

3. Results

The Glenelg SAVES project was conducted from 2013/14 to 2015/16 and included 22 HACC Staff and 306 HACC Clients. This section reports on the participant characteristics, project impact and satisfaction, and details findings pertaining to the various project components.

3.1 Participant Characteristics

Profiles of the Glenelg SAVES participants for whom complete data was available were compiled from information derived from the first survey.

Site Profiles

Table 4 shows the distribution of households across the Glenelg Shire Council's three major towns: Portland, Casterton and Heywood. The two largest population areas of Portland and Heywood were well represented in both the HACC Staff and Clients groups.

Table 4: Participants by town and group

Town	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Portland	15	68.2	195	63.7
Casterton	2	9.1	47	15.4
Heywood	5	22.7	64	20.9
Total	22	100	306	100

Table 5 (overleaf) demonstrates that the Glenelg SAVES project predominantly recruited home-owners or households with a mortgage commitment. HACC Clients were significantly more likely to own their residence outright (77% vs. 32%) and less likely to have a mortgage than HACC Staff (6% vs. 55%). The relatively low proportion of renters in both groups suggests that the principal-agent problem related to different goals and levels of information of landlords and tenants was not a major barrier for most participants in this study.

Table 5: Participants by tenure and group

Tenure	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Owned*	7	31.8	235	76.8
Rented	3	13.6	50	16.3
Mortgaged	12	54.5	18	5.9
Other	0	0.0	3	1.0
Total	22	100	306	100

*Significant at the 95% level

Participants within the HACC Staff group generally had a higher level of education than HACC Clients. Table 6 shows that the most common education level for HACC Staff was a TAFE diploma, while HACC Clients were most likely to have a highest qualification of high school – year 10. This is likely to be influenced by the vocational requirements for working in the HACC program and HACC Clients being generally older.

Table 6: Level of education by group

Highest qualification	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Primary school*	0	0.0	101	33.0
High school - Year 10	6	28.6	123	40.2
High school - Year 12	3	14.3	28	9.2
TAFE*	10	47.6	32	10.5
Tertiary	2	9.5	22	7.2
Total	22	100	306	100

*Significant at the 95% level

HACC Staff indicated that they had lived at their current address for an average of 10.5 years, while HACC Client average length of residence was 22.5 years. This discrepancy suggests a greater level of mobility amongst HACC Staff, which is not surprising considering they are generally younger and still part of the workforce. Both groups reported that they occupied the residence for an average of roughly 51 weeks per year. HACC Staff had statistically significantly more people, on average, living in their households (2.4) than did HACC Client households (1.5).

Table 7 summarises the major dwelling characteristics for both HACC Staff and HACC Clients households. In general, participants from both groups were most likely to live in houses (rather than units) and relatively small and older housing stock. The major difference in dwelling characteristics between HACC Staff and Client participants was that staff were more likely to live in large (26.9 squares or more) housing. The two most common dwelling material types for both groups were brick veneer and weatherboard. The proportion of participants that had installed a solar photovoltaic (PV) system was equivalent across both groups (HACC Staff = 18%; HACC Clients = 14%).

Table 7: Dwelling characteristics by group

Characteristics	Category	HACC Staff	HACC Clients
Type of House (%)	House	100.0	85.9
	Unit	0	14.1
Age of House (%)	0 to 19 years	18.2	14.7
	20 to 39 years	40.9	28.1
	40 to 59 years	13.6	27.1
	60 years or more	27.3	30.1
Size of House (%)	Small	36.4	52.0
	Medium	50.0	43.1
	Large	13.6	4.9
Room count (average #)	Bedrooms	3.0	2.8
	Living Rooms	1.6	1.7
	Bathrooms	1.4	1.2
Material Type (%)	Brick Veneer	36.4	44.4
	Weatherboard	22.7	15.0
	Mixture	13.6	11.4
	Timber	0.0	10.5
	Fibro	18.2	8.5
	Concrete block	4.5	4.6
	Double brick	0.0	3.3
	Concrete	4.5	2.3
Roof Colour (%)	Light	54.5	35.3
	Intermediate*	9.1	32.7
	Dark	36.4	32.0
Solar PV (%)	Yes	18.2	14.1
	No	81.8	85.9

*Significant at the 95% level

Table 8 summarises the insulation profiles of the HACC Staff and HACC Clients group’s residences. Whilst some form of insulation was common for the vast majority of households, insulation treatments such as double-glazing, floor insulation and tinted windows were only found in a relatively small number of households. HACC Clients were significantly more likely than HACC Staff to have ceiling insulation (79% vs. 59%).

Table 8: Dwelling insulation by group

Insulation	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Curtains	20	90.9	271	89.4
Ceiling insulation*	13	59.1	238	78.5
Internal window awnings/shades	8	36.4	158	52.1
Draught stoppers	8	36.4	140	46.2
Wall insulation	9	40.9	111	36.6
External Blinds	5	22.7	102	33.7
Double-glazed windows	2	9.1	15	5.0
Floor insulation	1	4.5	16	5.3
Tinted Windows	0	0.0	13	4.3
Total	22	100	303	100

*Significant at the 95% level

Participants were asked to nominate any energy-related modifications they had made to their residence in the 12 months before joining the project. As indicated by Table 9 (overleaf), the most common change made by both groups were replacing major whitegood(s), heating, ventilation, and air conditioning (HVAC) systems, electric hot water systems and installing ceiling fans. HACC staff were significantly more likely to have replaced major whitegood(s) (52% vs. 17%), which is likely to be indicative of greater access to capital.

Table 9: Recent modifications by group

Modification	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Replaced major whitegood(s)*	11	52.4	51	16.9
Replaced heater/cooler/air conditioner	2	9.5	43	14.2
Replaced electric hot water system	2	9.5	21	7.0
Installed ceiling fans	2	9.5	16	5.3
Installed solar electricity	1	4.8	10	3.3
Installed insulation	1	4.8	5	1.7
Installed solar hot water system	0	0.0	3	1.0
Installed louvre windows	0	0.0	3	1.0
Installed double glazed windows	0	0.0	2	0.7
None of the above	10	47.6	193	63.9
Total	22	100	303	100

*Significant at the 95% level

Table 10 shows that there was roughly an equal proportion of participants in both groups that had either an electric or gas hot water system. Only a relatively small number of participants in both groups had installed a solar hot water system.

Table 10: Hot water system by group

Hot water system	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Electric	8	36.4	149	48.7
Gas	12	54.5	144	47.1
Solar	2	9.1	14	4.6
Other	0	0.0	1	0.3
Total	20	100	304	100

Table 11 reflects the average number of different types of lighting within the HACC Staff and HACC Client group households. The most common forms of lighting for both groups were compact fluorescent lamps (CFLs) and halogen lights. There were no significant differences in the average number for each lighting type between the HACC Staff and HACC Client participants.

Table 11: Household lighting profile (average # per household)

Lighting	HACC Staff	HACC Clients
Standard (incandescent) light globes	2.5	3.0
Halogen lights	3.3	2.3
LED lights	2.1	1.3
CFLs	8.3	8.7
Fluorescent tube lights	1.3	2.0

Energy behaviour

Participants indicated how often they undertook energy *curtailment behaviour*⁴ in general and specifically for heating and cooling purposes. As shown in Table 12 curtailment behaviour was generally high for both groups, especially regarding: switching off lights in unoccupied rooms and minimising energy use for cooling and heating. HACC Clients, on average, indicated that they were more likely to undertake energy curtailment behaviour than HACC Staff. This difference was most apparent for behaviour relating to the minimisation of appliance and hot water use.

Table 12: General energy curtailment behaviour

Curtailment	HACC Staff	HACC Clients
Switch off lights in unoccupied rooms	4.4	4.6
Minimise appliance use in your home to save energy*	3.5	4.0
Minimise hot water use in your home*	3.2	4.0
Minimise energy use for cooling in your home	3.8	3.9
Minimise energy use for heating in your home	3.6	3.8
Curtailment (general)^{A*}	3.7	4.1

Scale: 1=Never – 5=Always

*Significant at the 95% level

^A Composite variable derived from responses to scale items

Participants were also asked to indicate the prevalence of their energy curtailment behaviour for keeping their residence warm in winter. Again, curtailment behaviour was generally high for both groups (refer Table 13, overleaf). Respondents generally indicated that they were more likely to undertake routine low energy alternatives (e.g. close windows, open/draw blinds) than resort to turning their heating up.

⁴ Habitual decisions and actions related to energy use

Table 13: Heating energy curtailment behaviour

Curtailment	HACC Staff	HACC Clients
Close windows	4.8	4.7
Open blinds or curtains during the day to let in light and heat	4.4	4.7
Draw blinds or curtains when the sun goes down	4.3	4.5
Close doors to keep heat in rooms you are using	4.4	4.4
Turn heating up	3.0	2.9
Curtailment (heating)^A	4.5	4.7

Scale: 1=Never – 5=Always

^A Composite variable derived from responses to scale items

Glenelg SAVES participants also indicated the frequency in which they undertook energy curtailment behaviour for keeping their dwelling cool in summer. Cooling curtailment behaviour was also generally high for both groups (refer Table 14), with the most common cooling response being *closing windows during hot days to keep cool air inside*.

Table 14: Cooling energy curtailment behaviour

Curtailment	HACC Staff	HACC Clients
Close windows during hot days to keep cool air inside	4.7	4.7
Open windows during the evening to allow cross ventilation	4.4	4.3
Open blinds or curtains when the sun goes down	4.0	3.9
Curtailment (cooling)^A	4.2	4.1

Scale: 1=Never – 5=Always

^A Composite variable derived from responses to scale items

The high level of energy curtailment behaviour reported by both groups suggests that participants were already undertaking habitual and routine measures to reduce their energy use before joining the Glenelg SAVES project. This finding suggests that there is relatively little potential to target an increase in the prevalence of such behaviour; although, there may be opportunities to increase the influence of such behaviour on energy efficiency.

3.2 Reasons for joining Glenelg SAVES

As indicated by Table 15, economic factors (save energy /reduce energy bill) were the major reason for joining the project for HACC staff. Although these factors were also important reasons for HACC Clients to take part in the project, the influence of HACC staff and Glenelg SAVES' financial support for energy efficiency purchases were generally greater. These findings support two key elements of the project: 1) the use of trusted advisors (i.e. HACC Staff) to encourage participation and 2) financial support to alleviate access to capital barriers that can inhibit energy efficiency investments by low-income households.

The influence of other support networks (friends/relatives, other HACC clients) and environmental concerns (sustainability, climate change) were not reported as major reasons for joining the project. These findings suggest that communication strategies based around highlighting the financial benefits of participation through existing carers/trusted advisors is likely to be an effective strategy for recruiting participants to similar programs.

Table 15: Reasons for joining Glenelg SAVES

Reason	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
HACC Staff member advised me to join the program*	7	33.3	163	87.6
Reduce energy bill/save money	18	85.7	146	78.5
Financial support for an energy efficiency purchase*	9	42.9	142	76.3
Save energy	17	81.0	126	67.7
Evaluate the efficiency of my home	11	52.4	98	52.7
Learn more about energy characteristics of my home*	14	66.7	78	41.9
Sustainability concerns	9	42.9	70	37.6
Climate change concerns	7	33.3	39	21.0
Friends/relatives advised me to join the program	1	4.8	12	6.5
Other HACC clients advised me to join the program	N/A	-	11	5.9
Other	3	14.3	13	7.0
Total	22	100	303	100

*Significant at the 95% level

Angie Howson – linking to Winda-Mara

Recent training in Home Energy Efficiency Assessment has provided Glenelg Shire Council Community Support Worker Angie Howson with the confidence to spread the energy efficiency message far and wide.



Through her training with the Community Support Workers at the Glenelg Shire, Angie has been able to ensure that the knowledge she has gained around energy efficiency can be shared with the Winda-Mara Aboriginal Corporation Home and Community Care (HACC) clients too. “By receiving the formal training, I have been able to ensure that the information I am passing onto clients is correct, and up to date”, Angie said.

Angie has already made some adjustments to the way she uses energy in her own home, resulting in immediate savings. “I have popped a digital shower timer in the bathroom” she said. “I am also looking forward to receiving some assistance with either cooling my home or managing stand-by power to further improve the energy efficiency of my home”.

“My clients, both at Glenelg Shire and Winda-Mara have been interested in what I have to say with regards to energy efficiency and saving money.” “They have in the past received lots of information from lots of different places, and this can be confusing – it will be great to be able to help them to save money too”.

3.3 Energy Assessment Recommendations

As part of the project’s home energy assessments, HACC Staff identified actions that could be undertaken by either themselves or their clients to increase their energy efficiency. Based on the training provided by MEFL, these recommendations were categorised into the following areas:

- hot water;
- heating;
- cooling;
- clothes drying;
- lighting; and
- appliances

The most common actions for both groups generally related to appliances and heating. HACC Staff were most likely to identify the following actions for their own homes: setting fridge/freezer to the correct temperature (91%); checking fridge/freezer seals (86%); keeping fridge/freezer doors closed when possible (86%); turn off appliances that are not in use (86%); set washing machine to cold wash (82%) and filling gaps and cracks for heating purposes (82%). Recommendations made for HACC Clients were generally similar, with keep fridge/freezer doors closed when possible (92%); set fridge/freezer to the correct temperature (90%); checking fridge seals (89%); prioritising self-heating by wearing jumpers (89%); and closing curtains at night to keep heat inside the house (87%) being the most common actions identified during the energy efficiency assessments.

Dianne Gill – HACC Client

Glenelg Shire Home and Community Care client Mrs Gill is thrilled with her new curtains that she received as part of the Glenelg SAVES project – helping Glenelg Shire HACC clients reduce their energy use and be more comfortable in their homes.

“The curtains are helping to keep the heat out of my kitchen and keeping my home cooler in general” Mrs Gill said, adding “the recent burst of hot weather was a great test, and the difference the curtains made was amazing”.

As a participant in the Glenelg SAVES project, being delivered by Glenelg Shire Home and Community Care Workers across the shire, Mrs Gill was able to receive assistance to purchase the custom-made curtains, supplied through local Glenelg Shire business.



3.4 Project Impact

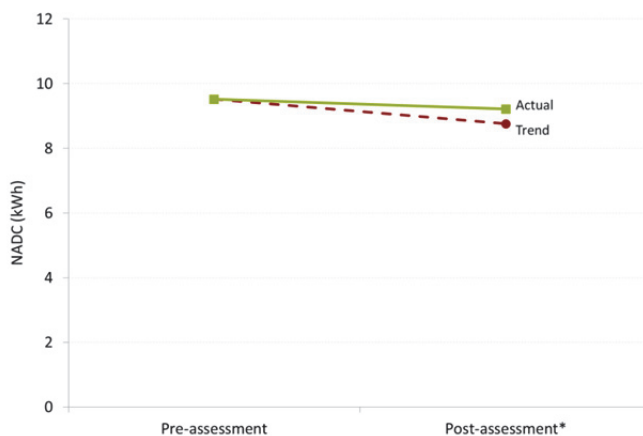
The following section details the influence of the Glenelg SAVES project on participant behaviour and attitudes related to their energy efficiency.

Energy Use

To estimate the influence of the project on energy use, an interrupted time series (ITS) analysis was undertaken. This involved using the electricity data provided by the region’s distributor, Powercor, at multiple time points before and after each participant received a home energy efficiency assessment. The purpose of this analysis was to detect whether or not project participation had a significantly greater effect than any underlying secular trend.

Overall, the Glenelg SAVES project was not successful in reducing household electricity use. Figure 5 shows the actual normalised average daily consumption⁵ (NADC) compared with forecasted trends based on historical energy use before and after receiving a home energy efficiency assessment. Although energy use did decline from the pre- to post-assessment phase, this was consistent with historical trends. The actual levels of energy use were 5% higher than what was forecasted through statistical modelling.

Figure 5: Overall NADC: actual vs. trend (kWh)

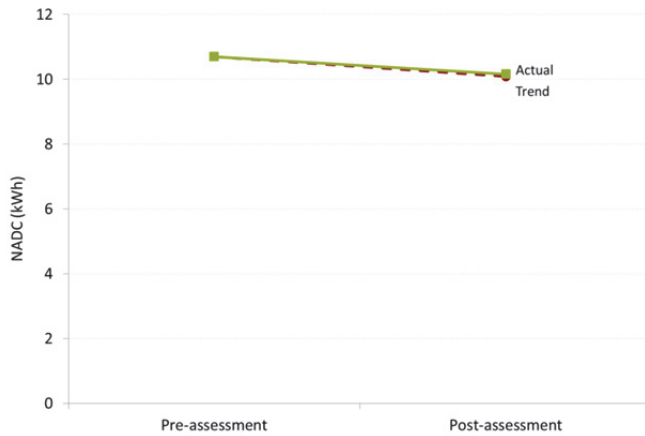


*Significant at the 95% level

⁵ Electricity use data was normalised based on heating and cooling degree days recorded at the Portland weather station. This process was done to control for weather changes that could influence the assessment of the project’s influence on energy use.

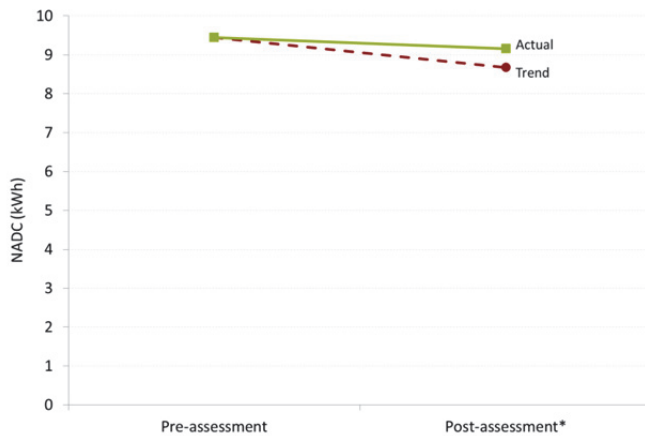
HACC Staff participants' actual energy use was consistent with statistical forecasts (refer Figure 6). Although this group's energy use did decrease by 5% from the pre-assessment period, this decline was consistent with statistical forecasts (6% decrease).

Figure 6: HAC Staff NADC: actual vs. trend (kWh)



HACC Clients that participated in the project reduced their energy use by 3% following their home energy efficiency assessment. Nevertheless, this was 5% above the 8% decrease what was forecasted to have occurred without Glenelg SAVES participation (refer Figure 7).

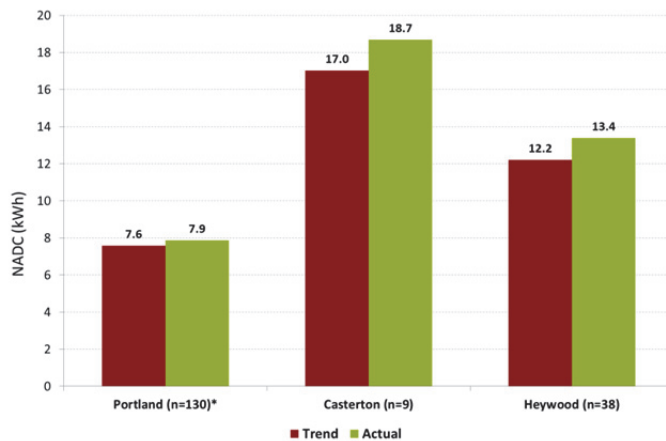
Figure 7: HAC Clients NADC: actual vs. trend (kWh)



*Significant at the 95% level

Figure 8 demonstrates the post-assessment energy use of participating households across the Glenelg Shire’s three largest towns. All areas experienced a consistent level of energy use with statistical forecasts. In general, participants from Casterton and Heywood were higher electricity users than those from Portland, which is most likely related to reticulated gas access.

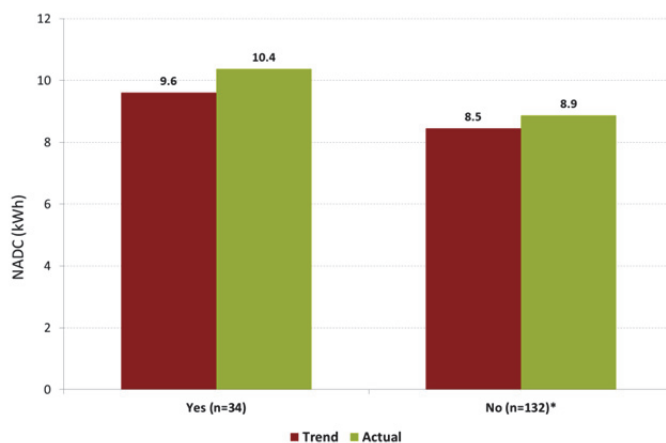
Figure 8: Post-assessment NADC by town: actual vs. trend (kWh)



*Significant at the 95% level

Figure 9 shows a comparison of post-assessment NADC for HACC Client that did and did not undertake a home energy efficiency assessment with their regular HACC carer. This analysis found that actual electricity use was generally higher whether or not participants’ regular carer carried out their energy assessment.

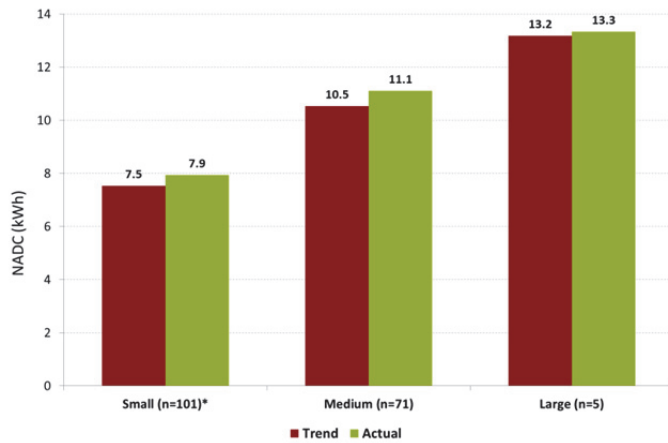
Figure 9: Post-assessment NADC by own HACC worker: actual vs. trend (kWh)



*Significant at the 95% level

As expected, electricity use was related to house size. Participant energy use for small, medium and large dwellings was relatively consistent with forecasts.

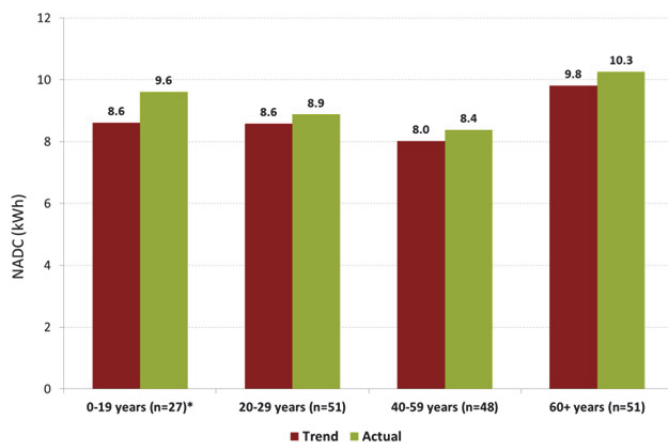
Figure 10: Post-assessment NADC by house size: actual vs. trend (kWh)



*Significant at the 95% level

A common rationale for government energy subsidies targeted at low income households is that such groups are more likely to live in inefficient housing stock with poor insulation. To assess the impact of Glenelg SAVES on participants in inefficient housing, age of house was used as a proxy. This analysis found that the project did not have an influence on the energy use of participants living in older houses. Participants living in newer dwellings (aged 20 years or less) actual electricity use was higher than statistical forecasts.

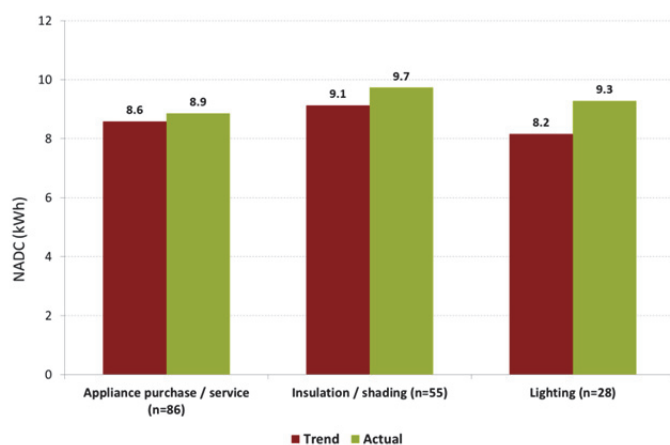
Figure 11: Post-assessment NADC by age of house: actual vs. trend (kWh)



*Significant at the 95% level

Figure 12 demonstrates that the type of energy efficiency purchase made by participants through the project generally did not significantly influence their electricity use.

Figure 12: Post-assessment NADC by project purchase type: actual vs. trend (kWh)



During the follow-up study, participants were asked to estimate changes to their household's electricity and gas use since joining the project. Although self-reporting of such measures is susceptible to recall bias, they do provide a proxy indication of participant's beliefs about the influence of the project.

As indicated by Table 16, the majority of HACC Staff (59%) and HACC Clients (52%) indicated that project participation had not had an influence on their electricity use. Based on these self-reports, the project appears to have had a greater influence on HACC Staff's electricity use than that of HACC Clients. Over two-fifths of HACC Staff (41%) indicated that their electricity use was either slightly or much lower than it was before taking part in the project. In contrast, only a relatively small proportion of HACC Clients (12%) believed that their electricity use had decreased since joining Glenelg SAVES.

Table 16: Electricity use changes by group

Level of Change	HACC Staff %	HACC Clients %
Much higher (more than 10% increase)	0.0	13.6
Slightly higher (1-10% increase)	0.0	22.2
About the same	58.8	52.5
Slightly lower (1-10% decrease)*	35.3	9.9
Much lower (more than 10% decrease)	5.9	1.9
Total	100	100

*Significant at the 95% level

Nearly half of respondents to the follow-up survey (48%) indicated that their household had a gas connection. The majority of these participants (HACC Staff=67%; HACC Clients=65%) indicated that their level of gas use had not changed since joining the project. Based on statistical testing, no difference in the general level of change was identified between the two groups, except HACC Staff had a greater inclination than HACC clients to report that their gas use was slightly lower (1-10% decrease) than before taking part in the project.

Table 17: Gas use changes by group

Level of Change	HACC Staff %	HACC Clients %
Much higher (more than 10% increase)	6.7	10.2
Slightly higher (1-10% increase)	6.7	18.1
About the same	66.7	65.4
Slightly lower (1-10% decrease)	20.0	5.5
Much lower (more than 10% decrease)	0.0	0.8
Total	100	100

*Significant at the 95% level

Drivers of Energy Use

A path analysis was used to test the fit between the study’s conceptual framework (refer Figure 4, page 19) and the data collected for the study. The combination of variables provided a plausible explanation of behavioural intentions but only explained a small proportion of variance in changes to electricity use. The higher predictability of these variables on intentions than actual behaviours is consistent with previous studies applying similar models of behaviour (Armitage & Connor, 2001).

The analysis found that energy efficiency knowledge had a significant influence on attitudes towards reducing energy and participant’s perceived ability to achieve this goal. The two major influencers on intentions to reduce energy were attitudes (environmental and financial) and social norms. The latter finding suggests that Glenelg SAVES participants were responsive to what others think that they should do in terms of energy use.

Consistent with previous research, it appears that reducing energy use was generally more difficult for Glenelg SAVES participants than what was perceived (cf. Lynch & Martin, 2013). Such a discrepancy may be due to difficulties in considering extraneous factors likely to influence such behaviour. These factors could include aspects such as weather variation, appliance replacements, changes to household structure and technology advances.

Adoption of assessment recommendations

Household energy conservation efforts can be divided into two categories: curtailment and efficiency behaviour. *Curtailment behaviour* includes everyday actions that help to conserve energy (e.g. turning off lights, lowering thermostat settings). *Efficiency behaviour* relates to one-off installations of devices that enable ongoing energy conservation (e.g. buying efficient appliances, installing insulation). The energy-saving potential of efficiency behaviour has been found to be greater than that of curtailment behaviour (e.g. Gardner & Stern, 2002). For instance, households may save more energy by installing more efficient appliances than by minimising the use of inefficient devices. A contradiction may arise, however, if people use efficient appliances more often than they otherwise would have because they are cheaper to run (i.e. the rebound effect or Jevons Paradox). Such situations highlight the need to consider the relationship between adoption of energy technologies and knowledge of how to use them efficiently, when evaluating the influence of conservation efforts on household energy consumption.

As part of the project's home energy efficiency assessments, HACC Staff identified a range of actions for their own households and that of their clients, which were designed to result in energy savings. Due to the financial capital constraints generally faced by low-income groups, these recommendations generally related to curtailment behaviour, as opposed to efficiency behaviour, predominantly to address appliance and heating energy use issues (refer page 37). To assess the effectiveness, in terms of adopting these recommendations, participants were asked to identify actions they had undertaken as part of the follow-up survey.

A comparison of adoption levels indicated that HACC Staff (50%) were significantly more likely to carry out all or most of the actions arising from their energy assessment than HACC Clients (26%). The majority of HACC Clients (66%) indicated that they had carried out some but not all the recommendations identified during their home energy assessments. Only a small proportion of participants in both groups indicated that they had not implemented any recommendations or could not recall the advice that was provided. The major reasons nominated for not carrying out any HEA recommendations were: required too much effort/hassle/too difficult (HACC Staff=20%; HACC Clients=30%); financial considerations (HACC Staff=40%; HACC Clients=26%) and potential reductions in comfort levels (HACC Staff=60%; HACC Clients=15%).

Table 18: Level of recommendation adoption by group

Level of adoption	Group			
	HACC Staff		HACC Clients	
	Count	%	Count	%
Carry out all or most of the actions*	10	50.0	48	25.7
Carry out some but not all actions	9	45.0	124	66.3
Carry out none of the actions	1	5.0	9	4.8
Do not recall identifying actions	0	0.0	6	3.2
Total	20	100	187	100

*Significant at the 95% level

As indicated by Table 19, the three recommendations most commonly adopted by HACC Staff were: wash full loads (washing machine/dish washer); turn off appliances not in use (70% of those adopting recommendations); and use a clothes horse if it is raining (65%). For HACC Clients, the recommendations with the highest adoption levels were: set fridge/freezer to correct temperature (72%); wash full loads (washing machine/dishes) (68%) and set machine to cold wash (63%). Recommendations that required a capital investment – e.g. replace halogen lights with LEDs, fit external awnings on windows and install a tap aerator - had a relatively low level of adoption amongst both groups, especially amongst HACC clients.

Table 19: Recommendations adopted by group

HACC Staff	HACC Clients
Wash full loads (washing machine/dishes) (75%)	Set fridge/freezer to correct temperature (72%)
Turn off appliances that are not in use (70%)	Wash full loads (washing machine/dishes) (68%)
Use a clothes horse if it is raining (65%)	Set machine to cold wash (63%)
Fill gaps and cracks (for heating/cooling) (60%)	Turn off appliances that are not in use (60%)
Dry clothes on the line (60%)	Set thermostat to most efficient temp (41%)
Don't put hot food in the fridge (60%)	Use a clotheshorse if it is raining (37%)
Keep doors closed when possible (60%)	Heat yourself first (e.g. put on a jumper) (35%)
Close curtain at night to keep heat in (55%)	Close curtain at night to keep heat in (35%)
Open curtain in the day to let heat in (55%)	

The major reasons for not carrying out recommendations nominated by HACC Staff were changes would reduce household comfort level (60%); planning to do so in the future (40%); and financial considerations (40%). For the HACC Client participants the most common reasons nominated were: requiring too much effort/too difficult (29%); not believing the changes would reduce their energy use (26%); and financial considerations (26%).

Free Ridership

Free-ridership refers to participants who would have implemented the program measure in the absence of the program (National Action Plan for Energy Efficiency, 2007). In this case, a free rider may be seen as a household that would have installed an energy efficiency measure whether or not the program existed (for example, a household that intended to install a blind anyway despite the project's purchase support).

One-third of HACC Staff (33.3%) and over one-fifth of HACC Clients (21%) could be classified as free riders, as they indicated that they would have made exactly the same energy efficiency purchases in the absence of the project. For 14% of HACC Staff and 16% of HACC Clients, the Glenelg SAVES project's purchase support allowed participants to make energy efficiency purchase(s) sooner than otherwise might have been the case.

Spill-over

Participant spill-over refers to additional energy efficiency actions taken by program participants due to a program's influence, but actions that go beyond those directly required by the program. *Non-participant spill-over* refers to savings from efficiency projects implemented by those who did not directly participate in a program, but which occurred due to the program's influence anyway (National Action Plan for Energy Efficiency, 2007).

To estimate participant spill-over, participants were asked to indicate whether or not they made any extra purchases outside the Glenelg SAVES project to increase the energy efficiency of their home. Nearly two-fifths of HACC Staff (38%) and more than a quarter of HACC Clients (26%) indicated that they had made extra energy efficiency purchase(s) outside the Glenelg SAVES project. Only a small proportion of participants in both groups (HACC Staff = 13%; HACC Clients = 5%), however, indicated that they were either unlikely or very unlikely to have made these purchases without receiving the project's energy assessment. This finding suggests that participant spill-over was low for both groups of Glenelg SAVES participants.

Leeann Evans: HACC worker

Recent training in Home Energy Efficiency Assessment provided Glenelg Shire Home and Community Care (HACC) worker Leann Evans with information about the high costs of running halogen down-lights in her home, and more importantly some options to make changes.

Leeann, a keen sewer, used halogen down-lights over her sewing bench. “I won’t be using halogen down-lights anymore,” said Leeann. “They are being changed over to LEDs, which will be far cheaper to run, even though they are a little more expensive to purchase initially”.



The energy efficiency training has been provided to Glenelg Shire HACC workers as part of the Glenelg SAVES project, and is already proving to be a hit with participants.

“I became involved in the project not only because I am a team leader in Heywood, but also I saw the benefits it provided; my new skills and knowledge will help me spread the word to my HACC clients” Leeann said. “Hopefully, in the future, I will be able to install solar panels on my home too – now I have the information about what is going to suit my needs”.

To estimate non-participant spill-over, participants were asked to indicate if they had discussed or shared ideas on how to save energy with other people outside the project. Nearly two-thirds of HACC Staff (65%) and half of HACC Clients (50%) indicated they had discussed or shared energy efficiency ideas with others. This finding indicates that the project was successful in generating community discussion about energy efficiency and was more successful in producing non-participant than participant spill-over.

Non-energy benefits

To assess the non-energy benefits associated with project participation, respondents were asked a range of questions relating to the following areas:

- Energy Related Knowledge
- Household comfort status
- Behaviour change status
- Empowerment status
- Level of energy efficiency interest

- Finance control status
- Attitudes to energy efficiency
- Bounded Rationality
- Energy curtailment levels (general, heating, cooling)

These items were included in both the initial and follow-up surveys to allow for comparisons before and after participants undertook a home energy efficiency assessment. Although factors outside the project may have influenced these measures, their focus on energy-related attitudes, knowledge and behaviour do provide a high degree of confidence that changes can be mostly attributed to project participation.

As indicated by Table 20, overall, most non-energy benefit items remained unchanged from the initial survey to the follow-up survey. The two exceptions are behaviour change and empowerment status. This finding suggests that the project was most successful in increasing beliefs around the energy efficiency levels of participant households and their level of control over their energy consumption.

Table 20: Changes in non-energy benefits (all participants)

Non-energy benefits	Initial survey	Follow-up survey	Change
Household comfort status	4.2	4.2	0%
Behaviour change status	3.5	3.8	7%*
Empowerment status	3.8	4.1	9%*
Level of energy efficiency interest	4.3	4.3	0%
Finance control status	4.6	4.5	-1%
Attitudes to energy efficiency	3.6	3.6	0%
Bounded Rationality	2.6	2.7	2%
Curtailment (general)	4.0	4.1	2%
Curtailment (heating)	4.6	4.7	2%
Curtailment (cooling)	4.0	3.9	-2%
Energy Related Knowledge	3.0	2.9	-2%

*Significant at the 95% level

For HACC Staff, the two non-energy benefits that increased significantly between the initial and follow-up surveys were: general energy curtailment behaviour and energy related knowledge. This finding suggests that the project was most successful in achieving its aim of increasing the energy knowledge of HACC Staff.

Table 21: Changes in non-energy benefits (HACC Staff)

Non-energy benefits	Initial survey	Follow-up survey	Change
Household comfort status	4.2	4.3	2%
Behaviour change status	3.1	3.5	11%
Empowerment status	3.4	3.7	9%
Level of energy efficiency interest	4.2	4.0	-6%
Finance control status	4.1	4.5	7%
Attitudes to energy efficiency	3.8	3.8	1%
Bounded Rationality	2.6	2.5	-3%
Curtailment (general)	3.7	4.0	8%*
Curtailment (heating)	4.5	4.3	-4%
Curtailment (cooling)	4.3	4.4	2%
Energy Related Knowledge	2.9	3.3	12%*

*Significant at the 95% level

For HACC Clients, the three non-energy benefits that increased significantly between the initial and follow-up surveys were: behaviour change status and empowerment status. This finding suggests that the project was most successful in increasing perceived household energy efficiency levels and control over energy use amongst HACC Client participants. Surprisingly, HACC Clients indicated that their energy-related knowledge had decreased since joining the project. This finding warrants further investigation to see if it is a random occurrence or an unintended consequence (e.g. less dependency on their own knowledge, lower confidence in their own knowledge).

Table 22: Changes in non-energy benefits (HACC Clients)

Non-energy benefits	Initial survey	Follow-up survey	Change
Household comfort status	4.2	4.2	-1%
Behaviour change status	3.5	3.8	7%*
Empowerment status	3.8	4.2	9%*
Level of energy efficiency interest	4.3	4.3	1%
Finance control status	4.6	4.6	-2%
Attitudes to energy efficiency	3.6	3.6	-1%
Bounded Rationality	2.6	2.7	2%
Curtailment (general)	4.1	4.1	1%
Curtailment (heating)	4.7	4.8	2%*
Curtailment (cooling)	4.0	3.9	-3%
Energy Related Knowledge	3.0	2.9	-4%*

*Significant at the 95% level

3.5 Participant satisfaction and perceived quality

The follow-up survey, administered in the last quarter of 2015, explored the perceived satisfaction, value and quality of Glenelg SAVES and any energy-related goods and services received as part of the project. Participants were also provided with an opportunity to suggest areas of improvement. The response rate to this survey was relatively high (64% of the initial research participants).

In general, satisfaction with taking part in the project was high across both HACC Staff and Clients. Conversion of item responses, found that overall satisfaction levels were 84% for HACC Staff and 80% for Clients that completed the project’s follow-up survey.

Table 23: Satisfaction by group

Satisfaction Items	HACC Staff	HACC Clients
My decision to take part in the Glenelg SAVES project was a wise one	4.2	4.0
I am delighted with my experience of taking part in the Glenelg SAVES project	4.0	3.9
Overall, I am satisfied with what I received from the Glenelg SAVES project	4.2	3.9
I believe I did the right thing by taking part in the Glenelg SAVES project	4.3	4.1
Satisfaction^A	4.2 (84%)	4.0 (80%)

Scale: 1=Strongly disagree – 5=Strongly agree

^A Composite variable derived from responses to scale items

Satisfaction levels were consistent between participants from the Glenelg Shire’s three major regions: Portland, Casterton and Heywood. This finding suggests a consistent project experience across the region.

Table 24: Satisfaction by region

Satisfaction Items	Portland	Casterton	Heywood
My decision to take part in the Glenelg SAVES project was a wise one	4.0	4.1	4.1
I am delighted with my experience of taking part in the Glenelg SAVES project	3.9	3.9	4.0
Overall, I am satisfied with what I received from the Glenelg SAVES project	4.0	4.1	3.9
I believe I did the right thing by taking part in the Glenelg SAVES project	4.1	4.1	4.2
Satisfaction^A	4.0 (80%)	4.1 (81%)	4.0 (81%)

Scale: 1=Strongly disagree – 5=Strongly agree

^A Composite variable derived from responses to scale items

HACC Client participants were also asked to indicate the quality of the home energy efficiency assessment that they received as part of the project. Reported service quality ratings were very high across the Glenelg Shire area's three major regions and overall. This finding suggests a consistency in service quality across the region.

Table 25: Service quality by region

Satisfaction Items	Portland	Casterton	Heywood	Total
Communication with the assessor before the energy assessment was excellent	4.3	4.5	4.2	4.3
The energy assessment was easy to schedule	4.2	4.5	4.2	4.2
The energy assessment was comprehensive	4.2	4.3	4.4	4.3
The energy assessor was knowledgeable about ways to reduce energy	4.2	4.5	4.3	4.2
The recommendations made by the assessor were easy to understand	4.2	4.5	4.2	4.2
The recommendations made by the assessor were useful	4.2	4.5	4.2	4.2
The energy assessor had your best interests at heart	4.3	4.6	4.3	4.3
Information about financial support for an energy efficiency purchase was easy to understand	4.2	4.6	4.1	4.2
Energy Assessment Service Quality^A	4.2 (85%)	4.5 (90%)	4.2 (85%)	4.3 (85%)

Scale: 1=Strongly disagree – 5=Strongly agree

^A Composite variable derived from responses to scale items

All HACC Staff (100%) and the vast majority of HACC Clients (88%) that completed the follow-up survey also received an energy-related good or service through the project. These participants were asked to indicate the quality of the products received. As indicated by Table 26, reported product quality ratings were generally high for both HACC Staff and HACC Clients. This high level of perceived quality suggests that the goods and services provided by the project to participants are generally believed to be of great benefit.

Table 26: Product quality by group

Satisfaction Items	HACC Staff	HACC Clients
Are very well made	3.8	4.1
Work as they should	4.1	4.2
Will last a long time	3.9	4.1
Were reasonably priced	3.7	3.9
Were easy to get installed	4.1	4.2
Have improved the comfort of my home	3.8	4.1
Will save me money in the long run	4.0	4.0
Product quality^A	3.9 (78%)	4.1 (82%)

Scale: 1=Strongly disagree – 5=Strongly agree

^A Composite variable derived from responses to scale items

3.6 Process Evaluation

This section provides findings from focus groups conducted with the HACC workers, individual semi-structured face-to-face interviews conducted with individual consortium members, sub-contractors and a telephone interview conducted with the training provider during October 2015. Discussion guides (refer Appendix J) were used for each of these interviews to facilitate communication and as a reference for interviewers/moderators. The aim of this qualitative research was to evaluate the operation of the consortium and of the project.

Objectives of the consortium

The formation of consortium is a common governance structure for complex projects that involve multiple stakeholders. The consortium model provides a strong governance structure and is a mechanism to:

- Bring to the table stakeholders and provide a long term basis for joint collaboration;
- Tap into the expertise of persons or groups within the home care and energy efficiency fields;
- Make decisions to ensure that the project fulfils its major objectives;

Glenelg SAVES' objectives were to increase the household energy efficiency skills, specifically in home auditing and advice for Glenelg Shire HACC staff. The project also aimed to improve energy efficiency in the homes of Glenelg Shire HACC staff and clients and deliver a high quality trial project providing data and analysis to inform policy and energy efficiency programs in the future and support for low-income households.

Focus Groups and Interviews

Four focus groups were run for the HACC workers, two in Portland and one each in Heywood and Casterton. In total, 13 HACC workers participated in a focus group, details as follows: Heywood – 2 workers, Casterton – 4 workers, Portland 1st Group – 4 workers and Portland 2nd Group – 3 workers. Each focus group ran for over an hour with an average focus group length of 1 hour 8 minutes.

Individual in-depth interviews were conducted with the training provider from MEFL and the consortium members; two from WDHS – SGGPCP and two from Glenelg Shire. The consortium member interviews lasted on average an hour, ranging from 27 minutes to 1 hour 18 minutes, and all were face-to-face interviews. The interview with the training provider was conducted by telephone and lasted 39 minutes. In addition, six interviews have been completed with sub-contractors who were involved in the project, three from Portland, two from Heywood and one from Casterton. These shorter interviews lasted between 18 minutes and 31 minutes, with an average interview time of 26 minutes⁶.

HACC Workers

Three of the four focus groups were made up of HACC workers who had participated fully in the project. Whereas, the fourth group was comprised of four HACC workers who had not completed any home energy assessments with clients, however, one of these four workers had undertaken some training and completed their own home energy assessment. (This person had been unable to undertake client assessments for personal reasons). The number of client assessments undertaken by each worker varied considerably, ranging from one to 93. However, the majority of the workers reported they had undertaken between five and 22 client assessments. The length of employment as a HACC worker ranged from one to 28 years, with the majority being employed for over 10 years.

Motivations:

The initial motivation for participation identified by all the HACC workers was the opportunity to help their clients. However, two workers also acknowledged that they viewed it as a good opportunity to address their own energy efficiency. One worker indicated that she was initially concerned about undertaking assessments with clients she did not know. The reasons provided by the four HACC workers for not participating in the project included insufficient time and family issues.

Concerns were raised in one focus group that at the beginning they were not fully aware of what participating involved. There was general agreement in this group that they had not realised how much would be involved, as one participant stated "... there was a lot more involved than we thought." However, it appeared that these HACC workers had not participated in all the training, one missed the initial session and one had started after the training had been completed. In contrast the view from the two other participant focus groups was that they had been trained well and they were happy with the level of information provided. Issues around the information provided to HACC staff and clients was a recurring topic in all of the focus groups.

⁶ All focus groups and interviews were digitally recorded with the permission of the participants.

Provision of Information:

The non-participating HACC workers discussed the problems they encountered because they were unaware whether or not their own clients were participating in the project. They identified that their lack of knowledge about the project was also problematic when their clients wanted to discuss their participation, as one worker explained, “we didn’t know what it was all about”. It was evident from this group that for those HACC workers who had not participated there was confusion surrounding which clients had participated and how clients had been selected.

The discussion in the three participant focus groups focused around the information provided to the clients, and the confusion and mistrust of the HACC clients. In particular, the need for the following suggestions was identified:

- More clarity and information regarding the process to avoid misunderstandings. The confusion around the \$200 contribution and clients expecting to be reimbursed for purchases was identified as one area that needed to be addressed
- information to be provided in written form to allow workers to read, digest and keep, especially as clients were suspicious of providing information for fear of how that information would be used
- information to be supplied to the HACC worker on the product/service to be supplied to their clients as some clients could not remember what they had requested
- a frequently asked questions (FAQ) sheet, to answer questions such as why sub-contractors were used.

Products:

In addition to the above, a recurring discussion topic in the three participant focus groups centred round the possibility of providing a list of products, their energy usage and prices. It appears that the flexibility of the project regarding products and services had unanticipated consequences for both workers and clients as the view of the workers was that a list would have been beneficial.

Client Recruitment:

The discussion on the recruitment of clients revealed that some workers were unwilling or uncomfortable with ringing and making initial contact with other workers’ clients. It appears that the project officer in these instances made the initial call to the clients and the HACC workers made contact with the client once they had agreed to participate to arrange a time to meet with the client. The workers identified a number of problems encountered from recruiting via telephone, including:

- many clients don't like answering the phone, because they are wary of scams, charities calling and sales calls
- the difficulties in getting this client group to understand about the project over the telephone rather than face to face.

One HACC worker commented how it was much easier with clients she knew, even if they were not her own clients, and that recruitment of those she did not know took much longer. In addition, this worker reported that clients had indicated to her they were happier with someone they already knew doing their assessment.

Client Motivations:

There was a general view from the HACC workers that most of the clients participated because of the \$200 financial incentive, or as the workers indicated the fact they were "getting something for nothing". The workers identified that some of their clients wanted to save money. The workers also acknowledge that even though many agreed initially because of the \$200 they also wanted to reduce their energy usage and save money. The workers also identified that the more nervous clients were those less willing to participate and acknowledge most of their clients are security conscious. The term 'energy assessment' was identified as problematic for some clients, because the clients were concerned their home care could be impacted due to confusing with HACC assessment by the shire. With the second survey it was reported that some clients were concerned if they said they were unhappy with the products received, it would mean that their homecare might be stopped.

Training:

The workers who participated in general said the energy efficiency training had reinforced and reminded them about energy efficient behaviours and that the training had made them think about their energy usage. One worker reported she had replaced several old appliances and adapted her behaviour resulting in a \$400 reduction in her bill.

Loreen Mizzi – HACC Worker

Being a Home and Community Care (HACC) Worker at Glenelg Shire has led to reduced electricity accounts for Loreen Mizzi. Through the Glenelg SAVES project Mrs Mizzi has been trained in Home Energy Efficiency Assessments and has been able to assist Glenelg Shire HACC clients with energy efficiency too. “It made it a lot easier to teach



some about energy efficiency after I had experienced the program myself” Mrs Mizzi said.

The Glenelg Shire HACC staff have a trusted relationship with their clients, and it is this trusted relationship that is a key to the Glenelg SAVES project. “Our clients trust us, and therefore they are more inclined to listen to us and take the information on board” Mrs Mizzi stated, “I will be able to continue to teach new clients about energy efficiency into the future, and also continue to save on my own electricity bills”.

Reflections:

When the HACC workers reflected on the most common changes clients could make they highlighted the following:

- washing clothes with cold water
- putting the plug in the sink to wash dishes
- switching off lights and power points
- closing curtains and blinds
- replacing halogen downlights with LEDs.

A common theme that emerged across the focus groups was that HACC workers viewed many of their clients were already undertaking energy efficient behaviour, or in some cases liked to think they were.

Survey:

There was a consensus amongst the HACC workers that as part of the training it would have been useful to dedicate more time on how to conduct the survey. A number of the workers suggested that an opportunity to practice administering the survey, i.e. include a role playing exercise in the training, would have been beneficial. In particular, the workers identified that advice on how to approach the more problematic questions such as income would have been valuable.

Issues regarding the length of the two surveys were at the fore for the workers during the focus group discussions and this matter was raised several times in each group. The workers described the surveys as repetitive, too detailed, too long and complicated, and having ambiguous questions. In addition, the requirement for clients to provide their energy bills was identified as problematic. The workers reported clients often could not find them, or did not keep them or someone else had them, as they did not pay them themselves.

Summary:

The HACC workers participated in the project primarily to assist their clients, whilst acknowledging the personal benefits of participation. A number of issues were identified regarding the information provided to participating HACC workers, other HACC workers and the HACC clients. In particular, a need for all HACC staff to be fully informed about the project and their clients' involvement to allow them to fully support their clients, the need for clear and concise information to be provided in written form to the workers and clients and the provision on a FAQ sheet to answer many of the common questions from clients were identified. Telephone recruitment was identified as problematic for HACC clients, indicating recruitment in person is more appropriate for HACC clients and other similar groups. The HACC workers identified the benefits for their clients from their role in the project, including avoiding the use of strangers, which was identified as an issue for their clients, as many were nervous and security conscious. The energy efficiency training the HACC workers received had reinforced and reminded them about energy efficient behaviour and prepared them to inform and remind their clients. Thus, enabling them to support and enhance the energy efficiency efforts being undertaken by their clients.

Sub-Contractors

Six interviews were undertaken with a range of sub-contractors who were involved in the project, three from Portland, two from Heywood and one from Casterton. These short interviews lasted between 18 minutes and 31 minutes, with an average interview time of 26 minutes. All interviews were audio recorded with the permission of the participants.

Of those interviewed three were electrical contractors mainly supplying and installing ceiling fans and replacement lighting, two of the contractors provided and installed a range of goods, including internal and external blinds, draught stoppers, door seals and insulation, and one had supplied and delivered electrical goods, such as fridges, washing machines, fans and microwaves.

Mavis Jennings – HACC Client

Receiving Home and Community Care Services from the Glenelg Shire has led to bigger and better things for Mrs Jennings. As a participant in the Glenelg SAVES project, being delivered by Glenelg Shire Home and Community Care Workers across the shire, Mrs Jennings was able to receive an energy efficient microwave oven.



“I do a lot of cooking and learnt that by using a microwave where possible, I could save energy.” Mrs Jennings said. The Glenelg Shire workers were trained to complete home energy efficiency assessments in the homes of all participants, who were then able to access assistance to improve the energy efficiency of their homes.

Motivations:

Of the interviewees, two indicated their main reason for involvement was commercial; however, for the remaining sub-contractors contributing to their community was identified as important factor in their willingness to be involved in the project. Moreover, one supplier indicated that without knowing the clients he might not have been willing to be involved in the project. For most of the sub-contractors, already knowing many of the clients and being trusted by them was also identified as assisting with the installation/supply process. Importantly for the clients knowing the sub-contractor may also be a factor in determining participation, as evidenced by clients requesting work be undertaken by a sub-contractor known to them rather than a stranger.

Margaret Sawyer – HACC Client

A new back door and a repaired window have greatly improved the comfort for Mrs Sawyer in her home. Home energy efficiency assessment training was provided to Mrs Sawyer’s Glenelg Shire Community Support Worker, who was able to assess Mrs Sawyer’s home. Then together with Mrs Sawyer, they were able to make recommendations on how to improve the energy efficiency and comfort of Mrs Sawyer’s home.



“I am able to open the window in the evenings now for the late breeze” Mrs Sawyer said, and the new back door is just fantastic. “The handyman who attended my home was wonderful – he did such a great job, and went the extra mile to ensure that everything was OK”.

Installation and supply:

All of the sub-contractors indicated that the process for arranging and installing energy efficient purchases was effective. In particular, they all identified the benefit of having a single contact person for organising products, installations and to deal with queries and issues was effective from their perspective. However, the \$200 maximum contribution from the project towards purchases was identified as problematic for both the sub-contractors and the clients. Issues identified included:

- The high cost of LED globes - customers expected more globes replaced for \$200.
- The costs of installation and travel time were not well understood by clients, resulting in higher costs than anticipated or less product, e.g. light globes.
- The final cost of supply and installation of certain electrical products, such as ceiling fans, were unable to be determined prior to installation, resulting in an unanticipated client contribution after installation. In most instances clients were willing and able to pay; however, this was not always the case.
- Payment of any excess cost over the \$200 direct to the supplier prior to delivery of products worked well in most instances; however, at times this became problematic due to non-payment by the client for whatever reasons.

In addition, the sub-contractors identified as problematic the aged client group and their confusion around the project, the products and the processes. Particular examples included:

- Clients believing they had requested a different product(s) to that arranged to be installed or delivered.
- Client concern over costs, even when product costs were covered by the \$200.
- Clients having to be reminded that the installation or product was as a result of the energy assessment and project.

The issue of contacting clients and their availability for installation and delivery of products was also identified as problematic and time consuming for the sub-contractors.

Energy efficiency and safety:

Four of the sub-contractors indicated that for some of the clients there was a lot more that could be done to make their homes energy efficient and that the work being undertaken was only a small part of what could be done. In addition, one of the electrical contractors indicated that they had identified, as part of their usual process, extra electrical work that was required in clients' homes for safety reasons.

Reflection:

On reflection of their participation in the project only one of the interviewees indicated that their involvement in the project had increased their general knowledge around energy efficiency, although even in this instance it was only regarding the types of energy efficiency products available that he had been unaware of previously. Whereas, half of the interviewees indicated that participation in the project had increased their knowledge about the needs of the local vulnerable people.

When reflecting on the project, the overall view from the sub-contractors was that the project had been successful in their small communities, however, concerns were raised about the possibility of scaling up and translating such a project to a metropolitan area. These concerns may be because of the sub-contractors viewing their involvement as partly a community service, exemplified by the following:

- Planning work to minimise costs of travel time to clients and in certain cases for more remote clients not charging for travel time.
- In a small number of cases supplying at cost or providing a small extra service at no charge.
- Motivation for participation, as mentioned previously, to assist the vulnerable in the community.

Project participation:

The issue of communication and having one contact person for the sub-contractors were reiterated as important for the efficiency and success of a project of this type. In particular, sub-contractors operating on a purely commercial basis are unlikely to participate given the small scale of individual jobs unless the costs of participation are kept to a minimum. For example, one supplier indicated that the small order numbers and ad hoc ordering procedure were problematic due to their minimum order numbers for certain appliances.

Summary:

The interviews with the sub-contractors revealed the opportunity provided by the project to contribute to their communities was a strong motivation for participation. Knowing and having the trust of the clients was identified as assisting with the installation/supply process from the sub-contractor and clients perspectives. The project processes for the installation and supply of goods were viewed as effective. In particular having a single project contact was identified as important and beneficial. The \$200 maximum contribution was identified as problematic for both the sub-contractors and the clients, especially when combined with the aged client group and their confusion surrounding the project. The sub-contractors installing products indicated that for some clients there was a lot more that could be done to make their homes more energy efficient. This group of participants, although viewing the project had been successful, raised the question of whether such a project would be successful in larger communities with sub-contractors who had a strong commercial focus.

Energy Efficiency Training Provider

MEFL undertook the community energy efficiency workshops and provided the energy efficiency and assessment training for the HACC workers. The trainer had been involved with the project from the start, he identified this, and the collaborative approach of the project team as important factors in the success of the training and the working relationship. In particular, the collaborative approach to the project design and the flexibility of training delivery and energy efficiency interventions were identified as important success factors for the delivery of the energy efficiency training.

The input from the project team on the training requirements and the feedback on the proposed training content were acknowledged as valuable for arranging the training. In addition, the trainer emphasised the importance of the project design in ensuring that the project objectives were both practical and achievable. In particular, he emphasised that by not 'overstretching' on numbers, types or retrofits and financial commitment the resultant goals were practical and achievable.

Community workshops:

The trainer reported that all of the community workshops were well attended with around 20 people in each workshop. Workshops identified included: Men's Sheds and a retirement village. Due to the large numbers of elderly people in each of the workshops, the workshop materials were tailored to suit the audience. Rather than the usual approach of providing information about energy efficiency room by room in the house, a quicker more direct approach was taken with the aim of holding the audience's attention. The approach taken was to inform people of the seven things that will have the greatest impact on energy efficiency in the average home and then explain their implementation. The feedback from the workshop participants provided to the workshop facilitator was positive and the level of engagement was evident to the trainer. The success of this approach used in the Glenelg SAVES project workshops has resulted in the training provider replicating with other groups where there is a need to get the energy efficiency information over quickly and concisely, for example in migrant communities.

HACC worker training:

The training was designed in two stages with built in feedback from participants to allow the trainer to adapt the training to meet their needs, by adapting the training as feedback was received, he believed that the training criteria had been met. The first of the two training sessions was a technical session, providing knowledge and this was followed with a practical session on what can be done in the home. Importantly, the training was designed to get the HACC workers to consider practical energy efficiency in their own homes to prepare them for assessing their clients' homes. In summary, the trainer stated it was "all about passing on some knowledge to people so they could make really simple changes in the home that would improve both their financial position and their health".

Project Flexibility:

The flexibility the project afforded in addressing energy efficiency in homes was identified as an important factor. In particular, the trainer recognised the importance of the flexibility of covering a range of products and interventions to ensure applicability to the participant's homes. This flexibility also allowed the trainer to tailor the energy efficiency training content for the HACC staff and their clients. The aim was to give the HACC workers the knowledge to know that every house they go into is going to be different and hence solutions will differ. Customisations of the training identified included:

- Removing as much jargon and technical content as possible
- Relating back to the real world

- Identifying low-technology strategies to fit the budget and the people, e.g. door snakes, draught stoppers, blinds etc.
- A strong focus on thermal comfort – heating and cooling – for the elderly clients

Engagement of HACC workers:

The HACC workers high level of engagement with the training was evident to the trainer from their behaviour, including:

- how much they talked and wanted more information
- the amount of questions asked during the sessions
- the feedback from the first session in the second session
- the follow up questions after the training.

The trainer believed that one of the reasons for the level of engagement was that the training focused on their homes, it made them work through the rooms in their home and think about their own energy efficiency. The trainer identified that this approach could have been enhanced if it had been conducted in a real home rather than a training room, allowing the training to be in-situ and for incorporation of some practical work. Furthermore, the trainer believed their engagement was also a result of them seeing the training as a way to help their clients. From undertaking the training with the HACC workers, it became evident to the trainer that they saw it not just as more training, but a real opportunity to help their clients.

Summary:

High levels of engagement were reported for both the energy efficiency training sessions for the HACC workers and the community workshops. The community workshops were well attended and the trainer tailored them to the largely elderly audience. A short and direct approach was used to inform the audience of the seven things that would have the most impact on energy efficiency in the average home and how to implement them. The success of this approach has led to replication with other groups where the energy efficiency information needs to be delivered quickly and concisely. The HACC worker training was delivered in two stages. It allowed for participant feedback and was tailored for the HACC workers to provide them with knowledge to identify simple changes in their home and their client homes to reduce energy usage. The success of the training and the level of engagement appears to be due to the training being focused on the HACC workers own homes, that is, the training was relevant to the workers, and the HACC workers were able to identify opportunities for ways to help their clients with their energy usage.

Consortium

Four semi-structured interviews were undertaken with consortium members, two representatives from SGGPCP and two from Glenelg Shire. These interviews lasted between 27 minutes and one hour 18 minutes, with an average interview time of an hour. All the interviews were audio recorded with the permission of the participants. Although the two representatives from SGGPCP had been involved with the project from the very beginning, the representatives from the Glenelg Shire had joined the project at a later date. The manager of the Glenelg Shire HACC program had formally commenced in the role early in 2015 after a number of staffing changes in the Shire, and the project officer was appointed after a slight delay following project's commencement.

Expectations:

From interviews, the consortium members' expectations regarding the project roll out were viewed to have been met; however, it was acknowledged that given personnel changes at the council, expectations regarding the ownership of the project by Glenelg Shire had been reduced, from SGGPCP's perspective. As one consortium member explained

... so there were significant staff changes [in the Glenelg Shire] from the time we planned this project through to receiving funding, through to actually getting started ... so at times it was more of PCP are doing this project, rather than it being Glenelg Shire's project ...

Changes in expectations by SGGPCP over time were in part attributed to the staffing changes within the Shire, but also due to greater understanding of the workings of the Shire's HACC program as the project progressed.

Consortium Model:

Participants were asked about the effectiveness of the consortium for governing the project. One consortium member viewed that:

I think we still would have had lots of challenges [without the staffing changes], but I think it would have maybe given us more ability to discusssome of the challenges and work together collaboratively to overcome them and gain some more momentum and ownership ... the (link with FedUni) worked well. Some of the initial planning worked really well like drawing up the project, but... I think that idea of forming a consortium is really good. So even just the idea of having a consortium is a good one.

This member also reflected on potential improvements, identifying:

It would have been nice to have Powercor on board ...

Other members reflected:

With hindsight ... if I start with the consortium the three Glenelg Shire, PCP, and FedUni working on that project plan together was a fantastic thing, because everybody had already started to think about how's this going to work and what would my resources be, I think that's been really really good. What I would change in the delivery of the program [project] and I don't know how ... would be somehow that we all own this.

I think it has been OK. There has been a lot of communication ... Yes I think it has been run really well. But I think what we touched on before on paper it looks good but really it is human nature and things change ... it's complex!

Suggested improvements in this area included better resourcing of relationship building and communications, particularly in view of organisational changes.

Project Administration:

Consortium members were asked whether they received complaints from project participants. Interaction with project participants ranged from none to repeated contact, with complaints predominantly dealt with at the operational level. A common complaint from HACC workers and clients was around the survey and in particular the length and complexity of the survey. Other complaints were less common, examples included:

- high installation costs
- removal of old light bulbs
- cost of replacement LED globes
- confusion by clients over the products or services to be supplied.

Hindsight:

Consortium members were asked what they would have done differently if they had their time again.

I would have a working group that included the end users the HACC workers and maybe the clients in the design of how we actually implemented [the project] in the Shire. I would make sure that the consortium members all had discussed and workshopped what each of their roles were and that we revisit that if ever we are struggling with the different roles ... and obviously I'd like not to have a huge data collection component.

Another consortium member expressed the opinion that more information about the project at the start would have helped those participating, especially when they were asked questions by the clients, whilst acknowledging it may not have increased recruitment of HACC workers.

Major challenges that were identified included the length of the survey and information on available products and services.

I think I mentioned it before about making it easier for them with a list [of products] and also making the booklet shorter

Project Evaluation:

Generally, consortium members saw value in the project with members suggesting that research findings would be useful for implementation of future projects, and for member organisations. The benefits to the HACC clients were identified by the consortium members.

The main one was for our clients that they got something into their home that helps save on energy, I don't know if it saves as energy prices are going up but they are not putting more energy out there, not using a lot more energy so it's going to save in the long run.

I would just see our frail clients getting some energy efficiency ... hoping to save some of their money on their bills as most of ... we have got a very high population of over 65's and I could see that they could benefit from it definitely.

In addition, other benefits to consortium members identified included:

... furthering our understanding of how the federal government works. We had a previous project, which we tried to keep control of the project, and this time we've sort of taken a different approach. Once you receive federal government funding you have to let the project go, it is not yours anymore and we've done that this time so we have further understood that's how the federal government works ... forming a relationship with FedUni as a research partner through this project timeframe we've also formed [relationships with other universities] as well so that's just a good benefit to us to have a greater understanding that a research partner is important – it is not something to be scared of and it adds strength to your project. ... working with the HACC workers it's been a benefit for us to get a greater understanding of that system and how they work, so we've got some great learnings to move forward if we wanted to do another HACC program.

I think partnering with FedUni is one because ... it has really helped us be more robust about evaluation, but it has also helped us build our confidence a bit and we know we can share and talk with someone who has access to literature reviews and stuff we maybe ... don't have the capacity to do. ... the other thing for us is that it is a really practical way to work with our partner agencies to build their capacity.

Reflections:

Consortium members were asked what they viewed was the most important message from the Glenelg SAVES project. The general view from all was that the vulnerable group of HACC clients need to be supported to improve energy efficiency in their homes and that the HACC workers are ideally placed to assist them. As one consortium member reflected:

... working with HACC workers is the right thing to do, I think it would have quite big impact on energy efficiency for low-income families, particularly those that are older and more vulnerable. I think it is certainly the right thing to be doing and that we need to invest more in building the capacity of the HACC workers ...

However, this was qualified with the consortium member adding “that Glenelg SAVES may have been somewhat restrained and limiting what it could do to the amount of data collection.”

Other consortium members supported this, one reflected “So I think they have gone about it the right way by getting the clients to accept it using HACC” and another stated:

I think it worked ... it worked as far as I am concerned the people who were interested got information, they got equipment put in their home. Workers are aware of what is out there and they took on board for their own home as well.

When asked whether providing energy efficiency advice could become part of the regular HACC service there was general agreement it should be. One member reflected:

that you can't unlearn something, so those HACC workers that did the training, have been involved in it, had that information ... and they are going to always or the majority of the times they will always be helping their clients and they'll always be having those conversations around that because it's always hot or cold.

Others strongly supported this view, explaining:

Absolutely, the relationships are there, there are some structures there that would also support [energy efficiency] to be more integrated into their everyday program.

Of course, any knowledge that the workers have and can pass onto their clients should be part of the curriculum - yes.

I think that is a good idea, we were working in another project which was different sort of enabling instruments to help people in the home, you know like gadgets to open things ... so we've been promoting that ... I think that we could also bring this in as well because we talk about the heat, what to do on a hot day and we talk about fires.

One member reflected on the outcomes from the project and had a strong view that there were “several learnings [from the project] that we ... should be able to take to other agencies.”

Summary:

Projects like Glenelg SAVES represent a significant development in research and collaboration between organisations. While some consortium members had a clear research agenda, others had their own agenda and project expectations – more community oriented. With differing expectations it is therefore not unusual that the expectations for some consortium members were met but not for others.

The reliance on consortiums and partnerships for funding energy efficiency projects is likely to continue and it is clearly important to get the right mix of consortium partners. For such initiatives to be successful requires

- The early establishment of a shared vision, a clear understanding of objectives, anticipated contribution by and value proposition for each member. It also requires a clear project scope.
- A clear understanding of consortium members and their impact on governance.
- Spelling out skill needs at the outset of project negotiations, continually gauging these needs against different consortium members, and better resourcing of relationship building and communications, particularly in view of project challenges which emerge.

3.7 Co-benefits

Whilst the potential co-benefits of low-income energy efficiency programs are acknowledged, traditionally these types of programs have been evaluated purely on the basis of energy savings for participants. Potential co-benefits can accrue to various stakeholders or society as a whole.

Frequently identified examples include local job creation, improved human health, higher property values, and fewer energy subsidies. Co-benefits are frequently categorised according to the beneficiary and the nature of the benefit.

The potential co-benefits from the Glenelg SAVES project included:

- Increased energy literacy – energy efficiency skills and knowledge, of the HACC workers and the clients with spill-over to the wider community
- Indirect economic benefits to society from local job creation and spending
- Social welfare benefits to participants, such as improved human health and wellbeing, improved home and fire safety and increased comfort

Improvements in energy literacy amongst project participants may lead to a more informed community and more efficient use of energy resources. In the case of Glenelg SAVES almost two-thirds of HACC Staff and half the HACC Clients who participated reported they had discussed or shared ideas on how to save energy with other people outside the project. This indicates the project was relatively successful at generating initial community discussion about energy efficiency and indicates the potential for further dissemination of energy saving ideas and energy savings throughout the community.

The project used local contractors and suppliers, wherever possible, for the supply and installation of the energy efficient purchases.

The potential social welfare benefits to participants from the project include:

- Increased comfort at home in both summer and winter
- Improved home and fire safety, for example replacement of halogen bulbs with LEDs, and required electrical safety improvements being identified and addressed by contractors whilst installing appliances as part of the project
- Improved wellbeing, for example increased confidence to manage fuel costs and consumption
- Health benefits

Investment in research to identify the co-benefits of energy efficiency programs and to develop the tools required for their evaluation is needed. The development of program evaluation frameworks, that address the co-benefits of low-income household energy efficient investments, will capture more of the benefits of future energy efficiency programs enabling better informed policy analysis.

3.8 Cost effectiveness

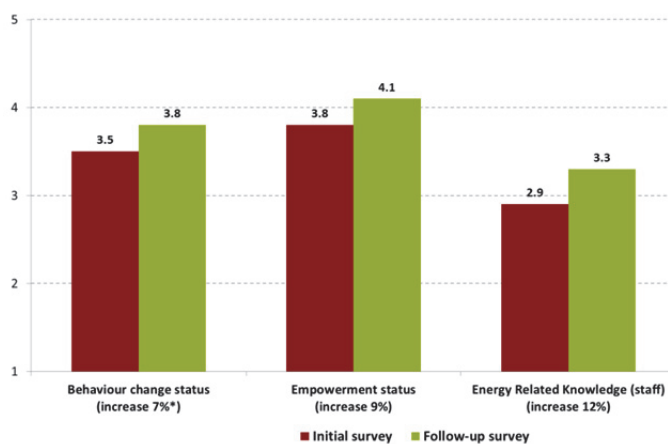
In accordance with LIEEP requirements, a cost-effectiveness analysis was undertaken to relate project expenses to evaluation findings. This also serves a secondary purpose to allow for a common assessment of the effectiveness of similar LIEEPs.

Based on the evaluation findings, this cost-effectiveness analysis was undertaken on the three main project outcomes, which significantly increased following participation in Glenelg SAVES:

- Energy efficiency knowledge of HACC staff (increase of 11.6%);
- Overall perceptions of household energy efficiency levels (behaviour change status) (increase of 7.3%); and
- Overall beliefs about control over energy use (empowerment status) (increase of 8.8%).

Each of these constructs were measured using 5-point likert scales. As indicated by Figure 13, these three outcomes increased significantly from the initial survey, completed at the start of the program, and the follow-up survey, which was undertaken after the project’s implementation.

Figure 13: Changes in key project outcomes



*Significant at the 95% level

The cost-effectiveness analysis was undertaken at the following four levels:

1. Direct trial approach (cost of delivering the trial approach to participants)
2. Trial component (direct trial approach + costs associated with recruiting and maintaining participants)
3. Total business (direct trial approach + trial component + costs of project administration)
4. Total trial (direct trial approach + trial component + costs of project administration + cost of participating in a government funded trial)

The following details the costs incorporated for each level:

Direct Trial Approach:

- Energy Efficiency Audit Implementation costs (the actual retro-fitting, appliance upgrades, etc.),
- Conducting the Home Energy Efficiency Assessment/Audit training through a consultant
- Conducting Community Workshop with a consultant
- Participant time for the Home Energy Efficiency Assessment training
- Participant time to carry out the home assessment/data collection

Trial Component:

- $\frac{3}{4}$ of the costs of Staff Costs – WDHS
- $\frac{3}{4}$ of the costs of Staff Costs – Consortium
- Participant time in the introductory workshop
- Launch, thank-yous and communication for the introduction

Total Business:

- $\frac{1}{4}$ of the costs of Staff Costs – WDHS
- $\frac{1}{4}$ of the costs of Staff Costs – Consortium
- HACC staff administration
- Room hire for workshops
- Project dissemination

Total Trial:

- Data collection and analysis
- Governance costs – advisory group, and expert advice for advisory group
- Project auditing
- Film

The following table (Table 27) presents the cost effectiveness of the major project benefits at each of the four levels of analysis. The figures represent the cost of increasing each of the project outcomes by 1% (e.g. \$11,299 to increase staff's energy efficiency knowledge by 1%). The direct trial approach was the most cost-effective; however, this assumes that the same level of benefits would have been derived without the inclusion of the project's other components:

Table 27: Cost-effectiveness analysis (cost per % increase)

	Cost	Effectiveness (unit)	Knowledge (Staff)	Behaviour change	Empowerment change
Increase			11.6%	7.3%	8.8%
1. Direct trial approach	\$131,000	\$ per % pt	\$11,293	\$17,945	\$14,886
2. Trial component	\$320,625	\$ per % pt	\$27,640	\$43,921	\$36,435
3. Total Business	\$378,375	\$ per % pt	\$32,619	\$51,832	\$42,997
4. Total Trial	\$689,745	\$ per % pt	\$59,461	\$94,486	\$78,380

To allow for comparisons across programs, a further cost-effectiveness analysis was undertaken on a per participant basis. Table 28 details the cost effectiveness of each project benefit for the four levels of analysis. The cost per participant calculations assume that all fixed and variable costs were distributed equally across participants and costs for servicing staff and clients were equivalent.

Table 28: Per participant cost-effectiveness analysis (cost per % increase)

	Cost per participant	Effectiveness (unit)	Knowledge (Staff)	Behaviour change	Empowerment change
Increase			11.6%	7.3%	8.8%
1. Direct trial approach	\$399.39	\$ per % pt	\$34	\$55	\$45
2. Trial component	\$977.52	\$ per % pt	\$84	\$134	\$111
3. Total Business	\$1,153.58	\$ per % pt	\$99	\$158	\$131
4. Total Trial	\$2,102.88	\$ per % pt	\$181	\$288	\$239

Cost-benefit analysis

Due to electricity use being similar to or higher than historical trends, it was not possible to estimate financial benefits relating to energy use changes attributable to the project. The major benefits derived from the program were inherently subjective; however, they directly relate to the project's main objectives of increasing energy efficiency skills of HACC staff and improving the energy efficiency of participating clients. Placing a monetary value on such non-financial benefits has been identified as one of the most challenging aspects of undertaking a cost-benefit analysis for energy efficiency programs (Clinch & Healy, 2000). To overcome these difficulties, a method such as

contingent valuation⁷, would have been necessary to estimate participants' willingness to pay for such benefits (e.g. increased knowledge, energy efficiency). The process required for estimating such financial values would have imposed a great burden on participants and was beyond the scope of this study.

The project is also likely to have provided several co-benefits for participants and the Glenelg Shire region. As low-income energy efficiency programs focus on financially constrained community members they are also more likely to provide non-energy benefits than general residential projects (Berelson, 2014). Such co-benefits include: lower vulnerability to rising energy costs; improved health and comfort, lower mortality risks; reduced subsidies from governments and energy providers; increased economic activity (e.g. jobs creation), improved energy literacy of participants; and knowledge sharing with non-participants (Anderson, Finney & White, 2010; Heffner & Campbell, 2011; Ryan, 2011). Although the Glenelg SAVES evaluation did assess some of these co-benefits (e.g. knowledge, participant and non-participant spill-over, housing comfort), due to the many factors that influence health and well-being it was not possible to quantify the direct impact of the project on these outcomes. Such estimates would need to be derived using an experimental or quasi-experimental research design, which was not possible for this trial, due to equity issues and budgetary constraints. Even with such an approach, measuring co-benefits has been identified as a major challenge for the program evaluation community (Heffner & Campbell, 2011).

⁷ Contingent valuation studies use surveys to estimate the monetary value of goods or services in the absence of prices (Carson, 2012). Traditionally, this method has been applied to value public goods.

4. Budget

The following provides a summary of the Glenelg SAVES budget. Total funding for the project was \$689,745, which included \$537,595 from LIEEP Funding and \$152,150 from consortium members' in-kind contributions.

The only budget variation required was a result of Energised Homes leaving the project's consortium in early 2014. Although Energised Homes had to cease being a Glenelg SAVES consortium member, a strong relationship was built with Moreland Energy Foundation Limited (MEFL). This organisation was appointed as a sub-contractor to provide the project's energy efficiency assessment training. MEFL were identified as a suitable replacement due to their familiarity with the LIEEP and the Glenelg SAVES project. This experience and expertise ensured that Energised Homes' in-kind contribution was covered through services provided by MEFL. This energy efficiency assessment training was provided below budget and allowed sufficient funding for MEFL to assist also in the delivery of the Community Awareness program.

Details of the Glenelg SAVES project's revenue and expenditure (Figure 14) and funding sources (Figure 15, overleaf) are provided in the following. An independent financial audit will be conducted by external auditors to ensure appropriate expenditure and financial accountability.

Figure 14: Revenue and expenditure report

Revenue and Expenditure

For the project ending 29 February 2016

	2014		2015		2016
Revenue		Revenue		Revenue	
Department of Industry	\$ 237,325.00	Department of Industry & Science	\$ 159,000.00	Department of Industry, Innovation and Science	\$ 101,270.00
Department of Resources, Energy & Tourism	\$ 40,000.00	Transfer from Income in Advance 2013/14	\$ 104,912.00	Transfer from Income in Advance 2014/15	\$ 75,150.27
Other Income	\$ 1,449.72	Other Income - reverse overstated income 2013/14	-\$ 1,449.72	Interest from 2014/15	\$ 2,610.11
Total Revenue	\$278,774.72	Total Revenue	\$262,462.28	Total Revenue	\$179,030.38
Expenditure		Expenditure		Expenditure	
Salaries & Wages	\$ 74,916.52	Salaries & Wages	\$ 52,104.80	Salaries & Wages	\$ 48,017.91
Superannuation	\$ 2,137.00	Superannuation	\$ 3,003.82	Superannuation	\$ 2,584.72
Workcare	\$ 248.80	Workcare	\$ 393.39	Workcare	\$ 739.36
Other oncosts	\$ 405.98	Other oncosts	\$ -	Other oncosts	\$ -
Food Supplies	\$ 1,075.79	Food Supplies	\$ 423.49	Food Supplies	\$ 3,159.95
Printing & Stationery	\$ 3,964.00	Printing & Stationery	\$ 3,257.35	Printing & Stationery	\$ 11,180.00
Staff Health & Welfare	\$ 1,082.39	Repairs & Maintenance	\$ 2,887.67	Repairs & Maintenance	\$ 5,865.50
Staff Training & Development	\$ 6,117.27				
		Audit expense	\$ 300.00	Conference Rego and Accommodation	\$ 8,560.27
Other expenditure	\$ 369.14	Other expenditure	\$ 39,613.60	Audit expense	\$ 1,000.00
Glenelg Shire Council	\$ 27,159.10	Glenelg Shire Council	\$ 28,949.69	Other expenditure	\$ 45,259.95
Federation University	\$ 56,378.19	Federation University	\$ 56,378.20	Glenelg Shire Council	\$ 10,378.07
Transfer to Income in Advance	\$ 104,911.85	Transfer to Income in Advance	\$ 75,150.27	Federation University	\$ 42,283.65
Total Expenditure	\$278,774.72	Total Expenditure	\$262,462.28		
Surplus/(Deficit)	\$0.00	Surplus/(Deficit)	\$0.00		

Figure 15: Funding sources

Organisation	Cash or in-kind	2012-13 (exGST)	2013-14 (exGST)	2014-15 (exGST)	2015-16 (exGST)	SUB-TOTALS (exGST)
LIEEP funding	Cash	\$20,000	\$140,000	\$191,325	\$186,270	\$537,595
Lead Organisation (SGGPCP)	In-kind		\$12,300	\$12,300	\$12,300	\$36,900
Glenelg Shire	In-kind		\$9,800	\$1,100	\$2,000	\$12,900
University of Ballarat	In-kind		\$19,850	\$28,300	\$48,300	\$96,450
Energised Homes	In-kind		\$300	\$3,800	\$1,800	\$5,900

5. Conclusion and Recommendations

The Australian Government's Low Income Energy Efficient Program (LIEEP) trialled a number of different approaches in various locations to assist low-income households to become more energy efficient. The program sought to assist low-income households to implement sustainable energy efficiency practices and build the knowledge and capacity of consortium members and Australian energy efficiency technology suppliers.

This report presents the findings from an evaluation of the Glenelg SAVES LIEEP project. This trial aimed to address information failure as a barrier preventing low-income residents from improving their energy efficiency. The focus of the project was to increase capacity and knowledge of HACC staff by providing them with energy efficiency training. HACC staff used this training with the aim of making their own houses more energy efficient. HACC staff also provided participating clients with a free home energy assessment and suggested recommendations for clients to reduce their energy bills and increase the energy efficiency of their homes. This project and evaluation was managed by the Glenelg SAVES consortium: SGGPCP, the Glenelg Shire and FedUni.

The results from the impact and process evaluation, indicate:

- 306 HACC Clients and 22 HACC Staff took part in the project
- The two largest population areas of Portland and Heywood were well represented in both the HACC Staff and Clients groups
- HACC Clients were significantly more likely to own their residence outright (77% vs. 32%) and less likely to have a mortgage than HACC Staff (6% vs. 55%)
- In general, participants from both groups were most likely to live in houses (rather than units) and relatively small and older housing stock
- Whilst some form of insulation was common for the vast majority of households, insulation treatments such as double-glazing and floor insulation were only found in a relatively small number of households.
- Curtailment behaviour was generally high for both groups, especially regarding: switching off lights in unoccupied rooms and minimising energy use for cooling and heating.
- Economic factors (save energy /reduce energy bill) were the major reason for joining the project for HACC staff. Although these factors were also important reasons for HACC Clients to take part in the project, the influence of social factors and Glenelg SAVE's financial support for energy efficiency purchases were generally greater. These findings support two key elements of the project: 1) the use of trusted advisors (i.e. HACC Staff) to encourage

participation and 2) financial support to alleviate barriers associated with access to capital for energy efficiency investments by low-income households.

- The most common actions identified from the home energy assessments for both groups generally related to appliances and heating.
- The majority of HACC Staff and HACC Clients indicated that project participation had not had an influence on their electricity or gas usage levels. This finding was supported by an analysis of participant energy data, which found that the Glenelg SAVES project did not generally affect household electricity use.
- A comparison of adoption level indicated that HACC Staff (50%) were significantly more likely to carry out all or most of the actions arising from their energy assessment than HACC Clients (26%). Only a small proportion of participants in both groups indicated that they had not implemented any recommendations or could not recall the advice that was provided.
- One-third of HACC Staff (33.3%) and over one-fifth of HACC Clients (21%) could be classified as free riders, as they indicated that they would have made exactly the same energy efficiency purchases in the absence of the project.
- Participant spill-over was low for both groups of Glenelg SAVES participants.
- The project was successful in generating community discussion about energy efficiency (i.e. non-participant spill-over).
- The project was most successful in increasing beliefs around the energy efficiency levels of participant households and their level of control over their energy consumption.
- The project was successful in increasing beliefs around the energy efficiency levels of participant households and their level of control over their energy consumption
- Glenelg SAVES was successful in increasing: perceived household energy efficiency levels and control over energy use and heating curtailment behaviour amongst HACC Client participants
- The project was successful in achieving its aim of increasing the energy knowledge of HACC Staff.

The following recommendations have ensued from the evaluation of the Glenelg SAVES project:

1. Extend the HACC Program to incorporate energy efficiency training for all staff and targeted advice and support for clients.

Often vulnerable groups are considered *hard to reach* through traditional service delivery models, due to the location of services, negative experiences, cynicism and a lack of knowledge about service availability (Crozier & Davies, 2007; Cortis, Katz, & Patulny, 2009). The Glenelg SAVES project demonstrated a successful model for engaging low-income households in becoming more energy efficient. Building on this success, it is recommended

that energy efficiency assessments and advice be embedded into the daily responsibilities and operations for the HACC service. This would be a relatively low-cost integration and could include energy efficiency assessment items being included in existing HACC assessments. In the context of the Glenelg Shire, this would also allow the energy efficiency knowledge and skills gained by HACC Clients through the project to be utilised (both formally and informally) in the future provision of HACC Services.

2. Promote energy efficiency as a wellbeing issue that falls within the provision of public health services

Rising energy prices and climate change risks pose unprecedented challenges for the public health system. The success of Glenelg SAVES in integrating energy efficiency within an existing health service (HACC) demonstrates the potential to incorporate such elements in other areas of health promotion and policy. Such an approach is consistent with calls to re-orient health policy beyond its traditional focus of providing clinical and curative services (Ottawa Charter, 1986).

3. Alleviate imperfect information market failure by using social networks to support disadvantaged groups in accessing energy efficiency information, advice and support

Lack of information about specific ways to improve energy efficiency has been identified as an important reason why many people fail to identify energy saving strategies, and do not undertake cost-effective energy efficient upgrades or improvements to buildings or appliances. A key element to addressing this issue is improving the energy literacy of the population. The Glenelg SAVES project was successful in generating *non-participant* spill-over in that project participants share energy efficiency advice with people outside the project and found that energy-related knowledge was an important driver of attitudes and beliefs about increasing energy efficiency. This demonstrates that such projects designed to increase energy efficiency knowledge produce positive externalities as project benefits are shared with third-parties. These societal benefits provide a rationale for Government support of such programs designed to help foster better informed energy consumers.

4. Establish standard guidelines for undertaking energy efficiency program evaluations in an Australian context

A difficulty in comparing the effectiveness of the LIEEP is that each grant recipient conducted its own unique mix of trials, and that different methodologies were used to evaluate outcomes. This raised concerns about data comparability to facilitate analysis and generate findings and knowledge that would be applicable in such diverse contexts. Although the

LIEEP data scheme did provide some consistency in terms of data collection, the establishment of standard guidelines and protocols for program evaluation would likely alleviate some issues in comparing and sharing results from each project. Such guidelines could provide the following benefits:

- Common terminology and methodology for determining program impact in a variety of settings including residential, commercial, institutional and industrial buildings, and industrial processes;
- Procedures which, a) can be applied to similar projects, b) are internationally accepted as best practice and c) are impartial and reliable;
- Standard Procedures for measuring and/or verifying baseline and long-term energy savings.

5. Investigate opportunities for encouraging financial support for energy efficiency investment by low-income households

For low-income households, the capital costs of building retrofits and appliance upgrades are significant barriers to investment in energy efficiency measures. Financial considerations were still identified in this study as a major reason for not carrying out energy assessment recommendations even though their focus was on low-cost actions or behavioural changes. While various Commonwealth, State and Local Government loan schemes have been put in place to assist business and owners of commercial buildings to invest in energy efficiency, there are few such schemes for residential homeowners.

When the Commonwealth Government's Green Loans Scheme concluded several years ago, a small number of banks, credit unions and community support agencies continued to offer a range of personal finance options to encourage environmentally friendly residential building retrofits and appliance upgrades. These finance products are essentially personal loans, but the interest rates applied to green loans are generally 0.5-1% lower those applied to the lender's personal loans. These green loans may be secured or unsecured, and the funds must be used for the purchase of goods and services to reduce each household's environmental footprint. Acceptable purchases include:

- the replacement of incandescent and halogen lighting with LED lighting;
- the installation of blinds, awnings and other household shading;
- the replacement of older, less-efficient appliances/white goods with more energy efficient units (5 Star +);
- the replacement of electric & gas hot water heaters with solar hot water systems;
- the installation of solar PV systems;

- the purchase of 5 Star rated cars;
- the installation of rainwater and/or greywater tanks and systems;

Good Shepherd Microfinance currently offers two finance options to low income households to finance the purchase of white goods, education, car repairs, furniture, medical expenses and computers. The No Interest Loan Scheme (NILS) provides interest-free and fee-free short-term loans for \$300 - \$1,200. The StepUP program, which offers loans of \$800-\$3,000, is also free of fees, but interest is charged at a rate of 5.99% fixed. These loans are not specifically to fund energy efficiency upgrades, but could be used to assist eligible low-income households to improve the energy efficiency of their homes.

Although the private and third sector are providing some financial mechanisms to support energy efficiency investments, little is known about the feasibility of and demand for such services. This is a complex phenomenon as access to capital constraints are exacerbated by high discount rates for energy-related purchases (e.g. trade-offs between purchase and operating costs), which also hinder investment in energy-efficiency technologies.