed for the LIEEP schema data collection were extensive, intrusive and many were unnecessary. Careful selection of each piece of information should be conducted. Further, cultural suitability should trump national consistency. Data that is intrusive to collect should be avoided where possible. It is understandable that most people would feel uncomfortable about having someone go through every room of their home asking questions. This feeling is multiplied for vulnerable people, who were all LIEEP recipients. Specifically for KEEP, working to help support Aboriginal people must involve working with them.

5. **If conducting surveys for Aboriginal people, ensure they are developed with Aboriginal people.**

   The survey response rates were fairly high for the baseline measure with low numbers of missing data in comparison to the schema data which was viewed as intrusive and difficult to obtain, and which resulted in higher levels of missing data. The survey questions were designed closely with CDOs and Aboriginal partner organisations who also approved each question. The difficulty with KEEP was in obtaining the follow-up data. The trail off for the phone follow-ups was problematic (discussed earlier) and the method of collecting this data was not embraced by Aboriginal partners and CDOs. Alternative follow-up collection methods are recommended in future, but regardless of the method, if it does not have the 'buy in' from the Aboriginal people involved, it is likely to be unsuccessful.

6. **When attempting to determine household energy consumption, both gas and electricity usage measures need to be taken**

   Explanation: since most Victorian homes mostly use gas for heating and need to heat their homes for more days in the year than they need to cool them, it is important to measure gas usage over time, before and after efforts to assist the home. Similarly, electricity consumption needs to be captured as most appliances are powered by electricity. By capturing both measures a more complete picture of household energy consumption can be gained.

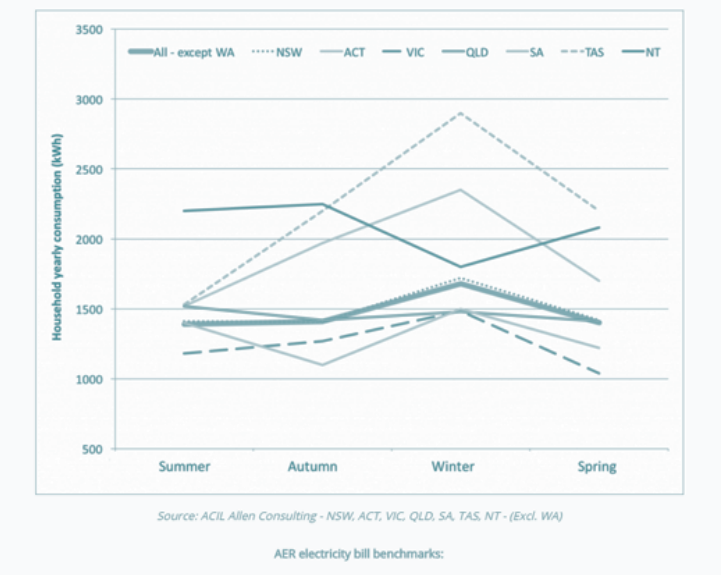
   Evidence: analysis presented in this report shows that Aboriginal households mostly use gas for heating (67%) and fewer used electric heaters (16%) and reverse-cycle air-conditioners (9%).

   References: this finding is consistent with those of Sustainability Victoria (2014) which found that Victorian homes in general use more gas to heat, and therefore use more gas in winter, whereas they tend to use more electricity in summer.

7. **Energy usage data needs to span a minimum of two years – one year before and one year after the approach to accommodate high variation in energy use and type of energy used due to weather**

Explanation: weather conditions greatly affect energy use with peaks occurring in colder and hotter months. Unless data is collected over a long period of time to cover such fluctuations in temperatures, reductions or increases in energy use may appear to be the result of a program addressing energy efficiency, but may actually reflect changing weather conditions. To control for this effect, weather data of all seasons, before and after delivering such programs to households, needs to be captured.

Evidence: KEEP aimed to capture two years of energy use; one year before and one year after a home visit to enable subsequent analysis to control for weather variations. Results indicate significant variations in energy use depending on the season (see Figure 37) as well as statistically significant differences between energy use for maximum and minimum temperatures (see Table 40). However, by obtaining data of only a few months after a home visit, and for only 35% of the households participating in KEEP, limitations in the results occurred. The inclusion of much more post-home visit data, particularly in winter, would overcome this limitation.



Note: unfortunately, the data for Victoria is incomplete and shows lower variation than other similar, colder states.

References: this situation is not unique to Victoria or Aboriginal people as reports of variation in energy use over the seasons have been reported across all Australian states (https://www.billrepublic.com/average-electricity-usage/).

8. **Ensuring homes are well insulated is a priority in terms of reducing energy consumption and reducing energy waste, particularly for low-income tenants**

Explanation: Victoria's temperatures oscillate significantly, making it essential that households have the capability of quickly heating and cooling dwellings when necessary. This is particularly true in the case of large households containing vulnerable members of the society. Further, heating and cooling attract the highest energy use, which is compounded when much of that energy escapes the home due to a lack of insulation.

Evidence: the analysis of KEEP electricity consumption data reveals that average daily electricity consumption increased by 15% for each additional household member. When minimum temperatures are controlled, each additional 1 degree celsius drop in maximum temperatures is associated with a 4% increase in electricity consumption.

References: for low income homes, the risk of people remaining cold in their homes to cut back on energy use and bills carries dangerous health consequences, particularly as research has shown that people are more likely to die in their homes due to cold than heat (Gasparrini, et al., 2015).

9. **Set regulation and/or incentives to encourage landlords, particularly those renting to low income households, to motivate them to retrofit their properties so that they reach a minimum standard of energy efficiency**

   Explanation: if landlords are encouraged to update their properties so that they meet higher energy-rating efficiency standards, then this will positively impact tenants by helping to reduce their energy use and alleviate pressures they face around paying utility bills. At a minimum, landlords should be updating insulation in their homes frequently, upgrade fixed appliances, and ideally, to install solar systems to provide hot water and heating. Significant changes to tenanted housing stock are needed in Victoria if the broader concept of 'quality of home life' is to be improved for Aboriginal people.

   Evidence: the dire situation that many Aboriginal households experience have been exemplified throughout this report via the case studies. Further, as identified in the data collected for KEEP, they face many barriers, and struggle financially to stay afloat. Their situation is often compounded by living in older homes (built before 2005) that are poorly insulated (see evidence above) and are currently prey to their landlord's whim as to whether updated appliances and energy savings devices are installed.

   References: the energy-related barriers faced by Aboriginal Victorians has been previously identified by CUAC (2011). If Aboriginal people lived in homes that had higher energy star ratings, compared with the average energy star rating of 1.81 for homes constructed before 2005, which fit the profile of most tenanted dwellings in Victoria (Sustainability Victoria, 2014) then energy-related hardship is likely to drastically reduce.

10. **Provide financial support and guidance in negotiating with energy providers to Aboriginal households prior to encouraging them to adopt energy efficiency behavioural changes**

    Explanation: tiered levels of support need to be provided to many Aboriginal households so that they receive practical support negotiating more favourable outcomes with energy providers, and negotiating any arrears or financial burdens prior to providing energy efficiency tips they can do around the home to reduce their consumption and bills.

    Evidence: both the qualitative data and open-ended survey questions reveal that the biggest problem faced by Aboriginal households is large bills, an inability to pay them, and that they are struggling with finances and personal matters. Further, they reveal that the greatest benefit of a KEEP HV was learning how to negotiate with energy providers to get on a lower payment plan and/or to receive a concession or energy grant.

    References: this recommendation echoes the guidance provided by others in that to achieve sustainably behavioural outcomes, efforts must first be made to overcome barriers experienced by people in implementing behaviour, before they are in a position to engage in behavioural change (McKenzie-Mohr, 2000; McKenzie-Mohr and Schultz, 2014).

11. **Energy providers should consider employing Aboriginal people including call centre team members**

    One of the repeated difficulties experienced by Aboriginal households involved in KEEP was their reported difficulty in dealing with energy retailers who were invariably short of patience and sometimes rude on the phone. This was evidenced from CDO stories, focus groups and open-ended survey question analysis. When calling about not being able to pay a bill, the caller most likely already feels uncomfortable and shame. It is thus important that energy providers can respectfully handle the calls of people in this vulnerable position, and specifically, who can handle all enquiries from Aboriginal customers. They should also consider training their staff who deal with customer enquiries so that flexibility and the offering of support options take precedent over phone 'scripts'.

12. Retrofits and appliances that are mobile (moveable) need to be included in future efforts to support Aboriginal households with their energy use

Explanation: household appliances represent household energy use and, as such, energy efficient appliances greatly reduce household energy consumption and the burden of higher bills, in an environment of increasing utility costs. Providing support in terms of appliance replacement, particularly for those appliances that are costly and mostly unaffordable to low-income earners, would assist Aboriginal households. Further, by providing retrofits that are moveable, such as water-heater insulation, draught stoppers and window coverings (such as removable film or blinds) households can reduce their energy use and take these items with them if moving to a different dwelling.

Evidence: from the analysis conducted for the KEEP project, it is evident that a large proportion of Aboriginal households are tenants (85%) and live in homes sometimes without ceiling insulation (36%) and mostly with only one type of insulation (64%). Further, many did not report on window coverings which may mean they do not have them (29%). Many also report having old refrigerators (from the KEEP refrigerator replacement program) and have no laundry appliances (16%) or only one laundry appliance (61%). By investing in retrofits and appliances that are moveable (not fixed heating/cooling/cooking appliances), such as external insulation to the hot-water service, and others stated above, households can take their energy knowledge and appliances with them. Investing in fixed appliances is not a viable option for any "tenant" as the costs are sunk in the infrastructure of the dwelling, which is not owned by them.

References: most research attests to the efficacy of upgrading homes with energy-saving or efficiency retrofits (e.g., Sustainability Victoria, 2014) but do not consider that many homes are not owned by the dwellers (tenants) and that different types of retrofits and appliances need to be considered.

13. Provide energy savings tips and advice that are easily transferable from home to home, as most Aboriginal households are renting

Explanation: If people are highly mobile, as is the case within many Aboriginal communities, then it is important to provide support to the household by providing them with energy savings tips and advice about reading bills and dealing with providers that is transferable regardless of where they live.

Evidence: The responses to the open-ended surveys indicate that the energy-savings tips were among the most useful aspects of a HV, as well as receiving advice on how to read energy bills and deal with energy providers. This was later supported with those households receiving a second HV as they indicated that going over the tips again allowed them to absorb more, as well as "going over the bills" helped them feel supported. In addition, since 85% of KEEP respondents were renting, and that many had moved recently, and/or had family staying with them, suggests that it is important for them to be able to take their energy savings knowledge with them, regardless of where they are staying.

References: It has been previously established that a HV is capable of improving energy efficiency knowledge (Palm, 2010; Residential Development Council, 2011; Urmee et al., 2012) which can lead to the adoption of new energy efficient behaviours (Bond, 2013). Ensuring this knowledge is transferred in a culturally appropriate way should thus optimise the likelihood of new energy savings practices being adopted.

8. Recommendations for Future Project Design (Lessons Learned)

Governance

Capacity building partnership model where mainstream agency and Aboriginal agency contribute complementary expertise to strengthen community acceptance of the program, including:

- Strong cultural competency built into service delivery, operational management and evaluation
- Clearly defined lines of accountability for funding, reporting and outcomes for all partners
- Agreed and clearly articulated leadership and management roles and responsibilities
- Clearly defined communication and contractual accountabilities between partners and funder.
- Openness to capacity building and organisational change through a shared learning partnership model.
- Time allowed for genuine relationship building to establish trust between partners and foster capacity building and cultural growth within partner organisations.

Service Delivery

All aspects of the program, from governance to operations to evaluation, must be tailored and adjusted to fit with Aboriginal cultural expectations and norms. Aboriginal workers at the service delivery level are critical to community engagement and the success of any program delivered to the Aboriginal community. Service model features should include:

- Operational model built on strengths and expertise of partners allowing for skills exchange and capacity building between partners.
- Cultural competency training for mainstream workers and culturally appropriate skills development for Aboriginal workers.
- Aboriginal service delivery workers with culturally competent line management and supervision
- Culturally appropriate methods of community engagement that tap into extensive Aboriginal community networks
- Establish trust with Aboriginal people through face-to-face interactions.
- Strong advocacy and support navigating the barriers that exist for Aboriginal people within mainstream energy services sector.
- Utilise the energy efficiency education as an opportunity to provide wrap around support to community members experiencing financial hardship through cross referrals to Aboriginal specific and other community services.
- Timely response and follow up on outstanding community memberissues.
- Brokerage to address household energy and financial inclusionneeds.
- Geographical reach to rural, regional and metropolitan areas
- Simple and accessible administrative processes and systems.

Communication

Aboriginal community prefer to engage with programs that come from a trusted source, either through a local Aboriginal organisation or community member. Community endorsement is critical to the success of Aboriginal specific programs and can only be achieved when a program has earned respect as being culturally appropriate and recognised by community as meeting cultural needs. Community engagement channels:

- Aboriginal branding of all service outputs and communication tools.
- Simple, easy to understand information presented in culturally appropriate formats.
- Messaging through trusted Aboriginal community channels including community radio, community based social media, and endorsement via respected community members and word-of-mouth.
- Community education utilising existing community events, networks, programs and meeting places.
- Reward community participation by offering valued incentives such as showbags and vouchers.
- Face to face interaction is preferred method of communication for Aboriginal people.

Mainstream channels, including electronic, digital and social communication channels, are not always trusted sources of information for Aboriginal communities.

Evaluation

Evaluation should incorporate qualitative data collection, and for certain projects only, collect quantitative data. Both need to take a culturally competent approach to evaluation design. Analysis and interpretation of data needs to be viewed through an Aboriginal cultural lens. Culturally competent engagement principles should guide evaluation practice:

- Respectful, non-invasive data collection processes and tools focused on maintaining trust and engagement.
- Minimise data sets to those that are meaningful to Aboriginal workers and community members as well as the funder.
- Qualitative and quantitative data collection embedded in evaluation design to ensure the broader social and wellbeing outcomes are captured.

In addition, we strongly urge future programs to reconsider using randomised control trials when conducting research on people and their behaviours, and to avoid it altogether when working with Aboriginal Peoples. The specific difficulties are outlined throughout this report.

Management of Data

Data integrity is paramount to enable robust findings to be reported. A strong connection between those collecting data, entering data, designing and managing the database and analyzing the data should be established for future projects.

Future Directions

The KEEP program experienced firsthand the extent of financial exclusion within the Aboriginal community and the ***urgent need for systemic cultural change within the utility and financial service sectors, as well as for Aboriginal specific financial inclusion services.***

The high demand for advocacy support by Aboriginal clients, driven by their reluctance to engage with utility providers, shows a clear need for increased cultural competency within the utility and financial services sectors. The prevalence of financial hardship within the Aboriginal community highlights a distinct gap in availability of culturally competent financial inclusion services.

Future programs should act as a change agent, promoting and advocating for more respectful and culturally competent responses from utility providers. Programs should be resourced to influence and capacity-build service providers to better accommodate Aboriginal clients and to support the Aboriginal community to address financial hardship among Aboriginal people.

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Appendices

Appendix A: KEEP Survey Items

Final List of Survey Items Considered Culturally Appropriate for Measuring Energy-Related Knowledge, Behaviours, Physical, Social and Emotional Well-Being and Confidence Dealing with Energy Providers

What do you think (or feel) about the following? *5-point scale from Not at all ("a little") to Completely ("a lot")*
G: Are you willing to reduce your energy use?
K: Do you find your energy bill confusing to understand?
K: Are you clear about what "energy rating" stars mean?
K: Are you unsure about specific ways to reduce your energy bill?
K: Do you think heating use more energy than all other appliances?
K: Do you think reducing the thermostat by 1 degree makes any real difference?
K: Do you know how to run appliances in the most efficient way?
PSEWB: Are you relaxed about how much energy your household uses? (R)
PSEWB: Are you worried about being able to pay your energy bill?
PSEWB: Do you feel stressed when having guests because of the increase in your energy bill?
PSEWB: Are you worried about being disconnected?
How often have you… *5 point scale with response points Never, Almost Never, Sometimes, Often, Always*
B: Turned off the TV at the wall?
B: Turned off lights when leaving a room at night?
B: Shut the door when leaving a room that is heated or cooled?
B: Adjusted the thermostat on heating or cooling to reduce your energy bill?
B: Deliberately turned off appliances to reduce your bill?
B: Has this affected you at night time? (e.g., having to turn off lights, TV etc?)
PSEWB: Felt discomfort in your home due to temperature? (too hot/too cold/drafts)
PSEWB: Felt uncomfortable being home due to energy use?
B: Helped out friends or family with their energy use?
B: Explained different parts of energy bills to others?
PSEWB: Felt your well-being at home affected by limiting your energy use?
Overall *5-point scale with response points "was not useful at all", "not that useful", "a little bit useful", "very useful", "extremely useful"*
G: How useful was the home visit in helping you with energy use and managing your bills?
G: How useful was the monitor in managing your energy use?
G: How useful was the Community Education Session in helping you with energy use and managing your bills?

Energy Confidence *Response options of "yes", "no" or "don't know"*
B: Do you usually check all parts of your energy bills?
K: Do you know about concessions you can get? (e.g., medical heating/cooling, utility relief grant)
C: Can you afford to contact your energy provider?
C: Do you usually find your energy provider easy to deal with?
C: Do you think energy providers charge different rates?
C: Do you think it is easy to change energy providers?
Open-ended questions
Is there anything else you would like to share with us about your energy use?
Have you done anything else around the home to reduce energy use?
What did you like about the Home Visit? Were there any parts you did not like?
What were you given? Was it useful?
How did you find the monitor/visual cues? Which worked best for you and which made no real difference?
What did you like about the Community Education Session?
Was it useful to attend a Community Education Session before the home visit?
How have things been going with your energy savings since our last visit? Were the tips we provided last time useful?
Have there been any problems which made it hard for you to do energy efficient things that you had hoped to do?
What did you like about the second home visit? Were the tips we provided last time useful?
Was it worth having a second home visit?
Were there any tips you did not like?

G = General

K = Knowledge

B = Behaviour

PSEWB = Physical, Social and Emotional Wellbeing

C = Confidence in Dealing with Providers

Appendix B: Exploratory Factor Analysis of Survey Items

Exploratory Factor Analysis and Reliability Tests for Household Energy Efficiency Measurement Scale

Items	Constructs			
	Behaviour	**Stress**	**Discomfort**	**Competency**
How often do you (never - always):				
Shut the door when leaving a room that is heated or cooled?	.894			
Turn off lights when leaving a room at night?	.755			
Deliberately turn off appliances to reduce your bill?	.738			
Adjust the thermostat on heating or cooling to reduce your energy bill?	.523			
(not at all (a little) – completely (a lot))				
Are you worried about being able to pay your energy bill?		.864		
Are you worried about being disconnected?		.664		
Do you feel stressed when having guests because of the increase in your energy bill?		.476		
How often do you (never – always):				
Feel discomfort in your home due to temperature? (too hot/too cold/drafts)			.721	
- Does this affect you at night time? (e.g., having to turn off lights, TV etc?)			.668	
Feel uncomfortable being home due to energy use?			.612	
Find your well-being at home affected by limiting your energy use?			.532	
How often do you (never-always):				
Explain different parts of energy bills to others?				.907
Help out friends or family with their energy use?				.860
Find your energy bill confusing to understand?				-.550
Cronbach's *alpha*	0.814	0.741	0.741	0.713

Appendix C: Missing Survey Data

What do you think (or feel) about the following? *5-point scale from Not at all ("a little") to Completely ("a lot")*	**FHV (N=714)**	**FPF (N=193)**	**SFP (N=48)**
G: Are you willing to reduce your energy use?	0	3	0
K: Do you find your energy bill confusing to understand?	3	3	0
K: Are you clear about what "energy rating" stars mean?	5	4	0
K: Are you unsure about specific ways to reduce your energy bill?	0	4	1
K: Do you think heating use more energy than all other appliances?	2	5	0
K: Do you think reducing the thermostat by 1 degree makes any real difference?	4	4	0
K: Do you know how to run appliances in the most efficient way?	5	5	1
SEWB: Are you relaxed about how much energy your household uses? (R)	0	4	1
SEWB: Are you worried about being able to pay your energy bill?	4	5	1
SEWB: Do you feel stressed when having guests because of the increase in your energy bill?	2	6	1
SEWB: Are you worried about being disconnected?	6	5	2

How often have you… *5 point scale with response points Never, Almost Never, Sometimes, Often, Always*	**FHV (N=714)**	**FPF (N=193)**	**SFP (N=48)**
B: Turned off the TV at the wall?	5	3	0
B: Turned off lights when leaving a room at night?	3	3	0
B: Shut the door when leaving a room that is heated or cooled?	5	2	0
B: Adjusted the thermostat on heating or cooling to reduce your energy bill?	7	2	1
B: Deliberately turned off appliances to reduce your bill?	12	3	0
B: Has this affected you at night time? (e.g., having to turn off lights, TV etc?)	8	2	0
SEWB: Felt discomfort in your home due to temperature? (too hot/ too cold/drafts)	7	3	0
SEWB: Felt uncomfortable being home due to energy use?	5	2	0
B: Helped out friends or family with their energy use?	7	3	1
B: Explained different parts of energy bills to others?	8	4	0
SEWB: Felt your well-being at home affected by limiting your energy use?	8	3	0

Overall *5-point scale with response points "was not useful at all", "not that useful", "a little bit useful", "very useful", "extremely useful"*	**FPF (N=193)**	**SFP (N=48)**
G: How useful was the (first) home visit in helping you with energy use and managing your bills?	187	
G: How useful was the monitor in managing your energy use?	158	
G: How useful was the Community Education Session in helping you with energy use and managing your bills?	159	
G: How useful was the second home visit in helping you with energy use and managing your bills?		25

Energy Confidence *Response options of "yes", "no" or "don't know"*	**FHV (N=714)**	**FPF (N=193)**	**SFP (N=48)**
B: Do you usually check all parts of your energy bills?	6	10	0
K: Do you know about concessions you can get? (e.g., medical heating/cooling, utility relief grant)	7	10	2
C: Can you afford to contact your energy provider?	0	10	2
C: Do you usually find your energy provider easy to deal with?	6	10	2
C: Do you think energy providers charge different rates?	8	11	2
C: Do you think it is easy to change energy providers?	9	11	1

Appendix D: Measures of Central Tendencies for Valid Observations

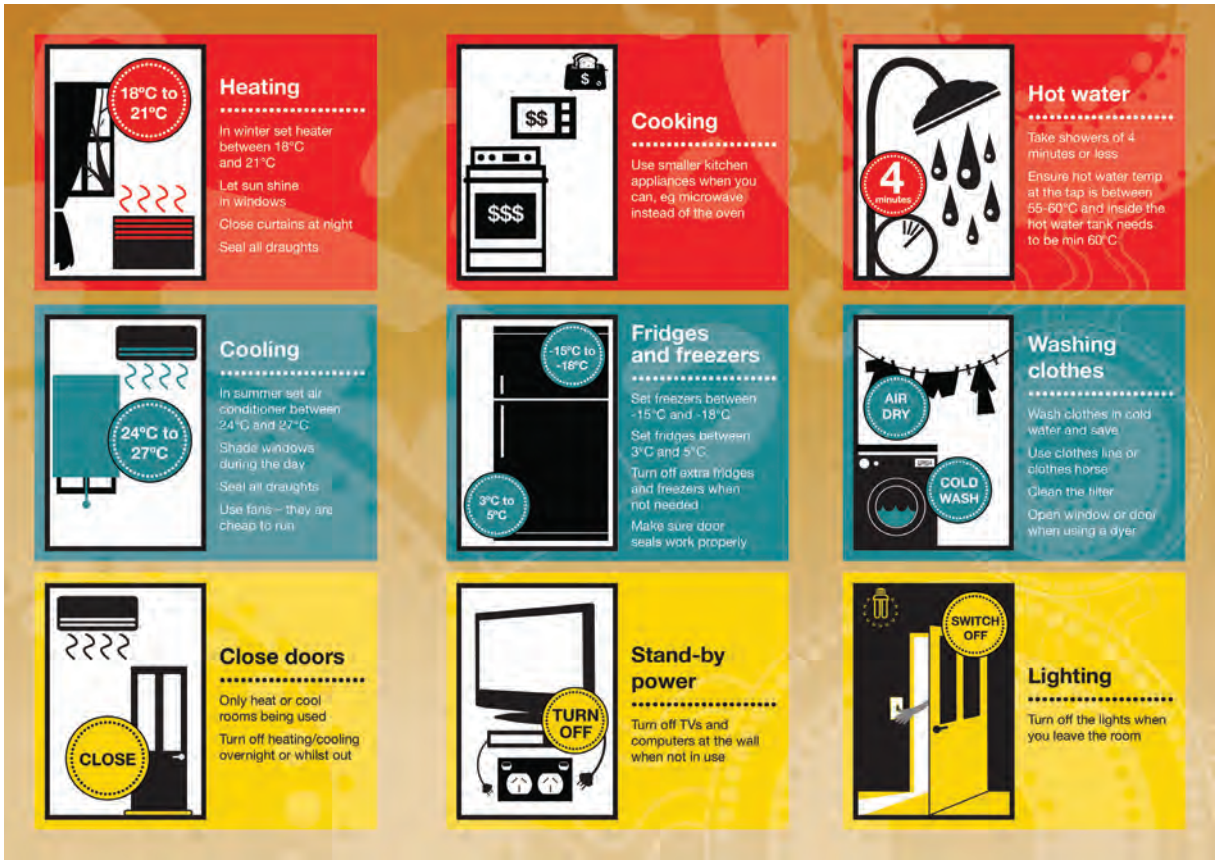
What do you think (or feel) about the following? *5-point scale from Not at all ("a little") to Completely ("a lot")*	**Mean / Median**		
	FHV (N=714)	**FPF (N=193)**	**SFP (N=48)**
G: Are you willing to reduce your energy use?	3.66 / 4	4.29 / 5	4.06 / 4
K: Do you find your energy bill confusing to understand?	3.64 / 4	3.11 / 3	3.42 / 4
K: Are you clear about what "energy rating" stars mean?	2.54 / 2	4.26 / 4	4.15 / 4
K: Are you unsure about specific ways to reduce your energy bill?	3.01 / 3	2.19 / 2	3.17 / 4
K: Do you think heating use more energy than all other appliances?	2.73 / 3	4.30 / 4	3.88 / 4
K: Do you think reducing the thermostat by 1 degree makes any real difference?	2.39 / 2	4.34 / 4	3.75 / 4
K: Do you know how to run appliances in the most efficient way?	2.39 / 2	4.24 / 4	3.87 / 4
SEWB: Are you relaxed about how much energy your household uses? (R)	2.59 / 3	3.85 / 4	3.62 / 4
SEWB: Are you worried about being able to pay your energy bill?	3.07 / 3	2.55 / 3	3.21 / 3
SEWB: Do you feel stressed when having guests because of the increase in your energy bill?	2.81 / 3	2.34 / 2	2.85 / 3
SEWB: Are you worried about being disconnected?	2.92 / 3	2.02 / 2	2.96 / 3

How often have you… *5 point scale with response points Never, Almost Never, Sometimes, Often, Always*	**Mean / Median**		
	FHV (N=714)	**FPF (N=193)**	**SFP (N=48)**
B: Turned off the TV at the wall?	2.05 / 2	3.78 / 4	3.48 / 4
B: Turned off lights when leaving a room at night?	3.10 / 3	4.50 / 5	4.21 / 4
B: Shut the door when leaving a room that is heated or cooled?	2.97 / 3	4.43 / 5	4.12 / 4
B: Adjusted the thermostat on heating or cooling to reduce your energy bill?	2.56 / 3	4.24 / 4	3.89 / 4
B: Deliberately turned off appliances to reduce your bill?	2.71 / 3	3.52 / 3	3.71 / 4
B: Has this affected you at night time? (e.g., having to turn off lights, TV etc?)	2.49 / 3	2.37 / 2	3.33 / 4
SEWB: Felt discomfort in your home due to temperature? (too hot/ too cold/drafts)	2.64 / 3	2.68 / 3	2.96 / 3
SEWB: Felt uncomfortable being home due to energy use?	2.50 / 3	2.40 / 2	2.96 / 3
B: Helped out friends or family with their energy use?	1.82 / 2	3.17 / 3	3.26 / 3
B: Explained different parts of energy bills to others?	1.70 / 2	3.19 / 3	3.33 / 3
SEWB: Felt your well-being at home affected by limiting your energy use?	2.37 / 3	1.93 / 2	3.02 / 3

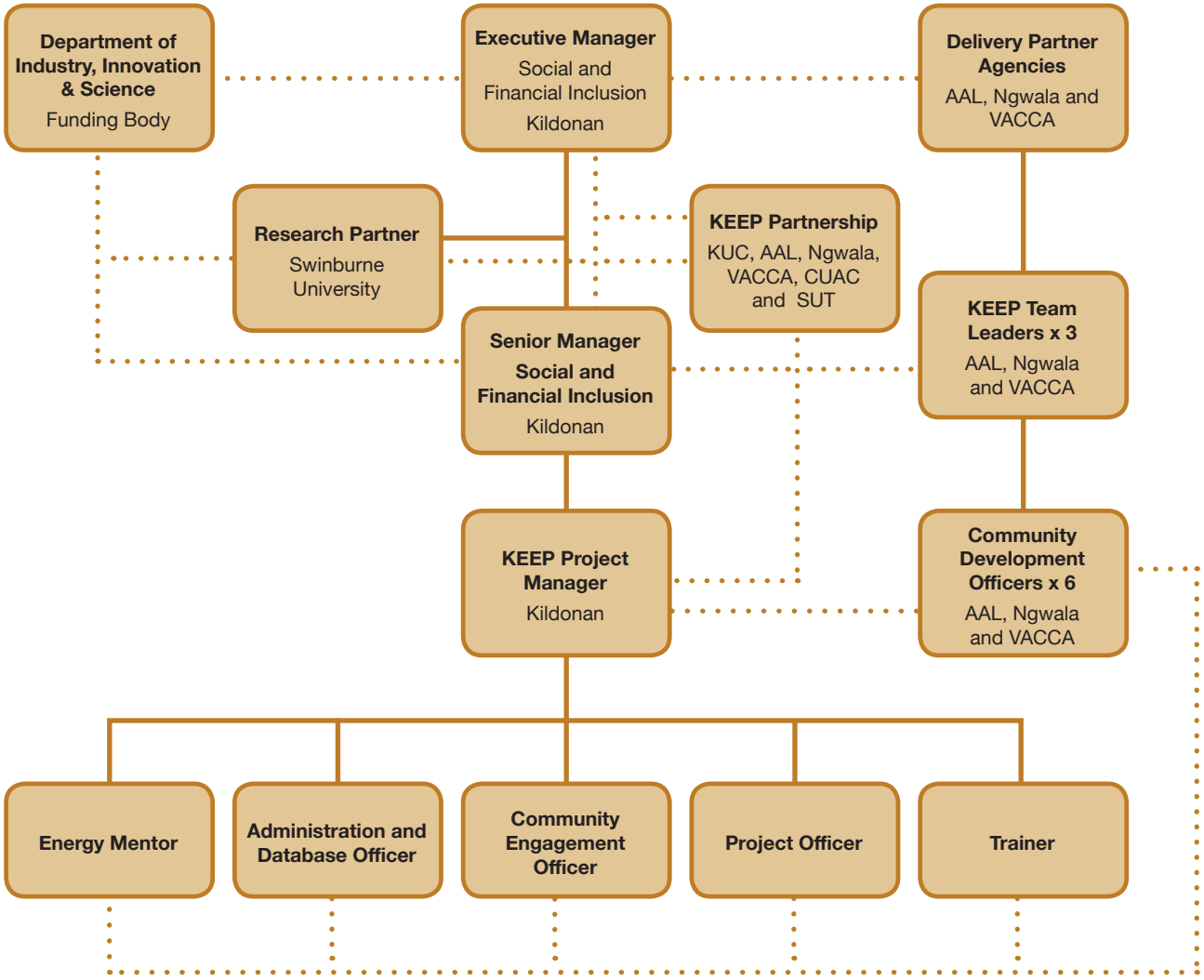
Overall *5-point scale with response points "was not useful at all", "not that useful", "a little bit useful", "very useful", "extremely useful"*	**Mean / Median**	
	FPF (N=193)	**SFP (N=48)**
G: How useful was the (first) home visit in helping you with energy use and managing your bills?	5 / 5	
G: How useful was the monitor in managing your energy use?	4.07 / 4	
G: How useful was the Community Education Session in helping you with energy use and managing your bills?	4.78 / 5	
G: How useful was the second home visit in helping you with energy use and managing your bills?		4.30 / 4

Energy Confidence *Response options of "yes", "no" or "don't know"*	**Yes % / No % (valid)**		
	FHV (N=714)	**FPF (N=193)**	**SFP (N=48)**
B: Do you usually check all parts of your energy bills?	31.9 / 7.5	88.0 / 9.8	68.8 / 31.3
K: Do you know about concessions you can get? (e.g., medical heating/cooling, utility relief grant)	31.8 / 64.4	95.1 / 1.1	84.8 / 13.0
C: Can you afford to contact your energy provider?	55.5 / 35.9	90.2 / 5.5	76.1 / 23.9
C: Do you usually find your energy provider easy to deal with?	27.4 / 63.3	55.2 / 39.9	63.0 / 37.0
C: Do you think energy providers charge different rates?	42.1 / 22.1	89.0 / 3.8	82.6 / 15.2
C: Do you think it is easy to change energy providers?	23.7 / 37.7	85.7 / 3.8	51.1 / 23.4

Appendix E: KEEP Brochure



Appendix F: KEEP Structure (Nov 2014)



Appendix G: Koorie Energy Efficiency Project Budget

Expenditure Items	Original Budget	Revised Budget	Other Contributors Cash	Other Contributors In-kind	Subtotal Cost
Salary, on costs and supervision for Aboriginal Energy Workers (Community Development Officers)	$1,606,098	$1,414,120			$1,414,120
IT/Technology for KEEP team including Aboriginal Energy Workers	$83,578	$83,578			$83,578
Salary on costs and supervision for Aboriginal liaison officers (KEEP Engagement Officer and KEEP Admin Officer)	$422,433	$422,433			$422,433
Salary, on costs and supervision for Community Educator	$365,884	$365,884			$365,884
Salary, on costs and supervision for Energy Mentor	$282,814	$282,814			$282,814
Salary oncosts and supervision Project Manager (KEEP Manager)	$356,922	$356,922			$356,922
Governance Group – support contribution of members	$52,151	$39,105			$39,105
Vehicle and transport costs - 11 cars (or other transport costs)	$494,798	$417,000			$417,000
EE Brochures, materials and promotions	$92,432	$92,432			$92,432
Research and evaluation	$266,958	$266,958			$266,958
Training, curriculum and material development	$166,792	$166,792			$166,792
Travel and accommodation	$114,481	$90,481			$90,481
System and process establishment	$38,900	$38,900			$38,900
KEEP database system	$30,000	$54,000			$54,000
Brokerage to support household participation	$389,473	$389,473			$389,473
Indirect employment Costs	$472,065	$510,924			$510,924
Administration Costs	$95,000	$338,963			$338,963
Project Management Costs	$60,000	$60,000			$60,000
Project governance, management and liaison	$150,000	$150,000		$258,400	$408,400
Total	**$5,540,779**	**$5,540,779**			**$5,799,179**

Appendix H:
Income and Expenditure Statement
for the period 1st July 2013 to 30th June 2016

Income	
Department of Industry & Science	**$5,540,779**
Donation	$150
Corporate Funding	$1,111
Bank Interest	$30,526
Kildonan in Kind Contribution (Project Management)	$204,000
Total Income	**$235,787**
Expenditure	
Partner Agency Costs	$2,174,648
Kildonan Staffing Costs	$1,489,848
Program Costs	$1,903,452
KEEP Database	$49,000
Total Expenditure	**5,616,948**
Surplus returned to Department	$159,618

CUAC contributed $54,400 in kind to this project