

Lead Educate Advocate Demonstrate Sustainability (LEADS)



Final Report



Australian Government
Department of Industry,
Innovation and Science

This Activity has received funding from the Australian Government.



LEADS



Lead

Educate

Advocate

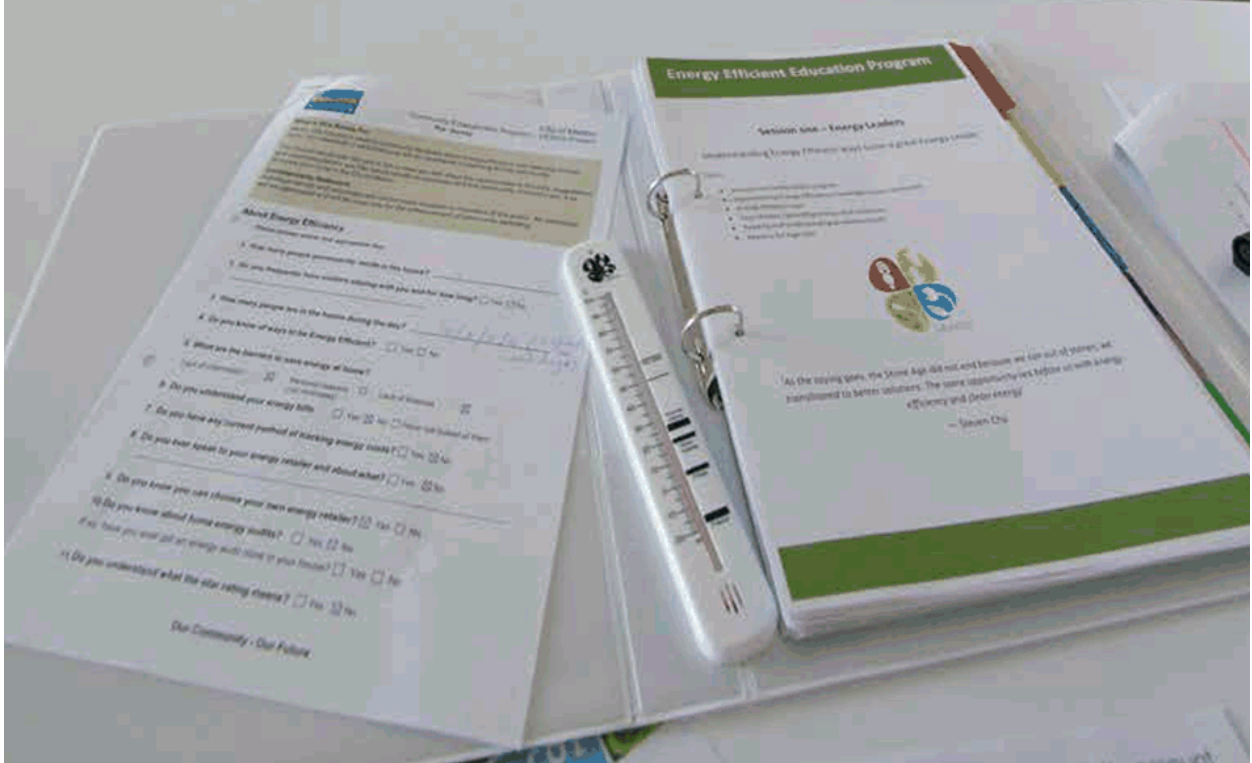
Demonstrate

Sustainability Project

**Melton LEADS the Way, Empowering our Community
and Demonstrating Energy Savings Measures.**

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EXECUTIVE SUMMARY

This final report is to document the objectives, methodology, outcomes and benefits of Melton City Council's award winning Lead, Educate, Advocate, Demonstrate Sustainability (LEADS) Project. This project was co-funded by the Australian Government and sought to bring about reductions in energy consumption and greenhouse gas emissions in Council's residential street lighting and nine key community facilities. In addition to these demonstration activities, Melton City Council also delivered an extensive community engagement program to Melton's community that empowered them to make a difference to their own behaviour, consumption and energy bills by providing real world tools to improve energy literacy..

The results show that the on-the-ground energy efficiency works with street lighting and community facilities presented many opportunities for learning and improvement and were a great success. After changing 3,825 inefficient street lights, Melton City Council is saving over 1.14 million kWh per year. Melton Civic Centre also boasts a saving of 280,600 kWh per year in electricity which represents a 42% reduction.

The evaluation of the LEADS community engagement program has demonstrated that the model employed for this community engagement could have much wider positive implications, for future engagements activities that Council undertakes, than originally planned. Over 540 trainees participated in the education program with 65% residing in areas that were identified as low socio economic and disadvantaged. In the post-training evaluation 99% of the surveyed participants stated that they were now able to read and understand their energy bills and were ready to make changes and improve their energy usage.

There are documented learnings and observations from each of the three main activities (street light changeover, building upgrades and community engagement) of the LEADS project. Some of the learnings and methods employed for community engagement will be used in future Council projects, for example Council may consider investigating using similar resources and methods for engaging directly with the community and reimbursing the community for their time in training.

It is recommended that this report not only be used to meet the requirements of the funding body, but also be shared amongst other organisations and tiers of government who may also benefit from the learnings of this project.





PROJECT OBJECTIVES

Introduction

This report has been written with direction from the "Community Energy Efficiency Program - Final Report Guidance Material for Recipients" provided by the Department of Industry.

Melton City Council's LEADS project does comprise of three distinct project activities and this report responds to the questions posed in the guidance material for each of the project activities.

The objectives of the Community Energy Efficiency Program (CEEP) are to:

1. Support a range of local councils and community organisations to increase the energy efficiency of different types of non-residential council and community use buildings, facilities and lighting; particularly where this would benefit low socio-economic and other disadvantaged communities or support energy efficiency in regional and rural councils.
2. Demonstrate and encourage the adoption of improved energy management practices within councils, organisations and the broader community.

In addition to meeting the above CEEP objectives, Melton City Council's Project Objectives are to:

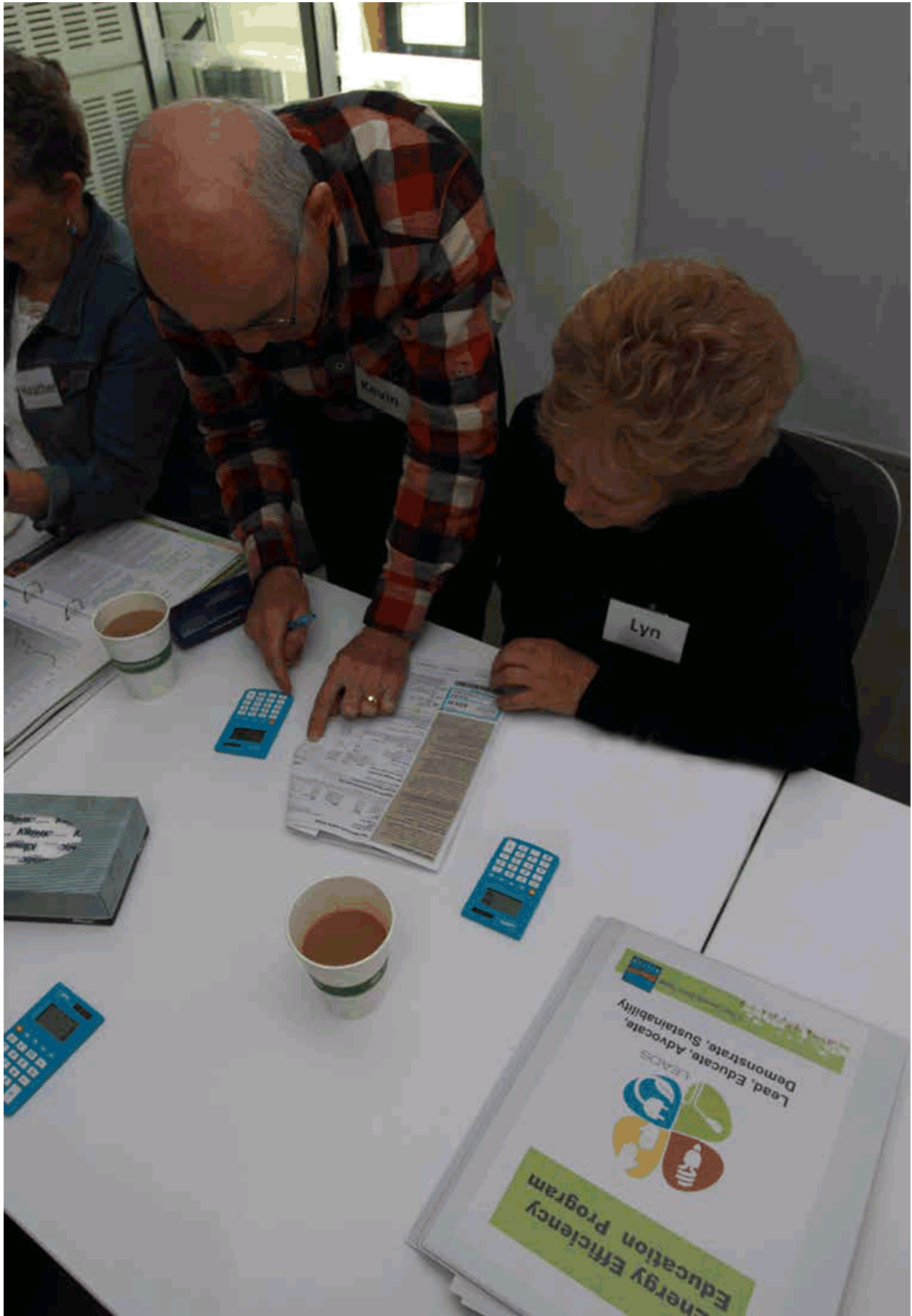
- Demonstrate Council's commitment to addressing climate change;
- Maximise energy savings within the project budget;
- Maximise greenhouse gas reductions;
- Reduce Council and ratepayer's electricity costs;
- Increase capacity within the community to reduce energy consumption and associated costs;
- Provide energy efficiency education to Melton's lower socio-economic sector in to reduce their energy use and bill stress. In addition to advertising the program to the wider community, individual community groups were specifically invited to attend training;
- Deliver an innovative energy efficiency program that addressed a huge need in Melton City Council, targeting the disadvantaged;
- In addition to advertising the program to the wider community, individual community groups were specifically invited to attend training: and
- Deliver a model of community engagement and education that could be reproduced elsewhere.

In order to deliver on both the CEEP objectives and Melton City Council's objectives, Council took a multidisciplinary approach and develop the LEADS project which consisted of the following three project activities.

- 1. Street light replacement program:** Council changed over 3800 inefficient street lights to more efficient technology
- 2. Community facilities- energy efficiency upgrade works:** Nine key Council facilities were targeted for energy efficiency improvements.

Both the street light replacements and the community facility upgrades were included not only to deliver the CEEP objectives, but to demonstrate Council leadership and these projects have to date, delivered the greatest benefit in respect of greenhouse/energy reduction and financial savings for Council.

Community engagement program: 544 local community members, leaders in the community and working professionals participated in the energy efficiency training sessions. This program was directly targeted at Melton City Council's low socio-economic and disadvantaged communities to educate and empower the community's most vulnerable to face rising energy costs and bill stress.





PROJECT ENERGY EFFICIENCY ACTIVITIES

Background

In March 2011, Melton City Council adopted the Greenhouse Action Plan (GAP) 2011-2015. The plan provided the framework for Council to reduce its carbon emissions and impact on the environment, and sought to demonstrate leadership across the community whilst reducing Council's energy consumption in the face of rising costs. As identified in the GAP, the energy consumed by street lighting represented 52% of Council's corporate emissions, and buildings represented 43%. Council listed the upgrade of the inefficient street lighting as well as energy efficiency measures across the building assets as priority actions due to the significant proportion of emissions that these two elements represent. Funding the street light changeover and the facilities upgrades would not have been possible in short-medium term without the Australian Government funding support to assist with the delivery of these actions given the investment required by Council to manage the fast rate of growth being experienced in the City of Melton.



STREET LIGHT REPLACEMENT

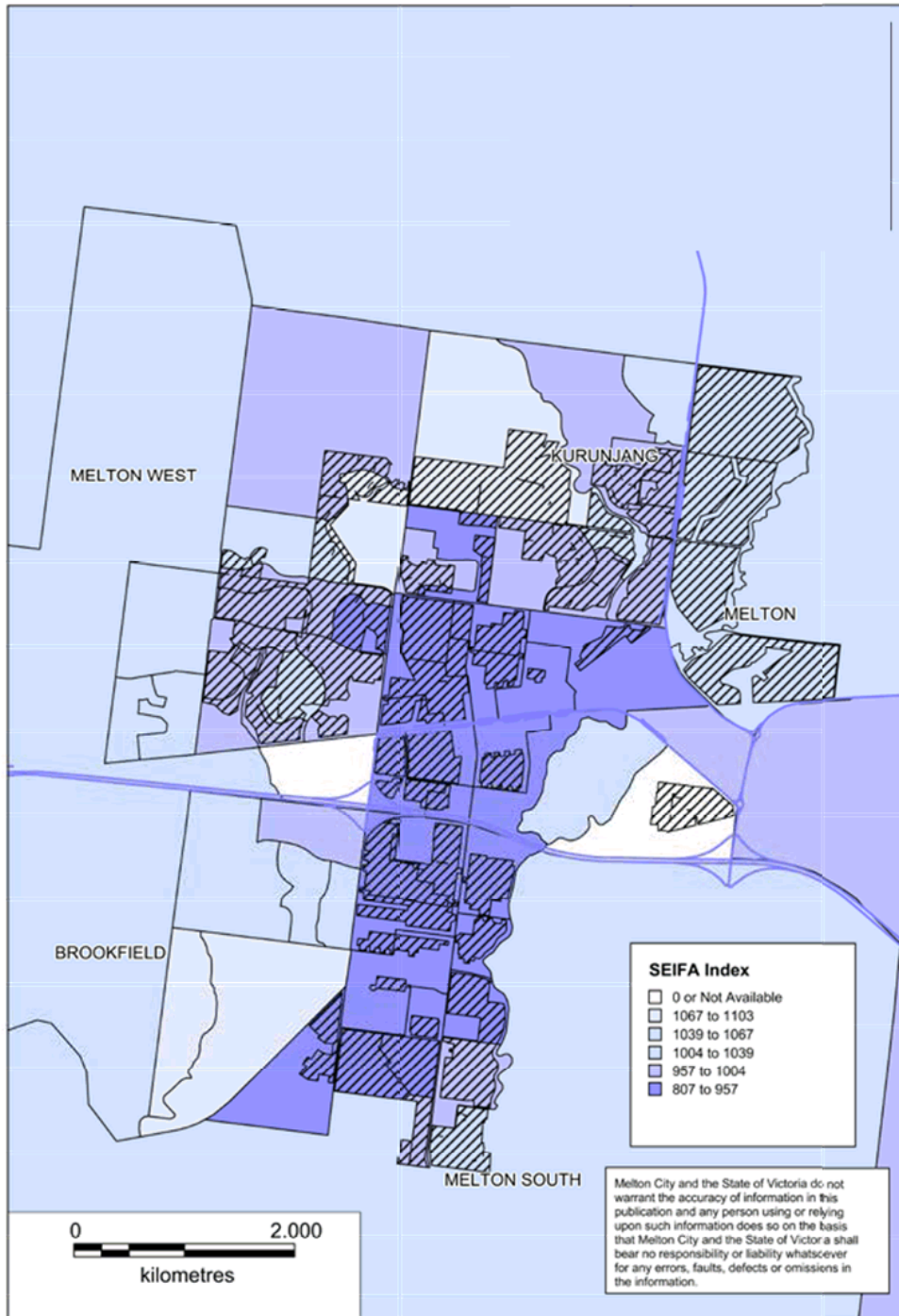


ENERGY EFFICIENCY UPGRADE WORKS



COMMUNITY ENGAGEMENT PROGRAM

Map 1





ACTIVITY 1: STREET LIGHT REPLACEMENT PROGRAM

Street Light Replacements

In alignment with the project objectives, Melton City Council identified the areas in the Australian Bureau of Statistics Socio-Economic Indexes for Areas (SEIFA) to highlight the suburbs of high disadvantage. **Map 1** shows the suburbs where the most inefficient lighting (Mercury Vapour 80w lights) were located around the Melton Township overlaid with the SEIFA data.

By ensuring that these areas received the upgraded lighting, the ancillary benefits such as increased lighting levels and improved amenity and safety were directly linked to the disadvantaged communities of the City of Melton.

The project involved replacing 3,825 inefficient MV lamps in Category P and T5 (residential) streets throughout the City of Melton with energy efficient LED lighting. This included parts of the suburbs Brookfield, Burnside, Burnside Heights, Caroline Springs, Diggers Rest, Hillside, Kurunjang, Melton, Melton South, Melton West, Plumpton, Rockbank and Toolern Vale.

LED Technology

When the funding application for the Community Energy Efficiency Program (CEEP) was developed the only energy efficient technologies approved by the owner of the assets (Powercor and Jemena) were T5 or compact fluorescent (CFL) lights. The original project plan was therefore based on installing T5 lights. These lights provided a clear improvement to MV lamps in terms of lumens per watt and light colour.

In September 2013, Powercor approved an LED street light for use on their network. The capital cost of the LED was higher than both the T5 and CFL, but the overall cost savings and environmental benefits are superior. The decision was made by Melton City Council, in conjunction with the then Department of Industry, to purchase and install LEDs for the majority (67%) of the lights in the project. LED technology is also considerably better from an on-going maintenance perspective. The life of LED luminaires (10-20 years) is substantially longer than MV (3-4 years).

Project Management

Council managed the project internally with support from Ironbark Sustainability, the project's street lighting consultant and asset owners Jemena and Powercor. This was an effective and affordable way to manage the project. Ironbark and Council held regular meetings to track the progress and update the risks and issues registers, while the light installers also provided regular updates on the number of lights completed and any minor issues (such as faulty parts).

The City of Melton, with other Victorian councils, has been investigating options for a street lighting "bulk change" for nearly a decade and it has only been in the last few years that these projects have come to fruition. This has been due to increased funding opportunities (such as CEEP) and that general processes have become more streamlined given the increased number of projects throughout the state. The asset owners (Jemena and Powercor) have now been fully engaged and are familiar with how these projects are implemented and can recognise the benefits of improved technology such as reduced maintenance. Nevertheless, there were still components that were complex mainly due to diverse stakeholders involved, the fact that Council did not own the assets they were seeking to change, the multiple funding streams and the relative size of the project.

Procurement

The City of Melton selected Ironbark Sustainability to assist with project manage this project, using a public tendering process. Ironbark Sustainability and the City of Melton worked collaboratively to prepare the documentation and designs for the program.

In procuring the hardware, Council accessed the MAV Standing Panel for street lighting materials. As the largest peak body representing councils in Victoria, MAV and street lighting experts Ironbark Sustainability went out to tender on behalf of all Victorian councils in 2012 to set up a Standing Panel of approved energy efficient hardware that all councils could access. The panel includes all currently approved energy efficient street lights and is reviewed on a quarterly basis as new lighting becomes approved. Purchasing lights from The Standing Panel minimised Council's compliance and procurement risks and ensured that Council was meeting the requirements of the Local Government Act 1986.



Implementation

In addition to meeting the project objective to increase the energy efficiency of Council's street lighting, the street light replacement program was guided by the following requirements:

- Ensuring proper procurement processes (as per the requirements of the Local Government Act and in conjunction with the Municipal Association of Victoria's Street Lighting procurement project);
- The use of approved, safe and assessed technologies;
- Safe and efficient work practices;
- Design based on relevant Australian Standards (e.g. AS/NZS 1158 for lighting); and

- Using this opportunity to engage industry (in particularly the Distribution Network Service Providers, Powercor and Jemena and lighting manufacturers) by demonstrating how street lighting projects can be beneficial.

The lights were installed by the distributors Powercor and Jemena. Installation was uncomplicated with the exception of minor disruptions (see below). From a technological point of view this is one of the most straightforward projects a council, funding organisation or distributor can implement to reduce emissions. It is simply changing one type of light to another 3,825 times.

Find old inefficient 80W MV or 125 W MV;

1. Replace inefficient lights as specified in the project design document;
 - a. Replace 80W MV with 18W LED, 2x14W T5 or 2x24W T5
 - b. Replace 125W MV with 2x24W T5
2. Repeat this process 3,825 times.

Site and Technology Specific Problems

Overall the installation was a success and the project was implemented on time and to budget. There were however minor issues, which are to be expected in a project of this size and scale:

- The project was initially planned prior to LEDs being approved for installation in the Powercor distribution areas. Therefore, the initial intention was to use T5 lights to replace the inefficient MV lamps. Once LEDs became available for the distribution areas, the project plan was amended to allow for the use of LEDs lights along with their less efficient T5 counterparts. This meant that more energy could be saved per light.
- There were some inaccuracies in the GIS data that was provided by Powercor and Jemena. This meant that in some cases, crews found that lights scheduled for replacement that weren't able to be replaced (they were decorative lighting types which were outside the project scope).
- A small number of the new LED lights were found to be faulty. These were returned to the manufacturer for replacement.
- There were two complaints regarding the new lights being too bright and light spilling into the properties of residents. This was due to the fact that the MV80 lights that were replaced were operating below the standard levels due to their age, so residents notice the higher light output of LED lights. The majority of the community network members appreciate the changeover project.

Outcomes and Benefits

Determining the energy efficiency and cost savings for street lighting projects is straightforward. Street lighting is an "unmetered load" with energy usage managed by the Australian Energy Market Operator (AEMO). The lights are all "standard", all the same model and wattage, and all unmetered. So the procedure for determining the energy consumption is specified in Parts A and B of the National Electricity Market (NEM) Metrology Procedures. This means that the electricity use of the old and new technology and the energy efficiency savings are known in advance and guaranteed. See the baseline energy efficiency template (Page 33)

The observed project outcomes are shown in Table 1.

Greenhouse gas emissions and financial savings are based on current knowledge of emissions factors and electricity prices.

The methodology for the calculation of energy volumes for such unmetered supplies is set out in the National Energy Market (NEM) Metrology Procedures, which are managed by AEMO. The methodology relies upon knowledge of the energy consumption of each type of approved load at an unmetered connection point. The values for assumed energy consumption are obtained from power consumption tests.

The outcomes of these tests are agreed upon by AEMO, responsible persons, registered participants and other relevant parties. The results are then presented and published in "load tables" managed by AEMO. The load tables must be updated whenever a new unmetered device comes into use. It is from these load tables that retailers and network service providers are able to calculate energy use from unmetered supplies. This is undertaken by maintaining an inventory of lights for each council so that costs can be appropriately allocated.

AEMO provides a list of unmetered loads for each state under its jurisdiction. These loads are then used by the electricity distribution business to calculate energy usage for each load type. The Distributors multiply the load by the sunset to sunrise hours in that region over the relevant time in order to calculate total kWh.

Table 1: Project Outcomes

Outcome	Original Targets	Observed April 2016
Number of lights changed to LED	0	2,559
Number of lights changed to T5	4561	1,266
Energy reduction per year (kWh)	1,312,527	1,144,376
GHG emissions saved per year (tonnes)	1,706	1,333
Financial savings over life of assets (20 years)	\$187,211 /year	\$2.24 million \$112,000 yr on average

Key Challenges and Learnings

As with all projects there are a number of learnings for the City of Melton that can be shared with other councils and also assist Council into the future.

The biggest challenge was around obtaining accurate data on the existing lighting stock. For example, there were difficulties in identifying "decorative" or non-standard lights and a significant number of lights that were selected for replacement were found to be "decorative" during installations. The inaccurate and inconsistent data from the distributors also meant that the installers sometimes found that lights mapped for replacement did not actually need to be replaced. Project stakeholders worked on this issue throughout the project, and Council now has a greater understanding of the lighting assets it pays for in the areas completed.

Overall, the project will positively impact on the efficiency of public lighting in the City of Melton. Council also owns many outdoor lighting assets in parks, car parks and sports facilities. These assets can readily be replaced and upgraded in a similar manner to the standard street lights. Additionally, indoor lighting has a large greenhouse footprint in Council operations and with the increased technical knowledge and project management experience, Council will investigate changing over these lights. Council plans to assess and audit these other lighting installations and develop plans to actively refit these. The street light project can thus be readily used as a case study for many other energy efficiency projects.





ACTIVITY 2: COMMUNITY FACILITIES - ENERGY EFFICIENCY UPGRADE WORKS

Background

The community facilities given energy efficiency upgrades were targeted by spatial area (so that they could be used as demonstration sites during the project) and by consumption (including the four highest energy use sites as identified in the GAP).

These facilities include:

1. Melton Waves Aquatic Centre;
2. Melton Civic Centre;
3. Seniors Community and Learning Centre;
4. Melton Youth Facility;
5. Community Care and Inclusion Office;
6. Caroline Springs Leisure Centre;
7. Caroline Springs Library and Civic Centre;
8. Banchory Community Centre; and
9. Taylors Hill Youth and Community Facility.

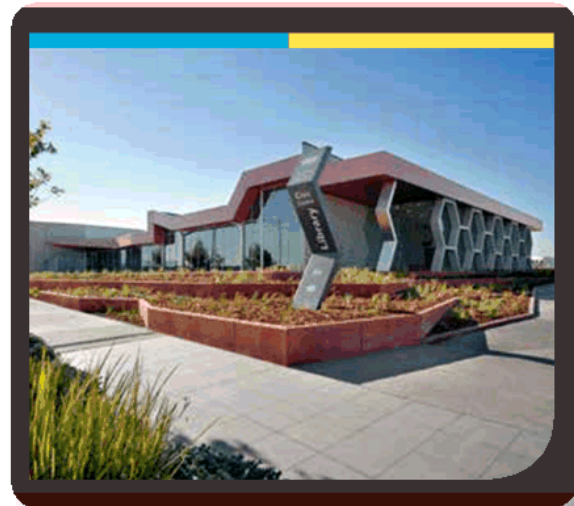
Methodology

Energy audits (AS3598 compliant Level 2 Energy Audits conducted by Carbonetix in 2012) were completed for each of the nine facilities. In accordance with AS3598 energy loads have been estimated on the basis of equipment specifications, counts and estimates of individual loads, and also hours of operation based on plant hours and occupancy hours where applicable.

For the remaining facilities the energy efficiency estimates are based on the results of energy audits conducted by Ironbark Sustainability's experienced auditors using the Engeneous auditing software. Engeneous audits are the equivalent of between a Level 1 and 2 Energy Audit (according to AS3598), and bases calculation of the costs and savings of recommendations on reasonable assumptions about the facility type in question. Engeneous has been used by at least 15 Victorian local governments to assess their small to medium facilities and guide energy efficiency upgrade programs.

The audit recommendations (which also identified technologies) were used in the budgets and the work orders as each of the facilities were done holistically (meaning that the implementation happened on a building by building basis rather than by technology). This method presented opportunities and challenges these are identified in Appendix 2. Some of the recommendations of the audits were implemented by our in-house maintenance teams, whilst other specialised services, such as electrical, plumbing or heating/cooling services were contracted out to specialised service providers.

A mix of technology solutions were employed that were complementary to each other. An example would be the run-out timers installed with the new inverter air conditioner units meant that the replacement high efficiency units were programmed to automatically switch off after an hour. This minimised energy use when they were operating and minimised the risk of operating in unoccupied rooms.





Summary of Works

Melton Waves: pool blankets installed, outside pool boiler replaced, lighting and heating and cooling system improvements.

Melton Civic Centre; Building Management System installed, LED light installation and heating and cooling improvements.

Caroline Springs Library and Civic and the Caroline Springs Leisure Centre: lighting and heating and cooling improvements

Melton Civic Centre: has the highest occupancy rates of all nine sites. The LED lighting replacements at the this site has seen an increase in lighting levels, greater consistency of lighting and significantly reduced maintenance compared to the old inefficient fluorescents. Of the 160+ full time equivalent staff at this location, it was remarkable to have less than 6 staff whose light needed adjusting (moving to a different ceiling location). This was also the site that had the greatest reduction in energy. Whilst these reductions cannot wholly be contributed to the energy efficiency measures (due to seasonal weather and occupancy variances), the introduction of the Building Management System and the LED light replacements have had a measurable impact. These results have been helpful for discussions about further works in other buildings as budget and time permits. Full details are included at Appendix 2.

Outcomes and Benefits

The energy efficiency works conducted, the issues, learnings and outcomes are summarised below and detailed in Appendix 2.

The Baseline Energy Efficiency Improvement Templates are from page 33 in this report.

The energy efficiency outcomes of the community facility upgrades are difficult to quantify at this time. The implementation period was only completed in the past month and a full set of annual data will not be available for some time. It is still expected that the completed works will meet the previously modelled results for the five sites that are waiting for post implementation data for.

To summarise some of the key findings from the first four sites implemented (where comparison data is available as the remaining five sites have incomplete data due to measures being completed less than 12 months ago) Table 2 highlights the reductions in mega joules per annum.

Table 2: Project Outcomes

	Baseline (2012) (MJ/pa)	Post Implementation (2015-2016) MJ/pa	Reduction MJ/pa	%
(Site 1) Melton Waves	30,257,302	26,757,426	-3,499,876	-12%
(Site 2) Melton Civic Centre	4,473,005	2,587,654	-1,885,351	-42%
(Site 6) Caroline Springs Leisure Centre	2,197,547	1,728,492	-469,055	-21%
(Site 7) Caroline Springs Library & Civic Centre	3,064,890	2,577,811	-487,079	-16%







ACTIVITY 3: COMMUNITY ENGAGEMENT PROGRAM

Background

The LEADS Community Engagement Program was designed in order to meet the CEEP and project objectives, and provide direct benefit to low socio-economic and other disadvantaged communities and to demonstrate and encourage the adoption of improved energy management practices within councils, organisations and the broader community. The target participants were identified using the demographic data tools and indexes available to Council staff, in consultation with multiple council departments and disciplines.

Table 3 provides a summary of the demographic indexes by suburb location that was used to highlight the areas of highest disadvantage.

Table 3: Demographic Indexes

Name of Area	SEIFA Index 2006	Equivalised household income lowest quartile 2011	Number of Unemployed People 2011	ABTSI 2011	One parent families 2011	NESB 2011	Low educational Levels 2011	VIPER Index 2009	EVI Index 2009 (1) (Amber alert = medium to high potential job losses)
Melton	923	953	348	116	568	1145	Yes	Very high and high vulnerability	Amber alert
Melton South	928	960	451	96	612	1071	Yes	Very high and high vulnerability	Amber alert
Burnside & B. Heights	984	534	309	21	334	4733	No	Very high and high vulnerability	Amber alert
Kurunjang	995	584	352	83	468	1566	Yes	Very high and high vulnerability	Amber alert
Melton West	1008	887	462	150	729	1991	Yes	Very high and high vulnerability	*Amber alert
Diggers Rest	1009	147	41	15	118	179	Yes	Very high and high vulnerability	Amber alert
Brookfield	1038	351	178	58	254	1011	Yes		Amber alert
Taylors Hill	1042	528	322	19	289	5587	No		Amber alert
Hillside	1059	681	301	58	508	5056	No		*Amber alert
Caroline Springs	1063	878	700	53	697	8586	No		Amber alert
Totals		6503	3464	669	4577	30925			



In order to meet the CEEP objective to “demonstrate and encourage the adoption of improved energy management practices... (in) the broader community” and to deliver Council’s objective to create a community engagement model that was reproducible in the future a wide internal consultation was undertaken to collaborate with departments with direct links to the community. The following principles were drawn from this consultation and were used to guide the design of program:

- Start where locals meet and engage: education must be easily accessible preferably in a local venue known to participants;
- A realistic and honest recruitment process so participants have an appropriate expectation of the program and their commitment;
- Socio-economically disadvantaged participants must be reimbursed for their time;
- Community education is most effective when networked through existing support and friendship/ family networks;
- Lowering energy costs must be the focus: tangible economic benefits must flow from the sessions to participants;
- Legitimacy for the program will be gained by existing community leaders and members being involved;
- ‘Hard to reach’ groups may need extra tailored and innovative programs to attract them to participate;
- Programs must be linked to general community events so that people do not feel singled out and there is a raising of the whole of community awareness of energy issues;
- Childcare should be offered to any groups likely to have children; and
- Recently arrived groups like the local Sudanese community will require interpreters for community education programs to be effective.

Extensive consultation with current service providers who assist low socio-economic groups in Melton City Council with energy bills and related matters, established the following as the main areas of energy efficiency education needed by the lower socio-economic and disadvantaged groups in the City of Melton:

- Understanding your gas and electricity bills (off peak power)
- How to negotiate with your energy retailer for a better deal and what deals are available
- Utility Relief Grants (eligibility and application process)

- The role of the energy ombudsman and your energy consumer rights
- How to save gas and electricity (fixed electricity monitors, monitoring with powermate, stand-by power, second fridge, insulation, shorter showers, cold water washing etc)
- Getting and renting new appliances cheaply (Phoenix fridges, cheap computers)
- Star ratings of appliances and what they mean
- The Home Energy Saver scheme
- The benefits of using Centrepay as opposed to direct debit
- Government concessions and rebates
- Ways to budget for your energy bills and get help with financial problems including your bank and the utility companies
- Telling us what your problems are so we can look at some collective solutions (eg community switch options)
- Other things to consider such as growing vegetables.
- Information you can access on the web, smart phone or apps
- How to communicate with others

Managing energy use with a new baby and children in your house (how hot or cold does it need to be?, keeping room temperature appropriate and comfortable for small children)

- What to do to save energy when you are primarily at home during the day

One of the issues identified in the consultation for the design of the program was overcoming the barrier of engaging with community groups and individuals that don’t have free time. It was decided early on that an incentive program that reimbursed them for their time would be the best way to ensure ongoing participation and would also serve to reassure the participants that Council valued their time. The reimbursements were given in the form of Woolworths Essentials Gift Cards (\$600/participant) that could be used to purchase food, groceries and fuel but not cigarettes or alcohol.

In order to increase the reach and influence of this program, and show value for money, it was also decided that a ‘train-the-trainer’ approach would be taken so that each participant would take their newly acquired knowledge and share it within their families, community and local networks. In order to ‘earn’ their gift cards, each participant was required to attend each of the training sessions (done over a series of week nights or all day sessions) and return survey forms for ten people that they have engaged with about energy efficiency and the lessons they have learned in training. These trainees



are referred to as our Energy Ambassadors.

Secondary to the above training, Council also provided two-day sessions to active community volunteers who also wanted to increase their energy literacy and teach others in their local networks and communities. These trainees donated their time. These groups were the Energy Leaders and also engaged with ten others each.

A third group, the Energy Professionals, were one day training sessions that were held for Melton's local professional networks who engage with the municipalities most vulnerable and disadvantaged, and arm them with the knowledge that they can distribute in their day to day roles.

Each trainee was provided with a information folder that contained guides, fact sheets, learning materials and contact details for other support programs and financial assistance. Further details about the contents of this folder can be found in Appendix 3.

Outcomes and Benefits

A total of 51 sessions were held resulting in the training of 544 people from August 2014 until March 2016. 65% of the total program participants were part of the most disadvantage and vulnerable sectors of the City of Melton's community. It strongly demonstrates that the LEADS Community Engagement Program achieved its most important objective that was providing energy efficiency education to the disadvantaged and vulnerable sectors of Melton community.

Community groups trained as Energy Ambassadors include:

- Sudanese
- Aboriginal and Torres Strait Islander
- Mixed Culturally and Linguistically Diverse People (CALD)
- Burmese
- Spanish speaking Seniors
- Bhutanese
- Macedonian

Volunteers from the following community groups joined the Energy Leaders Training:

- Melton Environment Group
- Friends of the Melton Botanic Gardens
- Friends of Toolern Creek

Professionals from the following Council Department were also targeted for the professional sessions with the following departments represented:

- Engineering, Community Planning
- Capital Works
- City Strategy Design and Environment
- Family Services
- Housing Services
- Recreation and Youth
- Customer Engagement
- Finance
- People and Culture and Waste Services



Community Engagement Program's participants were assessed before and after training through a survey developed by the LEADS team, the data collected was to evaluate the efficiency of the training and the impact it has on the participant's knowledge and behaviour. Note, the majority of participants completed surveys but not all. Appendix 3 provides a sample of the before and after surveys.

The key findings from the surveys relate to the following criteria:

- Barriers to being energy efficient
- Energy bill literacy
- Understanding of the Energy Star Rating System for appliances

Barriers to be energy efficient

Figure 1 illustrates that 58% of the training participants agreed that lack of information is the biggest barrier to being energy efficient, followed by lack of finances.

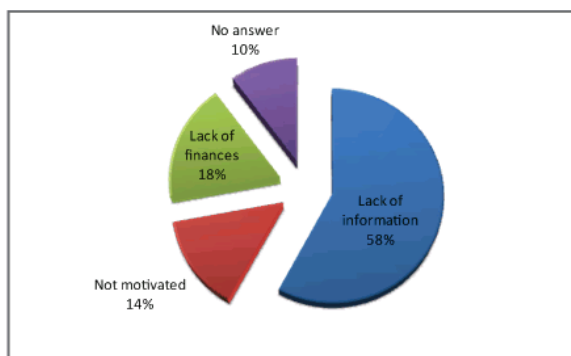


Figure 1: Barriers

This finding validates the LEADS community engagement program's approach. The training content was designed and tailored for each group to address the lack of information barrier to being energy efficient. For a complete list of the training topics please see Appendix 3.

The following before and after survey results show that the program has been largely successful in meeting some of the major areas where there was a lack of understanding.

Energy bill literacy

Understanding energy bills is one of the most important topics of the LEADS training. Figure 2, shows that before training only 39% of participants had looked at their bills and understood them, after training 99% of the participants understood their energy bills and were aware of their energy use.

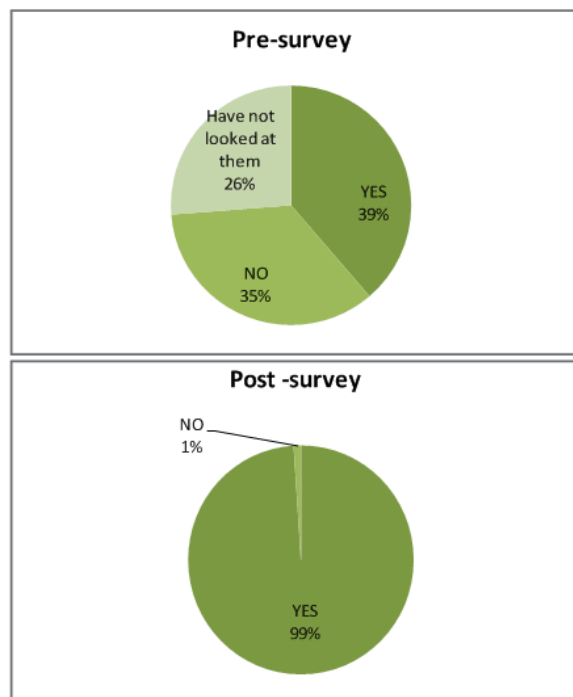


Figure 2 - Energy bill literacy

The benefits of understanding energy bills include participants being able to;

- Monitor their energy use
- See evidence of energy efficiency actions
- Determine tariffs
- Identify mistakes in billing.

A common finding amongst the Ambassadors groups was that concessions were not being applied and unfavourable energy plans and tariffs were being applied.

Understanding of the Energy Star Rating for Appliances

An understanding of this pictorial method of comparing products is a particularly powerful tool for those who have low literacy in English (Ambassador groups). At the beginning of training almost half of the participants didn't know how to choose the most efficient appliance.

At the completion of the training there was excellent comprehension of the system and this was demonstrated through role playing about selecting the best appliances. Figure 3 shows the high level of comprehension of the star rating of appliances and the key features to look when buying a new appliance. All participants showed that they understood the star ratings.

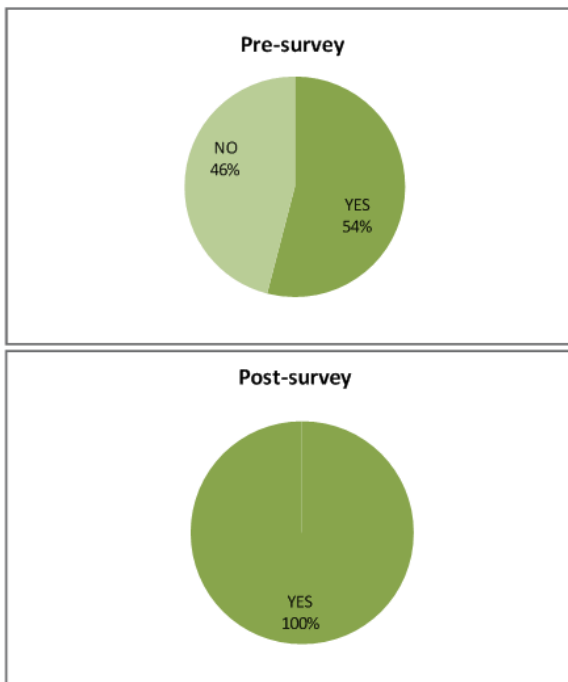


Figure 3 - Understanding of star rating of appliances

Commitment to being energy efficient

After completion of the course, participants were asked if they were ready to make changes in their energy habits. There was a very positive response with 99% of participants stating that they were ready to make changes and improve their energy

Key Challenges and Learnings

There were many issues that were identified during the course of the implementation of the training program.

During the recruitment phase for example networking with existing community groups at times and in places that they usually grouped to meet was the best opportunity to present and recruit for the program.

Each of the participant groups required tailored training programs dependant on their literacy and their understanding of English. Some groups required translators and most groups used graphical demonstrations (animations and short videos) instead of written slides. Group learning and roles plays were also key components to each of the sessions especially when English was limited. This meant that training times and progress was slower than expected and most sessions were broken up by breaks and activities more often so as not to overload participants.

Some of the participants had not been in a class room environment since their childhood and some not at all. Being given training materials and name tags (and later graduation certificates) was highly regarded by most.

A complete list of project issues, lessons learned and program feedback have been captured in the Appendix 3.

Awards

Melton City Council was awarded the Community Government Partnerships Award by the Keep Australia Beautiful Victoria Sustainable Cities Awards for the LEADS Project in 2015.

In 2016 Melton LEADS was also awarded the Climate Award by the Victorian Local Governance Association.




Feedback from community members.


As a part of the evaluation of the LEADS community engagement program, participants were asked to fill out a survey and to provide further comments and feedback about the program. There were a lot of comments from the participants, highlights that they were appreciative of the program (Appendix 3 provides further information).




Was a very interesting course, learnt a lot and excited to share with others to save energy and our environment for our kids and future generations. Highly recommended. The trainer was a lovely lady, patient with everyone and very well presented.' (Sudanese participant – Ambassador group)




Such a friendly multicultural group and made me aware that we all are wanting help with energy usage' (Leader participant)



Everything about the training was so interesting, I have learnt so much more about how to save more energy and the environment as well. Our teacher, she was so nice to us as she was always ready for my questions and after the questions she explained it to me. I am so proud for you Sunita well done let the Melton Council provided more.' (Spanish participant - Ambassador group)



I really enjoyed working in teams, team presentations and having input and discussions about energy, education and sustainability.' (Leader participant)



This was a great training opportunity. I am very glad I said 'yes'. Sunita is a great trainer. She covered a large amount of info well. Other Councils should duplicate this energy initiative. It was worthwhile!' (Leader participant)



COMMUNICATIONS ACTIVITIES

In developing the three activities a range of stakeholders were identified:

Internal

- Councillors
- Council Staff

Intermediate

- Energy retailers
- Councils in the Metropolitan Western Region
- Local media

External

- City of Melton environments groups
- Users of community facilities identified in the project through the buildings upgrades
- Professionals that educate those that work with vulnerable sectors of the Melton's community
- Melton's community with a focus on the disadvantaged and vulnerable sectors. The areas targeted were those identified as a lower socio-economic and disadvantage groups in the City of Melton based on the 2006 and 2011 Census. Melton's pockets of disadvantage were identified using Table 1, which shows the data analysis that was used in the funding application.
- Local service providers/contractors in the local industry- for example the contractors required for the implementation of the energy efficiency works in the community facilities.

Opportunities for Local Industry

Many local services providers were engaged for the implementation of the LEADS project which further contributed to positive economic outcomes for the local business communities. These include, but aren't limited to:

- Catering Suppliers
- Photographers/Videographers
- Contracted Trades; Plumbers/electricians/builders/ Heating and cooling specialists.
- Local community groups and companies engaged for the Energy and Sustainability Expos
- Translators

The following communication methods were used throughout the life of the project to inform the local community about the project opportunities and updates:



Table 4: Communication Methods

Method	Measurable reach (if known)
Flyers and handed out at group meetings, events.	1500
Official launch of the program	30 Council Staff and key stakeholders
Community group visits to present the project for potential Ambassadors	
Showcasing the program at festivals(e.g. Djerriwarrh festival in November 2014)	Careers Expo: 500 attendees Marla Day: 60 attendees Community Engagement Expo: 100 DJ festival: 67 people signed to get information about the program
Publications in Council's newsletter	Distributed to all properties
Newspaper advertising	For each of the Energy Expos: Melton Leader circulation within City of Melton is approx 46,000 Star Weekly approximate circulation 101,500
Website	175 page views
Banners	4
Program brochures printed and handed out at group meetings, events	2,000
LEADS YouTube video, linked to Council's website	253 views
LEADS thermometers given away	4,000
Energy and Sustainability Expos, held at Melton Library and Learning Hub and Caroline Springs Library	600-700 approximately
Letters sent to community groups	15
Networking, for example the program and its benefits were presented to the Western Alliance of Greenhouse Action (WAGA)	
TV screen at Melton Library and Learning Hub	During Energy and Sustainability Expos (2) and
Five completion ceremonies were held through the life of the project for training participants. It was the opportunity for participants to celebrate with their family and friends that they have successfully completed energy efficiency training.	
Community members educated by participants ('train the trainer' model)	3,495



BUDGET

The actual budget for the LEADS project was \$2,841,877. Of this budget, two-thirds was contributed by the CEEP Program (\$1,894,585) and the remaining amount by Melton City Council (\$947,292) through the five year Capital Works Program.

In order to maximise the opportunities for energy and cost saving efficiencies and value for money, Melton applied the following two variances to the original project. In April 2014 a deed of variation was approved for Melton to change the technology of the street light replacement from T5 to LED. Whilst the installation charges would remain very similar, there were additional costs per light. The additional costs were contributed by Melton City Council. In February 2015, a further variation to the agreement was made to allow for the underspend identified in Milestone Five to be used to install a replacement pool boiler at Melton Waves. This required an additional \$29,156 in Council Contributions. Outside of these additional Council contributions, the LEADS Project was completed within budget.

Financial outcomes and return on investments (pay back periods) have been difficult to capture and report. In a changing energy market (rising electricity and service costs) and with the recent increases to street light maintenance charges, the immediate financial savings are not quantifiable at this stage. Melton City Council does however acknowledge that the opportunities to improve our energy efficiency and reduce operational costs would not have been achieved without the LEADS Program and the Community Energy Efficiency Program funding

A total project underspend of \$117,647.82 was identified and is reflected in the financial statements. This can largely be attributed to the Evaluation stage of the program. Council have undertaken much of this work in-house and these have not expanded the allocated funds. Therefore the actual project costs for the LEADS Projects are \$2,841,816.18.

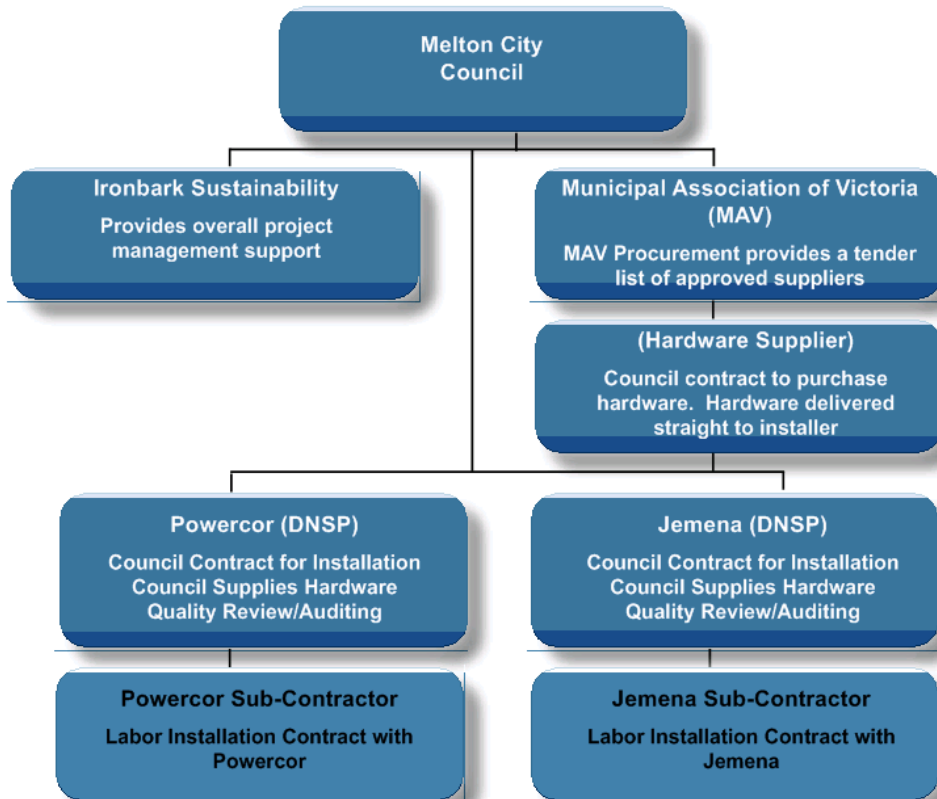
Table 5

Budget Summary	Original CEEP Funding	Original Melton City Council Contribution	Original Total	Actual Project Expenditure
Street Light Replacement Program	\$ 1,155,295	\$ 577,647	\$ 1,732,942	\$1,726,704.60
Energy Efficiency Upgrade Works	\$ 404,762	\$ 202,381	\$ 607,143	\$625,289.19
Community Engagement & Administration	\$ 412,958	\$ 206,481	\$ 619,439	\$489,882.39
Total Budget	\$ 1,973,015	\$ 986,509	\$ 2,959,524	\$2,841,876.18

Figure 1: LEADS Project Governance



Figure 2: Street Lighting Partnerships: Delivery





PROJECT OPERATION, MECHANISMS AND PROCESSES

Project Management Approach

The Greenhouse Action Plan (GAP) is governed by a steering committee chaired by the General Manager of Corporate Services and comprised of managers and co-ordinators from across the organisation. As the LEADS project sought to meet some key actions in the GAP, having the Chair of the Steering Committee also be the Responsible Officer for adhering to the funding agreement was a mutually beneficial choice.

Council's Sustainability Officer, Kellie Mills, was appointed as Project Manager, responsible for the day to day management of the project and writing the milestone and financial reports.

Each of the three project activities had a working group company relevant management and officers who were responsible for the delivery of their respective components.

External Resources: Consultants and Contractors

Council hired contractors to undertake the following:

- Supply the energy efficient products for the facilities upgrades
- Install the energy efficient products for the facilities upgrades
- Conduct Project Energy Efficiency Baseline and Improvement Reports
- Expert Technical Advisory Services- The street light replacement program was co-managed by Melton City Council and Ironbark Sustainability.
- Council purchased the lighting hardware from the supplier directly
- DNSPs organised and managed the installation with their own contracted installers.
- DNSPs conducted the testing and auditing.

Key Challenges and Learnings

Whilst delivering the LEADS project and meeting the objectives in the GAP was considered a business as usual activity for many of the working group members, some of the implementation of the LEADS project was additional workload. For example, in the Facilities Upgrade working group, many of the officers involved in LEADS implementation were also responsible for reactive maintenance for the entire group of council assets. When severe weather events or unplanned building works were required, the increased workload of the delivery of LEADS and required the redirection and allocation of resources.

Since the initial implementation of LEADS, Melton City Council has adopted its Project Management Policy and Framework which provides a consistent approach to the delivery of projects across the organisation. In future projects, both financial and human resourcing would be scoped and allocated prior to commencing new projects. In the context of the learnings for LEADS, this would mean that the conflicting priorities of business-as-usual workloads and project workloads would be identified as a risk and mitigation actions well planned in the early stages.

Collaboration across internal departments has been one of the big lessons of the project and will be duplicated for future projects. Having mutually beneficial objectives and outcomes and sharing the resource requirements across the departments and scoping this together with a stakeholder analysis is a key element of the planning stage in Council's new Project Management Framework.



Table 6: Project Output Summary

Objective	Output
<p>CEEP Objective 1.</p> <p>Support a range of local councils and community organisations to increase the energy efficiency of different types of non-residential council and community use buildings, facilities and lighting; particularly where this would benefit low socio-economic and other disadvantaged communities or support energy efficiency in regional and rural councils.</p>	<p>Replaced over 3825 street lights with LED lighting and T5 and completed energy efficiency upgrade works at nine community facilities including in suburbs of high disadvantage.</p>
<p>CEEP Objective 2.</p> <p>Demonstrate and encourage the adoption of improved energy management practices within councils, organisations and the broader community.</p>	<p>Conducted energy efficiency training for 544 participants. Communication activities include: project launch, media releases, flyers, YouTube, training brochures, newspaper adverts, banners.</p>
<p>Project Objectives:</p> <p>Demonstrate Council's commitment to addressing climate change.</p>	<p>Council increased the energy efficiency of nine of its own building assets and upgraded street lights and actively promoted the program via multiple communication methods.</p>
<p>Maximize energy savings, reduce costs within the project budget.</p> <p>Maximize greenhouse gas reductions.</p>	<p>Changed the scope to LED lights to increase the energy savings of the street light change over. Utilised underspend from one element of the program to maximise opportunities at Melton Waves via the additional pool boiler replacement.</p>
<p>Reduce Council and ratepayer's electricity costs.</p> <p>Increase capacity within the community to reduce energy consumption and associated costs.</p> <p>Provide energy efficiency education to Melton's lower socio-economic sector in to reduce their energy use and bill stress.</p> <p>Deliver an innovative energy efficiency program that addressed a huge need in Melton City Council, targeting the disadvantaged.</p> <p>Deliver a model of community engagement and education that could be reproduced elsewhere.</p>	<p>By reducing consumption in nine of Council's assets and training the community to do the same at home via the training conducted in a targeted and innovative Community Engagement Program.</p>



CONCLUSION

Melton City Council's LEADS Program was designed and executed to meet the CEEP objectives to increase the energy efficiency of Council and community use buildings and streetlights and to demonstrate and encourage the adoption of improved energy management practices for Council and for the broader community. This objective was specifically targeted to the low socio-economic and disadvantaged communities.

Melton LEADS program met these objectives by changing over 3,825 inefficient streetlights to LED and T5 technologies, upgraded nine key community facilities (including the Melton Civic Centre which boasts a 42% reduction in energy consumption) and trained 544 of Melton's low socio-economic and disadvantaged community members, active volunteers and local professionals about how to become more energy efficient and empower others to do the same.

The community engagement program exceeded expectations as an innovative and collaborative approach to working with Melton City Council's disadvantaged community groups, one which will have a positive impact on Council service delivery as the model for engagement can be reproduced for future engagements. The program met and exceeded Council's objective to increase capacity within the community to influence and reduce their energy consumption and costs and the anecdotal stories of proud training participants continue to be heard by council staff.

Council addressed some issues during the implementation phase. Most were related to completing the building works and may be attributed to the delay between the initial audits and the implementation phase (more than 12 months). In light of resolving the issues, Council will take many key learnings away from the LEADS project.

These include:

- Engaging with internal stakeholders during the audit phases of occupied facilities to ensure that the recommended actions are appropriate for the building use.
- How the implementation of retrofit works after hours impacts cost and service delivery.

- Audit recommendations should be tested prior to quotation stage (is this technology still relevant or now redundant?).
- How one-on-one engagement with community groups is significantly more effective than community wide advertising.
- Engagement for the Community Engagement program was more effective when networking through existing Council and community networks.
- Train the trainer' model was a successful tool for spreading the information about energy efficiency.
- Reimbursing Ambassador's time to attend the program was a good opportunity to get more people involved and to compensate their commitment. However, it is important to mention that according to the results from the program's evaluation money wasn't the main motivation to complete the training; acquiring knowledge was the biggest motivation for them to participate.

Melton City Council considers the project to be a great success and was the proud recipient of both the Keep Australia Beautiful Victoria (Sustainable Cities) award for Community Government Partnerships in 2015 and the Climate Award from the Victorian Local Governance Association in 2016.



DECLARATION

Declaration

The Authorised Officer of the organisation makes the following declarations:

- I declare that I am authorised to submit this Final Report (including any attachments) on behalf of
MELTON CITY COUNCIL (Name of organisation)
- I declare that the information provided in this Final Report is true and accurate.
- I understand, and acknowledge that giving false or misleading information in this Final Report is an offence under the *Criminal Code Act 1995*.
- I understand that final payment will only be made in accordance with the Funding Agreement including on satisfactory completion of Milestones.

Authorised Officer Signature:  Date: 3, 6, 16

Name: KELVIN TORRY

Position: CEO Organisation: MELTON City Council

Witness Signature:  Date: 3, 6, 16

Name: LAURA-JO MELLAN

Position: MANAGER CITY DESIGN STRATEGY & ENVIRONMENT Organisation: MELTON CITY COUNCIL

The use and disclosure of information provided in this Final Report is regulated by the relevant provisions and penalties of the *Public Service Act 1999*, the *Privacy Act 1988*, the *Freedom of Information Act 1982*, the *Crimes Act 1914* and the general laws of the Commonwealth of Australia.

Information contained in the Final Report may be disclosed by the Department for purposes such as promoting the program and reporting on its operation and policy development. This information may also be used in answering questions in Parliament and its committees. In addition, the selected project information will be made publicly available. Public announcements may include the name of the grant recipient and of any project partners; title and description of the project and its outcomes; and amount of funding awarded.



APPENDIX 1: BASELINE ENERGY EFFICIENCY IMPROVEMENT TEMPLATES

Project Title	Melton City Council (LEADS)	Project ID	CEEP2117
Funding Recipient	Melton City Council	Date	28 April 2014

Building, Facility or Site 1	
Name of Building, Facility or Site 1	Melton Waves
Location (Address)	Coburns Road, Melton Victoria 3337
Type of building, facility or site	Building HVAC optimisation, lighting upgrades and installation of pool blankets and replacement of outdoor pool boiler.
Energy Efficiency Estimate Method	Energy audit conducted in accordance with the Australian Standard AS/NZS 3598:2000 Energy Audits; swimming pool heating simulation.
Baseline Energy Usage	Pool water heating (indoor and outdoor): 12,206,263 MJ p.a. (6,106.2 MJ/m ³ heated water p.a.) Building: 18,051,039 MJ p.a. (4,813.6 MJ/m ² p.a.) Note: Baseline energy has been adjusted against monthly bill consumption data. The prior figure was sourced of a bill copy for "Actual usage contracted YTD", however this figure has been identified as being incorrect.
Baseline Energy Efficiency	Pool water heating (indoor and outdoor) 10,702,970 MJ p.a. (5,354.2 MJ/m ³ heated water p.a.) Building: 16,054,455 MJ p.a. (4,281.2 MJ/m ² p.a.)
Energy Efficiency Improvement	<p><u>Pool water heating - original estimates</u></p> <ul style="list-style-type: none"> Estimated energy reduction of 1,611.4 MJ/m³ heated water p.a. Estimated emissions reduction of 82.7 kg CO₂-e/ m² heated water p.a. <p>Notes: Estimated energy reduction has been revised down based on a review of calculation assumptions for outdoor boiler upgrade. An updated audit report has been provided.</p> <p><u>Building - original estimates</u></p> <ul style="list-style-type: none"> Estimated energy reduction of 253.27 MJ/m² p.a. Estimated emissions reduction of 94.27 kg CO₂-e/ m² <p><u>Overall - original estimates</u></p> <ul style="list-style-type: none"> Estimated energy reduction: 4,168,945 MJ Estimated emissions reduction: 519 tonnes <p><u>Post-implementation - actual reduction</u></p> <p>The sites overall annual energy consumption post-implementation of energy efficiency measures has reduced 11.6% relative to the baseline energy usage, equivalent to 3,499,876 MJ.</p>



Building, Facility or Site 1	
Energy Efficiency Improvement Continued	<p>Associated emissions have reduced 9.0%, equivalent to 282 tonnes CO₂-e. Overall energy consumption for the site has reduced 16.0% less than the original estimate and emissions 45.6% less than the original estimate. These figures have eventuated from an electricity reduction much lower than originally projected and a gas energy reduction of over double the original estimate.</p> <p>It is noted that the significant site energy and emission reductions are most likely associated with the range of energy efficiency measures implemented, however should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption.</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Total volume of pool water heated p.a. (indoor and outdoor normalised*): 1,999m³</p> <p>Indoor pools are heated for 12 months p.a.</p> <p>* The outdoor pool is heated from start of November to end of March (5 months). The total volume of pool water heated in the outdoor pool has been scaled down in proportion with the number of months the outdoor pool is heated p.a.</p> <p>Energy efficiency improvement for the pool is associated with reductions in gas energy, which includes thermal pool blankets, boiler upgrades and HVAC optimisation.</p> <p>Floor area: 3,750 m²</p> <p>Daily hours of operation: 6am to 9pm weekdays, 8am to 6pm weekends (closed Good Friday and Christmas Day)</p> <p>250,000 to 300,000 visitors annually</p> <p>Baseline energy:</p> <ul style="list-style-type: none"> • Electricity: 1,380,993 kWh p.a. (4,971,575 MJ p.a.) • Natural gas: 25,285,727 MJ p.a. <p><i>Data sourced from energy utility data for total site supply</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> • Electricity: 1,292,233 kWh p.a. (4,652,039 MJ p.a.) • Natural gas: 22,105,387 MJ p.a. <p><i>Data sourced from energy utility data for total site supply</i></p>
Cost of Activity	\$254,020
Estimated Cost Savings	\$41,764 p.a.



Building, Facility or Site 2	
Name of Building, Facility or Site	Melton Civic Centre
Location (address)	232 High Street, Melton VIC 3337
Type of building, facility or site	Building with standard hours or continuous use - office administration building
Activity Type and Measure	Lighting upgrade and installation of a Building Automation System
Energy Efficiency Estimate Method	Energy audit conducted in accordance with the Australian Standard AS/NZS 3598:2000 Energy Audits
Baseline Energy Usage	4,473,005 MJ p.a. (1,082.5 MJ/m ² p.a.)
Baseline Energy Efficiency	2,587,655 MJ p.a. (626.2 AMJ/m ² p.a.)
Energy Efficiency Improvement	<p>Original estimated energy reduction of 383.4 MJ/m² p.a. Original estimated emissions reduction of 74.0 kg/m² p.a.</p> <p><u>Post-implementation - actual reduction</u></p> <p>The sites actual annual energy consumption post-implementation of energy efficiency measures has reduced 42.1% relative to the baseline energy usage. This is equivalent to 1,885,351 MJ of energy or 456.3 MJ/m². Associated emissions have reduced 33.6%, equivalent to 684 tonnes CO₂-e or 166 kg CO₂-e/m².</p> <p>It is noted that while these reductions are substantially higher than the original estimates, the figures should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Floor area: 4,132m² Average FTE occupants per year: 167 Daily hours of operation: 8:30am to 5:00pm Monday to Friday (occasional weekend use) Baseline energy:</p> <ul style="list-style-type: none"> • Electricity: 758,121 kWh p.a. (2,729,236 MJ p.a.) • Natural gas: 1,743,770 MJ p.a. <p><i>Data sourced from energy utility data for total site supply.</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> • Electricity: 477,433 kWh p.a. (1,718,759 MJ p.a.) • Natural gas: 868,896 MJ p.a. <p><i>Data sourced from energy utility data for total site supply</i></p>
Cost of Activity	\$251,460
Estimated Cost Savings	\$37,900 p.a.



Building, Facility or Site 3	
Name of Building, Facility or Site 3	Caroline Springs Leisure Centre
Location (address)	9-19 The Parade, Caroline Springs 3023
Type of building, facility or site	Building with standard hours or continuous use - Leisure centre
Activity Type and Measure	Lighting upgrade and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	Energy audit conducted in accordance with the Australian Standard AS/NZS 3598:2000 Energy Audits
Baseline Energy Usage	2,197,547 MJ p.a. (388.1 MJ/m ² p.a.)
Baseline Energy Efficiency	1,728,492MJ p.a. (305.2 MJ/m ² p.a.)
Energy Efficiency Improvement	<p>Original estimated energy reduction of 63.7 MJ/m² p.a. Original estimated emissions reduction of 15.8 kg/m² p.a.</p> <p><u>Post-implementation - actual reduction</u></p> <p>The sites annual energy consumption post-implementation of energy efficiency measures has reduced 21.3% relative to the baseline energy usage. This is equivalent to 469,055 MJ of energy or 82.8 MJ/m². Associated emissions have reduced 19.6%, equivalent to 127 tonnes CO₂-e or 22.4 kg CO₂-e/m²</p> <p>It is noted that while these reductions are higher than the original estimates, the figures should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Floor area: 5,663m²</p> <p>Daily hours of operation: 9:00am to 5:00pm (Monday to Friday), Café: 5:00pm to 9:00pm (Tuesday to Thursday)</p> <p>Construction date: 2008</p> <p>Baseline energy:</p> <ul style="list-style-type: none"> • Electricity: 462,707 kWh p.a. (1,665,745 MJ p.a.) • Natural gas: 531,802 MJ p.a. <p><i>Data sourced from energy utility data for total site supply.</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> • Electricity: 373,451 kWh p.a. (1,344,424 MJ p.a.) • Natural gas: 384, 068 MJ p.a. <p><i>Data sourced from energy utility data for total site supply.</i></p>
Cost of Activity	\$5,268
Estimated Cost Savings	\$9,570 p.a.



Building, Facility or Site 4	
Name of Building, Facility or Site 4	Caroline Springs Library and Civic Centre
Location (address)	193-207 Caroline Springs Boulevard, Caroline Springs VIC 3023
Type of building, facility or site	Building with standard hours or continuous use - library
Activity Type and Measure	Optimisation of HVAC control and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	Energy audit conducted in accordance with the Australian Standard AS/NZS 3598:2000 Energy Audits
Baseline Energy Usage	3,064,890 MJ p.a. (1,104.9 MJ/m ² p.a.)
Baseline Energy Efficiency	2,577,811 MJ p.a. (929.3 MJ/m ² p.a.)
Energy Efficiency Improvement	<p>Original estimated energy reduction of 77.5 MJ/m² p.a. Original estimated emissions reduction of 18.5 kg/m² p.a.</p> <p><u>Post-implementation - actual reduction</u></p> <p>The sites annual energy consumption post-implementation of energy efficiency measures has reduced 15.9% relative to the baseline energy usage. This is equivalent to 487,079 MJ of energy or 175.6 MJ/m². Associated emissions have reduced 17.0%, equivalent to 116 tonnes CO₂-e or 41.8 kg CO₂-e/m². While these reductions are higher than the original estimates, the figures should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption.</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Floor area: 2,774 m²</p> <p>Average FTE occupants per year: 25</p> <p>Daily hours of operation: 8:00am-8:30pm (Monday to Wednesday), 8:00am-5:30pm (Tuesday to Friday), 10:00am-1:00pm (Saturday), 1:00pm-4:00pm (Sunday)</p> <p>Baseline energy:</p> <ul style="list-style-type: none"> Electricity: 453,309 kWh p.a. (1,631, 912 MJ p.a.) Natural gas: 1,432,978 MJ p.a. <p><i>Data sourced from energy utility data for total site supply</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> Electricity: 374,835 kWh p.a.(1,349,406 MJ p.a.) Natural gas: 1,228,405 MJ p.a. <p><i>Data sourced from energy utility data for total site supply</i></p>
Cost of Activity	\$9,170
Estimated Cost Savings	\$5,491 p.a.



Building, Facility or Site 5	
Name of Building, Facility or Site 5	Banchory Community Centre
Location (address)	17-19 Banchory Grove, Hillside VIC 3037
Type of building, facility or site	Building with intermittent use – public building
Activity Type and Measure	Installation of solar gas hot water system, HVAC upgrades, lighting upgrades and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	On-site sustainability assessment considering renewable energy, heating and cooling, thermal performance, lighting, water heating, electrical appliances and water appliances
Baseline Energy Usage	148,962 MJ p.a. (0.063 MJ/m ² per hour of annual operation)
Baseline Energy Efficiency	Predicted at 44,950 MJ p.a. (0.019 MJ/m ² per hour of annual operation)
Energy Efficiency Improvement	Original estimated energy reduction of 0.044 MJ/m ² per hour of annual operation Original estimated emissions reduction of 0.016 kg CO ₂ /m ² <u>Post-implementation - actual reduction</u> Implementation of the energy efficiency measures was completed in March 2016. For this reason, the sites overall energy and emissions performance post-implementation cannot be evaluated based on actual utility data. The sites future energy performance is predicated to reduce by 104,012 MJ p.a.
Reporting Data (Measuring Energy Efficiency and Additional Data)	Floor area: 562m ² Facility used by various community groups. A majority of usage takes place on weekday nights and Sunday morning. Hours of operation: 81 hours per week, open 52 weeks per year Total operating hours p.a.: 4212 hours Building construction date: 2005 Baseline energy: <ul style="list-style-type: none"> • Electricity: 39,720 kWh p.a. (142,992 MJ p.a.) • Natural gas: 5,970 MJ p.a. <i>Data sourced from energy utility data for total site supply</i> Post-implementation energy: <ul style="list-style-type: none"> • Estimated at 44,950 MJ p.a.
Cost of Activity	\$53,885
Estimated Cost Savings	\$4,891 p.a.



Building, Facility or Site 6	
Name of Building, Facility or Site 6	Seniors Community and Learning Centre
Location (address)	1-3 McKenzie Street, Melton VIC 3337
Type of building, facility or site	Building with standard hours or continuous use – senior citizens centre
Activity Type and Measure	HVAC upgrades, lighting upgrades and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	On-site sustainability assessment considering renewable energy, heating and cooling, thermal performance, lighting, water heating, electrical appliances and water appliances
Baseline Energy Usage	428,535 MJ p.a. (595.2 MJ/m ² p.a.)
Baseline Energy Efficiency	420,399 MJ p.a. (583.9 MJ/m ² p.a.)
Energy Efficiency Improvement	<p>Original estimated energy reduction of 337.6 MJ/m² p.a. Original estimated emissions reduction of 99.1 kg CO₂/m²</p> <p><u>Post-implementation - actual reduction</u></p> <p>Actual energy consumption data post-implementation (3 months data available) compared to the equivalent baseline period shows a reduction in electricity consumption of 410 kWh and increase in gas consumption of 558 MJ. Extrapolated over 12 months, these reductions are equivalent to 8,136 MJ or 11.3 MJ/m². The associated emissions reduction is equal to or 3.2 kg CO₂/m².</p> <p>It is noted that these reductions should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption.</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Floor area: 720m²</p> <p>Average FTE occupants per year: 3</p> <p>Operating hours: Food services from 8:00am to 5:00pm (Monday to Friday)</p> <p>Facility used for 5-9 hours each weekday by up to 400 community members</p> <p>Building construction date: c. 1978</p> <p>Baseline energy:</p> <ul style="list-style-type: none"> • Electricity: 54,870 kWh (197,532 MJ) (3 months of measurement) • Natural gas: 231,003 MJ (3 months of measurement) <p><i>Data sourced from energy utility date for total site supply.</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> • Electricity: 13,163 kWh p.a. (47.387 MJ) (3 months of measurement) • Natural gas: 24,091 MJ (3 months of measurement)
Cost of Activity	\$45,729
Estimated Cost Savings	\$10,225p.a.



Building, Facility or Site 7	
Name of Building, Facility or Site 7	Melton Community Care and Inclusion Office
Location (address)	5 McKenzie Street, Melton VIC 3337
Type of building, facility or site	Building with standard hours or continuous use – community health care
Activity Type and Measure	Ceiling insulation installation, lighting upgrades and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	On-site sustainability assessment considering renewable energy, heating and cooling, thermal performance, lighting, water heating, electrical appliances and water appliances
Baseline Energy Usage	227,293 MJ p.a. (419.4 MJ/m ² p.a.)
Baseline Energy Efficiency	Predicted 140,223 MJ p.a. (258.7 MJ/M ² p.a.)
Energy Efficiency Improvement	<p>Original estimated energy reduction of 189.5 MJ/m² p.a. Original estimated emissions reduction of 70.5 kg CO₂/m²</p> <p><u>Post-implementation - actual reduction</u></p> <p>Actual energy consumption data post-implementation (4 months data available) compared to the equivalent baseline period shows a reduction in electricity consumption of 8,062 kWh. Extrapolated over 12 months, this reduction is equivalent to 24,186 kWh, equivalent to 87,070 MJ or 160.6 MJ/m². The associated emissions reduction is equal to 59.8 kg CO₂/m².</p> <p>It is noted that these reduction figures should not be considered in isolation. Other factors such as variance in the weather, building operation and occupancy all influence the sites energy consumption.</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Floor area: 542m²</p> <p>Average FTE occupants per year: 26</p> <p>Average of 66 site visitors per day</p> <p>Operation hours: 7:00am to 6:30pm (Monday to Friday), 8:30am to 4:00pm (Saturday)</p> <p>Building construction date: 1995</p> <p>Baseline energy:</p> <ul style="list-style-type: none"> • Electricity: 63,137 kWh (227,293 MJ) (4 months of measurement) • Natural gas: Not applicable <p><i>Data sourced from energy utility data for total site supply</i></p> <p>Post-implementation energy:</p> <ul style="list-style-type: none"> • Electricity: 14,341 kWh (51,628 MJ) (4 months of measurement) • Natural gas: Not applicable <p><i>Data sourced from energy utility data for total site supply</i></p>
Cost of Activity	\$51,272
Estimated Cost Savings	\$6,561 p.a.

Building, Facility or Site 8	
Name of Building, Facility or Site 8	Melton Youth Facility
Location (address)	193 Barries Road, Melton VIC 3337
Type of building, facility or site	Building with standard hours or continuous use – community facility
Activity Type and Measure	Replacement of electric hot water system, lighting upgrades and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	On-site sustainability assessment considering renewable energy, heating and cooling, thermal performance, lighting, water heating, electrical appliances and water appliances
Baseline Energy Usage	587,151.40 MJ p.a. (547.72 MJ/m ² p.a.)
Baseline Energy Efficiency	Predicted at 441,516 MJ p.a. (411.9 MJ/m ² p.a.)
Energy Efficiency Improvement	Original estimated energy reduction: 35.9 MJ/m ² p.a. Original estimated emissions reduction: 50.6 kg CO ₂ /m ² p.a. <u>Post-implementation - actual reduction</u> Implementation of the energy efficiency measures was completed in March 2016. For this reason, the sites overall energy and emissions performance post-implementation cannot be evaluated based on actual data. The sites future energy performance is predicted to reduce by 145,635 MJ p.a. or 135.9 MJ/m ²
Reporting Data (Measuring Energy Efficiency and Additional Data)	Floor area: 1,072m ² Average FTE occupants per year: 10 Operational hours: 8:30am to 7:00pm (Monday to Friday). Occasional use on weekends by community groups. Building construction date: 2008 Baseline energy: <ul style="list-style-type: none"> • Electricity: 157,474 kWh p.a. (566,906 MJ p.a.) • Natural gas: 20,245 MJ p.a. <i>Data sourced from energy utility data for total site supply</i> Post-implementation energy: <ul style="list-style-type: none"> • Estimated at 441,516 MJ p.a.
Cost of Activity	\$9,055
Estimated Cost Savings	\$8,609 p.a.

Building, Facility or Site 9	
Name of Building, Facility or Site 9	Taylors Hill Youth and Community Facility
Location (address)	121 Calder Park Drive, Taylors Hill VIC 3037
Type of building, facility or site	Building with standard hours or continuous use – community facility
Activity Type and Measure	Installation of timers on air-conditioning systems and miscellaneous energy efficiency measures
Energy Efficiency Estimate Method	On-site sustainability assessment considering renewable energy, heating and cooling, thermal performance, lighting, water heating, electrical appliances and water appliances
Baseline Energy Usage	693,014 MJ p.a.(438.6 MJ/m ² p.a.) Note: Baseline energy revised against actual billing consumption data. Prior baseline energy reported was an estimate due to lack of utility data available at the time.
Baseline Energy Efficiency	Predicted at 592,732 (375.1 MJ/m ² p.a.)
Energy Efficiency Improvement	Estimated energy reduction of 63.5 MJ/m ² p.a. Estimated emissions reduction of 23.6 kg CO ₂ /m ² p.a. <u>Post-implementation - actual reduction</u> Implementation of the energy efficiency measures was completed in March 2016. For this reason, the sites overall energy and emissions performance post-implementation cannot be evaluated based on actual data. The sites future energy performance is predicted to reduce by 100,282 MJ p.a. or 63.5 MJ/m ² .
Reporting Data (Measuring Energy Efficiency and Additional Data)	Floor area: 1,580m ² Average FTE occupants per year: 14 Operation hours: 8:30am to 5:00pm (Monday to Friday). Occasional weekend use as a drop in centre. Building construction date: 2012 Baseline energy: <ul style="list-style-type: none"> Electricity: 134,563 kWh p.a. (484,427 MJ p.a.)(Jan 2015 to Dec 2015) Natural gas: 208,587 MJ p.a.(Jan 2015 to Dec 2015) <i>Data sourced from energy utility data for total site supply.</i> Post-implementation energy: <ul style="list-style-type: none"> Estimated at 592, 732 MJ p.a.
Cost of Activity	\$8,484
Estimated Cost Savings	\$5,140 p.a.



Building, Facility or Site 10	
Name of Building, Facility or Site 10	Street Lights
Location (address)	Street lights throughout the City of Melton. This includes the suburbs of Brookfield, Burnside, Burnside Heights, Caroline Springs, Diggers Rest, Hillside, Kurunjang, Melton, Melton South, Melton West, Plumpton, Rockbank and Toolern Vale.
Type of building, facility or site	Street lights
Activity Type and Measure	Street lighting replacement
Energy Efficiency Estimate Method	<p>Figures are based on real street light data – bills and number of lights. As there is essentially one technology change (80W to 22-47W lights) it is very simple to determine savings. Baseline Energy Use was calculated by street lighting experts Ironbark Sustainability. Inputs are very straight-forward – the number of lights (from council electricity bills) multiplied by wattage of each light and Ironbark have provided the following information from their independent financial analysis of Council's street lights.</p> <p>The methodology for the calculation of energy volumes for such unmetered supplies is set out in the National Energy Market (NEM) Metrology Procedures, which are managed by the Australian Energy Market Operator (AEMO). The methodology relies upon knowledge of the energy consumption of each type of approved load at an unmetered connection point. The values for assumed energy consumption are obtained from power consumption tests. The outcomes of these tests are agreed upon by AEMO, responsible persons, Registered Participants and other, relevant parties. The results are then presented and published in load tables managed by AEMO. The load tables must be updated whenever a new unmetered device comes into use. It is from these load tables that retailers and network service providers are able to calculate energy use from unmetered supplies. This is undertaken by maintaining an inventory of bulbs for each council so that costs can be appropriately allocated.</p> <p>There are:</p> <ul style="list-style-type: none"> • 3,779 x 80W Mercury Vapour Lights (wattage 95.8w); and • 46 x 125W Mercury Vapour Lights (wattage 142w). <p>To calculate baseline energy use the calculation is:</p> <p>Number of Lights x Wattage x 365 (days/year) x 11.94 (hours operational per day based on the regulations cited above) / 1000 (to get to kWh).</p>
Baseline Energy Usage	Baseline energy use is 1,606,222 kWh per annum, or 5,782,400 MJ per annum
Baseline Energy Efficiency	<p>Council's lighting stock primarily comprise standard 80 Watt mercury Vapour lights (80W MV), which uses around 68-77% more energy than more efficient technologies that are currently available and approved:</p> <p>KMs of roads that are P category: 640 km</p> <p>Number of P lights: 3,825</p> <p>Energy consumption: 5,782,400MJ</p> <p>Energy consumption per KM of road per year: 9,036 MJ/KM/Year</p> <p>Energy consumption per KM of road per day: 24.76 MJ/KM/Day</p> <p>Note this project only refers to Pedestrian Category, or "P Category" roads. P Category roads are also known as minor roads. The objective of P Category lighting is to provide a lighted environment where due to the low vehicular traffic flow the visual requirements of pedestrians are dominant.</p>



Building, Facility or Site 10	
Baseline Energy Efficiency continued	To accomplish this, it is necessary to illuminate both the roadways and the surrounding verges to allow pedestrians to identify obstructions, and to aid motorists in recognising that pedestrians may be present. The lighting levels are far lower than for Major Road lighting (or "V Category" or "Vehicle Category") and the design is based upon the amount of light falling on the road reserve (boundary to boundary). The above requirements are considered achieved if the lighting is designed and installed according to the requirements of the Australian/ New Zealand Standard AS/NZS 1158 "Lighting for roads and public spaces" (Category P – sub-categories P1 – P5).
Energy Efficiency Improvement	<p>Energy savings from street lighting are very easy to predict because the exact number and type of lights and their operating conditions are well known, and do not change as it is regulated by AEMO (see above).</p> <p>The new lights are predominantly 22W LEDs (wattage 21.9w) and also include a small number of 2x14W and 2x24W "T5s" (wattages 30.5w and 47w respectively).</p> <p>2559 x 22W LEDs (wattage 21.9w) 580 x 2x14W "T5s" (wattage 30.2w) 686 x 2x24W "T5s" (wattage 47w)</p> <p>To calculate new energy use the calculation is: Number of Lights x Wattage x 365 (days/year) x 11.94 (hours operational per day based on the regulations cited above) / 1000 (to get to kWh).</p> <p>The new energy use is 461,846 kWh per year (1,662,645 MJ per year).</p> <p>This project will save 1,144,376 kWh per year (4,119,755 MJ), which amounts to a saving of 71% relative to the existing lights that would be replaced.</p>
Reporting Data (Measuring Energy Efficiency and Additional Data)	<p>Council has approximately 640 kms of P-Category roads.</p> <p>Average hours of operation of lights per day: 11.94 hours</p> <p>Percentage of the day lights are operational: 49.8%</p> <p>Assumptions</p> <p>The sources of information used for modelling energy price increases are as follows:</p> <ul style="list-style-type: none"> • Energy Price increases from 2015 to 2022 are based on the data on page 5-29 Australian Energy Market Operator's (AEMO) 2013 Economic outlook information paper. • Energy Price increases from 2023 onwards are based on the data provided on Page 123 Australian Government 2011, Strong Growth, Low Pollution: Modelling a Carbon Price <p>Electricity prices for street lighting are modelled to increase from 10.2 cents/kWh in 2015</p> <ul style="list-style-type: none"> • OMR prices are for 2016 as stipulated in the October 2015 AER documents, plus \$3 for all lights with electronic control gear (as this cost has been excluded from the OMR price but is a real cost that needs to be factored in); • All savings and cost figures are GST Exclusive; • Green Power if relevant is charged at 5.2 c/kWh and varied based on percentage purchased • Operating hours of lights are 11.94 hrs per day in Vic • For 2x24 T5 lights where new OMR prices were not provided, the old price has been altered by the same percentage as the new price of the 2x14W T5's
Cost of Activity	\$1,751,095
Estimated Cost Savings	Net simple savings to 2034: \$111,778.92 per year



APPENDIX 2: ENERGY EFFICIENCY ACTIVITIES

Site Address	Community Facility	Works Completed	Issues	Site or Technology specific?	Outcome/resolution	Additional Learning's	Opportunity for local Industry
206 Coburns Rd, Melton	Melton Waves	HVAC optimisations, configuring of economy cycles and variable frequency drive controls Lighting upgrades	Spa Jet timeout controls were rejected by management PL Fluorescent lights were replaced with LED equivalent	Site Specific Technology Specific Fluorescents were no longer best practice.	Funds were allocated to lighting elsewhere in the building LED's installed. This significantly reduced the all-height and over pool maintenance required. Works were undertaken overnight	Engagement with management and users should be undertaken before the works to ascertain relevance and acceptance. Audit recommendations should be tested prior to installation works. Technology solutions can date in a short timeframe.	The contractors for these works were able to research lighting solutions and keep up to date with the technology
		Lighting upgrades	Works needed to be done outside normal operation hours which includes late nights and weekends	Site Specific	Works were undertaken overnight	Additional fees are associated with works outside normal operational hours. This needs to be factored into any quotes for works at such sites.	
		Lighting upgrades	Roof collapsed over the toddler pool which meant that the lights couldn't be replaced.	Site Specific	Funds were allocated to lighting elsewhere in the building	Circumstantial incidents can occur through the project outside of operational control. These risks should be included in the Risk Management Plan.	The contractors came up with a more innovative solution (fun coloured LED lights and acoustic ceiling panels) that Council installed after the fact from reactive maintenance budget.
		Thermal Pool Blankets	Art work was installed on the poolside wall before the pool blanket installation occurred. Consideration for the placement of the rolling mechanisms became an issue for the integrity of the artwork and the aesthetics.	Site Specific	The blankets length and the high of the rollers were designed in a way that the blankets could be positioned above the artwork. Due to the height of the rollers the lighting was also adjusted.	Communication with the facility manager in the time between the funding application stage and the implementation stage could have been improved.	Pool blankets are more and more common at municipal aquatic centres though deployment of the blankets was a new skill for the lifeguards who required specific training.
232 High Street, Melton	Melton Civic Centre	Lighting Upgrade	30W Panels not common (32 Watt are more common) and panels needed to be specially ordered from an overseas supplier. This meant additional supply times.	Technology Specific	The panels did arrive on time to meet the deadline.	Test the solutions in audit recommendations earlier in the planning stages.	The contractors involved in these works were able to research and identify a solution and increased their own knowledge of the product range available.
		Building Management System	Existing wire networks and some wireless technology was utilised which significantly reduced the implementation costs	Site and Technology Specific	\$67K Funds were later allocated under a deed of variation for pool boiler replacement at Melton Waves	Audit recommendations should be tested prior to installation works. Technology solutions can date in a short timeframe.	
193 Barriers Road, Melton	Melton Youth Centre	HVAC Improvements	Ceiling fans were rejected by program staff who were concerned about ball sports in the program space	Site Specific	Funds were absorbed in increased AC costs at Banchory.	Engagement with management and users should be undertaken before the works to ascertain relevance and acceptance.	
193 Barriers Road, Melton	Melton Youth Centre	Electric hot water replacement Timers on kitchen water boilers	Plumber was unable to install due to insufficient gas supply to the building. The new units have inbuilt timers and the maintenance staff were able to program in-house at no cost.	Site Specific	Funds were absorbed in increased AC costs at Banchory.	Unforeseen issue	
		LED Exit Lights and de-lamping	Without issue				
5 McKenzie Street, Melton	Community Care and Inclusion	HVAC Improvements	Ceiling fans were rejected by office staff who were concerned about downward air movement blowing paperwork across desks	Site Specific		Engagement with management and users should be undertaken before the works to ascertain relevance and acceptance.	
		Ceiling Insulation	The insulation worked out to be more cost effective than thought	Technology Specific	More ceiling area was able to covered	Good example of opportunities being maximised.	

Site Address	Community Facility	Works Completed	Issues	Site or Technology specific?	Outcome/resolution	Additional Learning's	Opportunity for local Industry
		Double Glazing	Secondary glazing with applied as opposed to replacing the glass with double glazed units.	Technology Specific	Works completed within budget and timeframe	Good example of innovative technologies being used to retrofit rather than replace the existing windows.	Local supplier was engaged; this was the first installation of this type of secondary glazing for Council.
		External Shading	The building is due for redevelopment in 2016. There were concerns about the aesthetics of shading the old part of the building to match the aesthetic of the proposed addition to the building	Site Specific	A timber solution was constructed as opposed to canvas awnings	The communication between project staff and the capital works team designing the redevelopment could have been improved in an earlier stage.	
		Lighting upgrades Motion Sensors	LED Exit lights replaced without issue	Technology Specific	LED's installed. Lighting levels are now consistent across the work spaces.	Audit recommendations should be tested prior to installation works. Technology solutions can date in a short timeframe.	The contractors for these works were able to research lighting solutions and keep up to date with the technology
		Timers on kitchen water boilers	PL Fluorescent lights were replaced with LED equivalent	Fluorescents were no longer best practice.			
		Timers on kitchen water boilers	The new units have inbuilt timers and the maintenance staff were able to program in-house at no cost.				
		HVAC Optimisations	Heater replaced without issue				
		Lighting upgrades	Spill AC system replaced without issue				
1 McKenzie Street, Melton	Melton Seniors Community and Learning Centre	Lighting upgrades	LED Exit Lights installed without issue. Lighting replacement in the range hood in the kitchen rejected by the electrician due to safety concerns of the heat load above the gas cookers.	Technology Specific	There didn't appear to be an appropriate LED equivalent for this type of light	Audit recommendations should be tested prior to installation works.	
		Lighting upgrades	PL Fluorescent lights were replaced with LED equivalent	Technology Specific	LED's installed. Lighting levels are now consistent across the work spaces.	Audit recommendations should be tested prior to installation works. Technology solutions can date in a short timeframe.	The contractors for these works were able to research lighting solutions and keep up to date with the technology
		Timers and sensors	Installed without issue	Fluorescents were no longer best practice.			
1 McKenzie Street, Melton	Melton Seniors Community and Learning Centre	Install solar hot water booster to existing system	Rejected by the plumber	Site Specific	Funds were redirected to the car park lighting	Audit recommendations should be tested prior to installation works.	
		Draught Seals	Installed without issue				
		Removal of disused wall AC unit- patch and repair hole	Installed without issue				
		Replace the mercury vapour light in the car park	LED light installed with the surplus funds from the hot water booster	The hot water consumption on this site was too low to warrant the storage tank			
		Timers on kitchen water boilers	The new units have inbuilt timers and the maintenance staff were able to program in-house at no cost.				
9-19 The Parade, Caroline Springs	Caroline Springs Leisure Centre	Time delay switches installed in the football club rooms Lighting upgrades	Installed without issue LED's installed without issue				
						Good example of opportunities being maximised.	

Site Address	Community Facility	Works Completed	Issues	Site or Technology specific?	Outcome/resolution	Additional Learning's	Opportunity for local Industry
		Occupancy Sensors	Sensors were moved and the sensitivity increased as staff were noting that the lights turned off during working hours if staff didn't move enough at their desks Without issue	Site Specific	Staff are encouraged to move more often as per our OHS suggestions and the sensors have been adjusted to accommodate.	Good example of engagement with building occupants to tailor a solution.	
		Removal of external ground lights (to light the facade of the building) Time delay switches on heating and cooling	The switches in the main foyer were changed to occupancy sensors as the staff otherwise had to keep returning to push the button from the other side of the room.	Site Specific	Occupancy Sensors are a better solution for the foyer space	Good example of engagement with building occupants to tailor a solution.	
193 - 201 Caroline Springs Boulevard, Caroline Springs	Caroline Springs Civic Centre/Library	Timers on kitchen water boilers Time delay switches and daylight sensors BMS control optimisations	The new units have inbuilt timers and the maintenance staff were able to program in-house at no cost. Installed without issue				
121 Calder Park Drive, Taylors Hill	Taylors Hill Youth and Community Centre	HVAC Optimisations	Ceiling fans were rejected by program staff who were concerned about ball sports in the program space	Site Specific	Funds were absorbed in increased AC costs at Banchory	Engagement with management and users should be undertaken before the works to ascertain relevance and acceptance.	
121 Calder Park Drive, Taylors Hill	Taylors Hill Youth and Community Centre	Timers, Sensors Lighting Upgrade	Without issue LED lights installed without issue				
		Timers on kitchen water boilers	The new units have inbuilt timers and the maintenance staff were able to program in-house at no cost.				
17 Banchory Avenue, Hillside	Banchory Community Centre	HVAC Optimisations Replace 8 Split System air conditioners with 4-5 star inverter units Push/run out timers	Ceiling fans were rejected by program staff who were concerned about ball sports in the program space The existing units were wired and plumbed incorrectly. Installed without issue	Site Specific	Funds were absorbed in increased AC costs at Banchory. Extra time and funds were required to re-wire and plumb the new units.	Engagement with management and users should be undertaken before the works to ascertain relevance and acceptance. The inefficiency of the old units were amplified by the incorrect plumbing. This will mean that the new units combined with the correct plumbing will deliver even greater efficiencies.	
		Draught seals on sliding doors	Rejected by installation team due to the nature of the sliding mechanism and interruption to the security of the doors.	Technology Specific	Not installed.		
		Timers for the fridges/freezers	Rejected by the building users- not appropriate for keeping milk and goods overnight	Site Specific	Not installed	The unit is 4 star- greater efficiencies could be made by fitting foam in the empty spaces overnight- requires users to do on a regular basis.	
		Lighting upgrades	PL Fluorescent lights were replaced with LED equivalent LED Exit lights installed without issue.	Technology Specific Fluorescents were no longer best practice.	LED's installed.	Audit recommendations should be tested prior to installation works. Technology solutions can date in a short timeframe.	The contractors for these works were able to research lighting solutions and keep up to date with the technology

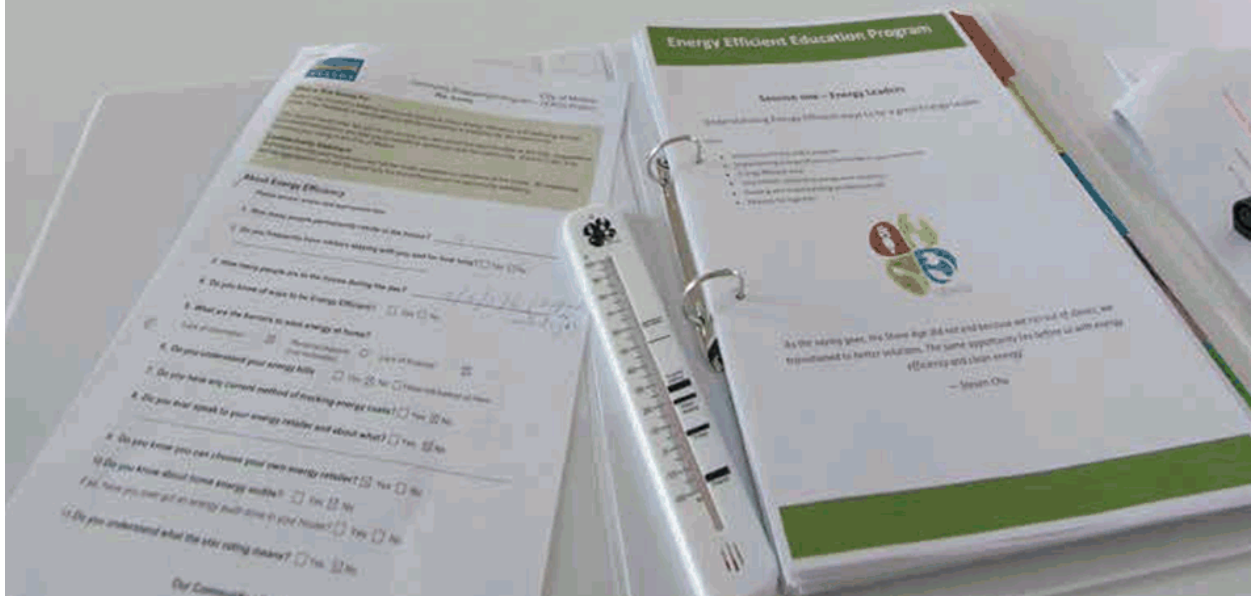
APPENDIX 3: COMMUNITY ENGAGEMENT PROGRAM FINAL REPORT



Lead Educate Advocate Demonstrate Sustainability (LEADS)



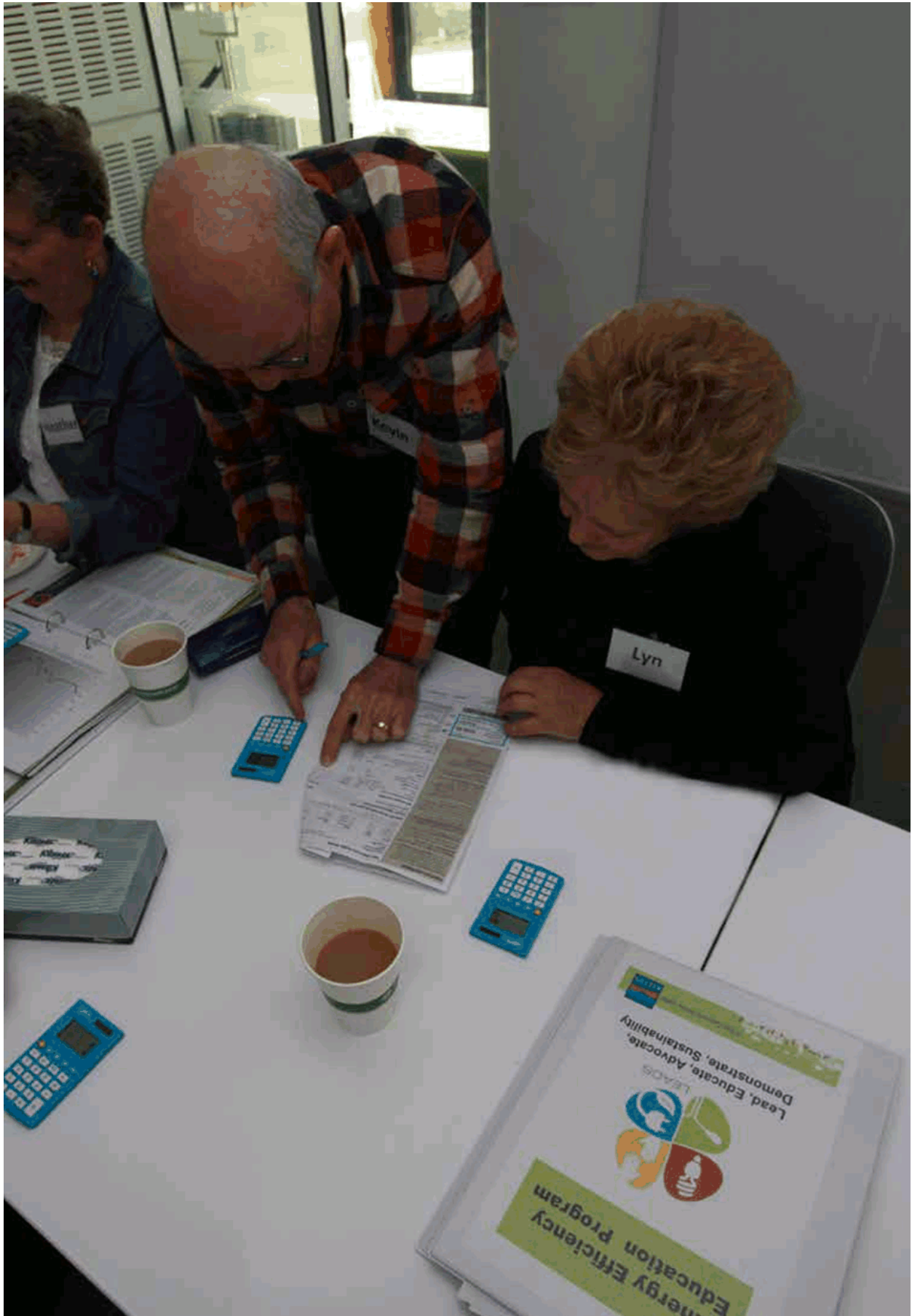
Community Engagement Program Final Report



 This Activity has received funding from the Australian Government.

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EXECUTIVE SUMMARY

This report outlines the process, activities and outcomes of the LEADS (Lead, Educate, Demonstrate Sustainability) Project - Community Engagement Program. This program commenced in June 2014 and concluded in May 2016, it was funded in partnership by Melton City Council and the Australian Government's 'Community Energy Efficiency Program' (CEEP).

The Project funded the appointment of an Energy Efficiency Educator, who was responsible for the design, develop and implement the education program. The LEADS Project, Project Manager and Energy Efficiency Project Officer assisted the Energy Efficiency Educator to the delivery the extensive program through the Environmental Services team at Melton City Council.

This program focused on educating and empowering City of Melton's low socio-economic and disadvantaged residents to reduce their energy usage and bill costs in addition to achieving a reduction in their environmental impact. The program was delivered and tailored to three groups to ensure maximum reach in the community. Table 1 summarises the key focus, deliverable and outcomes of each element of the training program.

	Focus	Resources and Compensation	Total Hours of Training	Outcomes
Ambassador group	It targeted specific communities like Sudanese, Aboriginal and Torres Strait Islanders [ABTSI], CALD, seniors, low socio – economic and disadvantaged residents.	<ul style="list-style-type: none"> • Energy folder • Thermometer • In-home display • Power mate • Fridge magnets • Compass <p>The participants were compensated for their time in training (\$600 each)</p>	Each participant was trained for 21 hours	<ul style="list-style-type: none"> • A total of seven groups equalling 271 people were trained. • Energy Ambassadors educated 10 people each from within the wider community. • 2710 people were educated by them. • Completion certificates were handed out at Graduation ceremonies.
Leaders Group	It focused on training existing groups and active community members, such as environment groups that were trained as a volunteer network engaging others	<ul style="list-style-type: none"> • Energy folder • Thermometer • In- home display • Power mate • Fridge magnets • Compass 	Each participant was trained for 14 hours.	<p>A total of four groups equalling 78 people were trained.</p> <p>On completion of the training the Energy Leaders educated 10 people each from within the wider community.</p> <p>780 people were educated by the Energy Leaders.</p> <p>Completion certificates were handed out at Graduation ceremonies</p>



	Focus	Resources and Compensation	Total Hours of Training	Outcomes
Professional group	This part of the program recruited local professionals who worked with the members of the community and also those who supported lower socio-economic and disadvantaged groups through their work.	<ul style="list-style-type: none"> • Energy folder • Thermometer • Topic handouts for lunch box sessions. 	Three full day sessions and four lunch – box sessions.	<p>A total of seven groups equalling 195 people were trained.</p> <p>Completion certificates were handed out at Graduation ceremonies.</p>

A total of 51 education sessions were held resulting in training 544 people from August 2014 until March 2016. 65% of the total training participants were part of the most disadvantage and vulnerable sectors of the City of Melton's community

The evaluation process took place in two stages:

- **Pre and post surveys:** participants were asked to complete a survey prior to receiving the training and upon completion of the program. The purpose of this evaluation was to assess the impact of the training on the participant's knowledge and behaviour.
- **Final evaluation:** Ambassadors groups were asked to attend a specific evaluation session to complete a questionnaire. The aim of this session was to evaluate if there was energy reduction since they have completed the training and evaluate how they are managing their power usage. Please note this evaluation is still in process.

The surveys post completion of the course highlighted that 99% of participants were very positive stating that they were ready to make changes and improve their energy usage. It was also found that 99% of the training participants better understood their energy bills and were more aware of their energy usage.

Some of the key lessons learnt through the program were:

- To achieve success during the recruitment process, networking within Council and community groups was critical. This included attending meetings that particular groups may already have organised to present the program and get them involved
- Explanations for Ambassadors and leaders should kept very simple and lot of pictorial teaching was done due to language and literacy barriers
- Food was also a identified as an important part of the training. Choosing carefully the culture needs of the groups generated respect and helped to bridge the gap and establish trust
- The need to hold a completion ceremony was identified with the first group of training. It was a moment of pride making the participants empowered and inclusive in Council's activities
- Giving the participants a chance to showcase their culture and to feel proud of it through dance, music and food helped them to enjoy the training
- Reimbursing Ambassadors' time with Essential Gift Cards worked well to get them engaged and committed to the program. However, majority of them mentioned knowledge was an important motivation to attend the training.
- The 'train the trainer model' was a successful element to spread the work regarding energy efficiency. Over 3490 people were educated using this technique.



1. PROGRAM OBJECTIVES

1. To provide energy efficiency education to Melton's lower socio-economic sector in order to reduce their energy use and bill stress;
2. To demonstrate Council's commitment to addressing climate change;
3. To deliver an innovative energy efficiency program that addressed a huge need in Melton City Council, targeting the disadvantaged;
4. To deliver a model of community engagement and education that could be reproduced elsewhere.

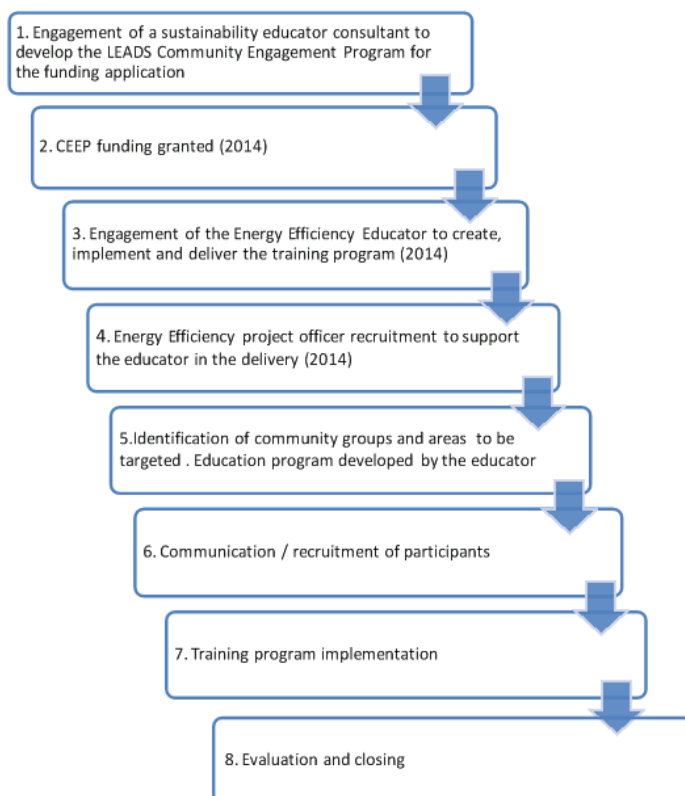
2. BACKGROUND (WHY)

In 2014, Melton City Council was successful in securing grant funding through the Australian Government's 'Community Energy Efficiency Program' (CEEP) to deliver the LEADS (Lead Educate Advocate Demonstrate Sustainability) Project. The project included three key activities:

1. Street Light Upgrades
2. Improve the energy efficiency of nine community facilities through a range of innovative retrofits and upgrades,
3. Community Engagement Program.

The Community Engagement Program is the subject of this report and sought to educate and empower low income and disadvantaged communities to take charge of their energy consumption and costs. The process to develop the program is outlined at **Figure 1: Program Development**.

Figure 1: Program Development





3. PROJECT STAKEHOLDERS (WHO)

3.1 Stakeholder Identification

In developing the program the following project stakeholders were identified:

Internal:

- Councillors
- Staff

Intermediate:

- Energy retailers
- Councils in the Metropolitan Western Region
- Local media

External:

- City of Melton environments groups
- Users of community facilities
- Professionals that educate those that work with vulnerable sectors of the community
- Melton's community with a focus on the disadvantaged and vulnerable sectors. The areas targeted were those identified as a lower socio-economic and disadvantage groups in the City of Melton based on the 2006 and 2011 Census (refer Table 1).

Table 1 Melton Census data 2006 and 2011

Name of Area	SEIFA Index 2006	Equivalised household income lowest quartile 2011	Number of Unemployed People 2011	ABTSI 2011	One parent families 2011	NESB 2011	Low educational Levels 2011	VIPER Index 2009	EVI Index 2009 (Amber alert = medium to high potential job losses)
Melton	923	953	348	116	568	1145	Yes	Very high and high vulnerability	Amber alert
Melton South	928	960	451	96	612	1071	Yes	Very high and high vulnerability	Amber alert
Burnside & B. Heights	984	534	309	21	334	4733	No	Very high and high vulnerability	Amber alert
Kurunjang	995	584	352	83	468	1566	Yes	Very high and high vulnerability	Amber alert
Melton West	1008	887	462	150	729	1991	Yes	Very high and high vulnerability	Amber alert
Diggers Rest	1009	147	41	15	118	179	Yes	Very high and high vulnerability	Amber alert
Brookfield	1038	351	178	58	254	1011	Yes		Amber alert
Taylor's Hill	1042	528	322	19	289	5587	No		
Hillside	1059	681	301	58	508	5056	No		
Caroline Springs	1063	878	700	53	697	8586	No		
Totals			3464	669	4577	30925			



3.2 Training Programs

The LEADS Community Education Program leveraged off existing social networks and community groups currently offering programs for different special groups and geographically located residents. The three key groups targeted through the program were:

Ambassadors: this element of the program targeted specific communities like Sudanese and Aboriginal and Torres Strait Islanders. One of the issues identified during the design and development of the program was the need to overcome the barrier of engaging with these community groups and individuals because. It was identified that asking them to donate their time (up to 20-30 hours each) was asking too much. To address this, it was decided early on that an incentive program that reimbursed them for their time would be the best way to ensure ongoing participation and would also serve to reassure the participants that Council valued their time. The reimbursements were given in the form of Woolworths Essentials Gift Cards (\$600/participant) that could be used to purchase food, groceries and fuel but not cigarettes or alcohol. This was the only group was compensated for their time given the commitment required.

In order to increase the reach and influence of this program, and show value for money, it was also decided that a 'Train-the-Trainer' approach would be taken to enable each participant from the Ambassador Group to take their newly acquired knowledge and share it within their families, community and local networks. In order to 'earn' their gift cards, each participant was required to attend all training sessions (conducted over a series of week nights or all day sessions) and return survey forms for an additional ten people that they engaged with regarding energy efficiency and the lessons they learned in training

The seven groups educated through the Ambassador training were:

- Sudanese
- Aboriginal & Torres Strait Islander
- Macedonian
- Burmese
- Bhutanese
- Spanish Seniors
- Mixed Culturally & Linguistically Diverse (CALD) Groups.

Leaders: this element of the program targeted well connected members of the community that were able to volunteer their time to spread the energy efficiency message and support the Ambassadors. This group also delivered training to at least ten other households each.

A total of 78 Energy Leaders completed the training; they were educated for 14 hours (2 sessions of 7 hours each)

and provided with information and materials to educate 10 people each.

Professionals: this element of the program sought to educate those that work with vulnerable sectors of the community. The training provided them with a set of skills that can help their clients to manage their energy consumption and thereby reduce a substantial portion of their bills.

Initially professionals were engaged for all day sessions (seven hours) but due to time constraints this model didn't work. Instead of full sessions, lunchbox sessions on different topics were conducted successfully. A total of 195 professional were educated through seven sessions.





Melton City Council
Leading the way in saving energy



How can I reduce my gas and electricity costs?
How can I make sense of the bills?
What can I do to make a difference to the environment?

If you've ever asked yourself any of these questions, then we can help you. Melton City Council will be running a series of workshops for people who are interested in learning about energy efficiency, reducing energy costs and sharing information with community, friends and family.

To find out how to get involved, register your interest now:

Energy Efficiency Educator
Email: leads@melton.vic.gov.au
Phone: 9747 5446

This activity received funding from the Australian Government as part of the Community Energy Efficiency Program



W: melton.vic.gov.au
P: 9747 7200





4. COMMUNICATION ACTIVITIES (How)

A range of techniques and media were used to promote the Program and engage both the community and Melton City Council as an organisation. Table 2 outlines the communication methods were used to inform the local community, the organisation and the participants about the program.

Table 2 Communication & Promotion Activities

Tools	Brief Description
Program Launch	A launch was held on August 2014 with, key community leaders and Council staff invited. It was held at the Melton Waves Leisure Centre, one of the facilities upgraded as part of the program.
Flyer	A basic flyer with general information was used to inform the community about the program and how to register to be part of the training. It was distributed at libraries, Community Centres and the Civic Centre.
Group visits	Once the groups were identified through the disadvantaged areas in Melton City Council, leaders were contacted and a presentation was made to explain the aim of the program and its benefits.
Festivals	Showcasing the program at festivals using the program flyer, getting Melton's community interested to be part of the training. Participated at Djerriwarrah festival in November 2014.
Publications in newsletter	Articles in the rate payer quarterly newsletter / Moving Ahead.
Newspaper advertisement	It was used to promote Energy and Sustainability Expo.
Website	Program information was constantly updated on the Council's website
Banner	Three different banners were made with the program's logo to be used at events.
Brochure	Provided detailed information about the three training programs. It was used at the groups visits to explain the program and its benefits
Youtube video	The main focus of the video was to demonstrate that the community engagement program educated and empowered Melton community to take care of their energy consumption and costs while taking care of the environment. It captured the testimonials of participants and their experiences after completion of training. It was used to promote the program and to gain community interest to be part of the training www.youtube.com/watch?v=owxrYdl25ac
Energy and Sustainability Expo	Two Energy and Sustainability Expos were held according to the project plan. <ul style="list-style-type: none"> • First Expo was held on 31 January 2015 at Melton Library and Learning Hub • Second was held on 20 November 2015 at Caroline Springs Library For these events the following tools were used for promotion: <ul style="list-style-type: none"> • Flyer distributed in the libraries, Community Centres and Civic Centre; • Advertisement in the local papers; • Signage boards; • Council's website.
Letters to community groups	A letter about the program was send to the community groups that supported the funding application. Support letter to different Environmental groups didn't lead to any positive outcome apart from making them aware of the LEADS Program. Participants from one of these groups became involved after a presentation was given to the group.
Program Awards	The LEADS program won the Community Government Partnerships Award at 2015 Keep Australia Beautiful Sustainable Cities Awards. It also won the 2016 Victorian Local Governance Association Climate award.



The number of people reached through the various communications is summarised in Table 3.

Table 3: Communication & Promotional Reach

Communication Activities	Community Reached
Website visits	175 page views
Participation at different events	Career's Expo: 500 attended Marla Day: 60 attended Community Engagement Expo: 100 DJ festival: 67 people signed to get information about the program
Energy Expo attendance	600-700 approximately
Newspapers	Advertising for Energy and Sustainability Expos on: <ul style="list-style-type: none"> • Melton Leader circulation within City of Melton is approx 46,000 • Star Weekly approximate circulation 101,500
Brochures printed and handed out at groups meetings, events	2,000
Flyers and handed out at groups meetings, events	1,500
LEADS' thermometers given away	4,000
Youtube video	253
Community members educated by participants ('train the trainer' model)	3,495





5. THE TRAINING PROGRAM (How)

5.1 Recruitment, Requirements and Lessons Learned

To achieve the objectives of the program and ensure that the training benefited lower socio-economic and disadvantaged groups within the City of Melton, the design of the program sought to address the requirements of a range of different and culturally diverse groups. The program team also ensure that they adapted the approach to issues were identified to ensure that each group felt respected and engaged in the Program. Table 4 provides an overview of the training program, issues identified and how they were addressed and the lesson learned. Some of the lessons learned from each of the groups will assist Council in developing engagement programs in the future.

Table 4: Recruitment and Lessons Learned

Group	Recruitment process	Requirements and issues	Lessons learned
Sudanese	Leveraged of existing relationship with Council and held meetings with two community leaders.	<ul style="list-style-type: none"> A Sudanese women's group was created because they did not feel comfortable being integrated with Sudanese men due to cultural sensitivities. The meeting hours had to be after 5pm because of their parental responsibilities. Food requirements were taken into account because of religion (eg. Halal meat.) The majority of the group were not literate. Dinka and English were both not easy to read for them. Translated material was not much help. Explanations were kept really simple. A lot of pictorial teaching was done. Videos with no voiceover were used. A majority of the members only dealt with currency notes as the concept of coins was not clear to them. 	<p>An exclusive women's group was established with 27 women in it.</p> <p>In this community, culture around food is very strong, thus dinners helped to bridge the gap and established respect. It also generated conversations around the training topics and helped us understand them better.</p> <p>The need to hold a completion ceremony was identified with this group. Completion ceremony was a moment of pride and it lent a sense of empowerment as most of the members had never been through formal education.</p>



Group	Recruitment process	Requirements and issues	Lessons learned
Aboriginal and Torres Strait Islander	Attended their Marla Day event and spoke to them about the program. Djerriwarrh Health got us involved in the event.	<ul style="list-style-type: none"> Maintaining them focused and interested in an eight weeks training was a bit of a challenge. We started out training identifying our expectations from each other. This helped us keep the group in check. The elders in the room also took over whenever the need arose to bring the rest of the group to focus on the topic. The delivery of the topics was in simple English with lay man terms leaving out the jargon. They sessions were held after hours for maximum participation. 	<p>The ATSI group needs time to establish trust and faith. It took us a while to do so. Nearly three weeks lapsed before the attitude started shifting towards acceptance.</p> <p>The sessions were run very informally. Food was again identified with respect and acceptance.</p>
Mixed CALD	Djerriwarrh Education Centre helped us to access their CALD group on their premises.	<ul style="list-style-type: none"> More pictorial resources were used. Spoken English had to be kept really simple. More videos were used to explain different topics. 	<p>Teaching the group where they normally meet can make it easier for participation.</p> <p>Role- playing helped to determine the absorption of the information.</p>
Burmese (chin)	Networks in the community helped us to identify the person who could get a group together in spite of not being their leader.	<ul style="list-style-type: none"> An interpreter was needed who could speak four different dialects. Videos and pictorial lessons were delivered. Some videos in chin language were also used. Children had to attend the trainings as no one else could look after them at home. 	<p>Child care isn't possible at all facilities so we had to use the services of another staff member for their supervision.</p> <p>Their staple diet being rice, the catering needs had to be met.</p> <p>Majority of the members had used electrical appliances and electricity for the first time in their life after coming to Australia. Their understanding about the use of energy was very limited.</p>
Spanish speaking seniors	Networks within the council	<ul style="list-style-type: none"> Needed an interpreter. Simple English and lots of videos were used. 	To hold trainings at the venue where the groups meet and also at the same time and day of the week.
Bhutanese	Networks within the community	<ul style="list-style-type: none"> Videos, charts and simple English were used for delivery of content. The sessions started with very basic information becoming increasingly complex as they progressed. 	<p>Respect for their elders meant that the young members of the group could not eat meat in their presence, altering the catering needs.</p> <p>Many members received their energy bills for the first time in their life after coming to Australia because their refugee camps were devoid of electricity.</p> <p>Some of the participants in this group were seniors with not Bhutanese background; it was interesting to see that both the Bhutanese participants and the seniors enjoyed working together.</p>



Group	Recruitment process	Requirements and issues	Lessons learned
Macedonian	Networks within the council	<ul style="list-style-type: none"> • Simple English was needed for delivery of different topics. • Many participants had not been through formal education. 	<p>Sessions had to be kept fun and entertaining to keep them involved.</p> <p>Giving them a chance to showcase their culture and to feel proud of it through dance, music and food helped.</p> <p>The members after the training are willing to give their time for community activities and desire</p>
Leaders groups	Networks in the community and participation at events	<ul style="list-style-type: none"> • Trainings were possible only on a weekend. 	<ul style="list-style-type: none"> • Recruitment of the participants had to be nearly twice the number of people intended to be trained. No show of participants for the training was around 50% on Day 1. • Good and healthy catering was much appreciated and made them feel special and valued. It motivated them to come to the event. • There was a need for the community to be educated on energy efficiency and thus the participants came back for the second day as well. • Educating another ten people in the community without any monetary gains for themselves reflects the desire to spread the information widely.
Professionals	Network within the Council and external organisations	<ul style="list-style-type: none"> • Trainings conducted were shorter in duration because they were time poor. • Recruitment for the training was difficult because of multiple reasons (they couldn't attend full sessions, lack of resources on our end, etc.) 	<ul style="list-style-type: none"> • Cancellation rate was rather high due to other urgent job commitments. • Lunch box sessions were successful as it focused on one topic at a time.



5.2 Training Program Content

- Expectation: It was identified to ensure all the relevant topics were included.
- Sources of Energy: Electricity production in Australia was looked into. Energy use in Australian households was shown and the green house gas emissions were highlighted.
- Climate Change: causes, effects and threats were discussed. Videos on global warming were shown.
- Behaviour change: motivation to change, basic motivation to change, Prochaska and Diclemente's Model of Change (1982) were discussed in detail.
- Ways to be energy efficient: The elements of energy efficiency around the following were covered: Lighting, heating and cooling, living room, television, energy and star rating, kitchen, bathroom, laundry, study and outdoors. Group activities were conducted around it along with some case studies.
- Reading and understanding your energy bill: The four tariff types were discussed. Interval data, things to ask the energy retailer were also covered.
- Types of energy: Difference between renewable, non- renewable energy and green power was highlighted as well as wind turbines and feed-in tariff
- Solar PV systems: working of a solar system, difference between string inverter system and micro inverter system, stand alone systems, grid connected systems, battery storage, feed - in tariff, correct size of system, choosing a solar PV retailer, solar leasing and solar power purchase agreement were some of the aspects covered under opting for renewable energy at home or farm.
- Simple renovations: Ways to make the house more sustainable were discussed in detail. Looking at common leakage points and sealing them, common places of heat loss and heat gain, video on draft proofing, windows and possibility of good coverings, rens shade as a window covering option, cross ventilation, ceiling insulation, double and secondary glazing were all covered and more.
- Your rights: Electricity and gas concessions, Utility Relief Grant, other organisations that can help during hardships, hardship programs offered by energy retailers, disconnections and wrongful disconnections and their rights, energy marketing.
- Power-mate: A demonstration on how to use it to find the running cost of an appliance was also given in training.
- Water rebate program: was discussed in detail while it was running. Savings on water efficient and energy efficient washings machines were also highlighted.
- Guest speaker: A speaker gave a talk on waste management. The topics of recycling and reuse were covered as well. Thinking about decrease waste and correct disposal was also discussed.
- Role-plays: were conducted on the last day of training to ascertain the grasp of the information by the trainees. The participants also had loads of fun doing it.



5.3 Course Materials

The following educational materials and activities were essential to delivering the Program:

1. **Energy folder:** An Energy folder was created and given to each participant comprising information on:
 - Where the energy is used in your home
 - Being winter wise/reducing your energy costs in winter
 - Solar hot water systems
 - Hot water
 - Heating/Cooling
 - Insulation and draught proofing
 - Televisions
 - Lighting
 - Reading and understanding your energy bills
 - Flexible pricing /peak and off-peak times
 - Choosing an energy retailer
 - Guide to smarter renovations
 - Energy star rating of appliances
 - Solar power
 - Your billing rights
 - Fact sheets from Energy and Water Ombudsman
2. **Thermometers:** Each participant was given a thermometer with temperature settings for various appliances along with a fridge magnet with energy saving tips. Some of the groups were also given calculators to do calculations on the bill.
3. **Powermate:** A power mate was provided to participants to calculate costs and greenhouse gas production from appliances. Training on how to use it and demonstration was part of the training.
4. **Pre-survey:** A survey was conducted to find out their training needs and energy use.
5. **Pledge:** A pledge was signed to save energy, the planet and money.
6. **Energy audit kits:** Were provided to majority of the trainees such that they could further educate 10 people each. The kit consisted of energy audit forms, energy action forms, power-mate, compass, fridge magnets with tips on saving energy and thermometers. Appendix 1 provides a sample of the energy audit and energy action form.
7. **Post-survey:** Helped to determine the changes in the energy habits of the participants and their energy use. It was also helpful to figure out if the training was productive and helped to bridge the information gaps.
8. **Completion ceremony:** It was an event created to generate the sense of pride along with empowerment. In total five completion ceremonies were held through the life of the project for all of the training participants that successfully completed the education program. A certificate signed by the Melton City Council's CEO and an in-home display was given to all participants.



6. RESULTS, EVALUATION AND FINDINGS

6.1 Results

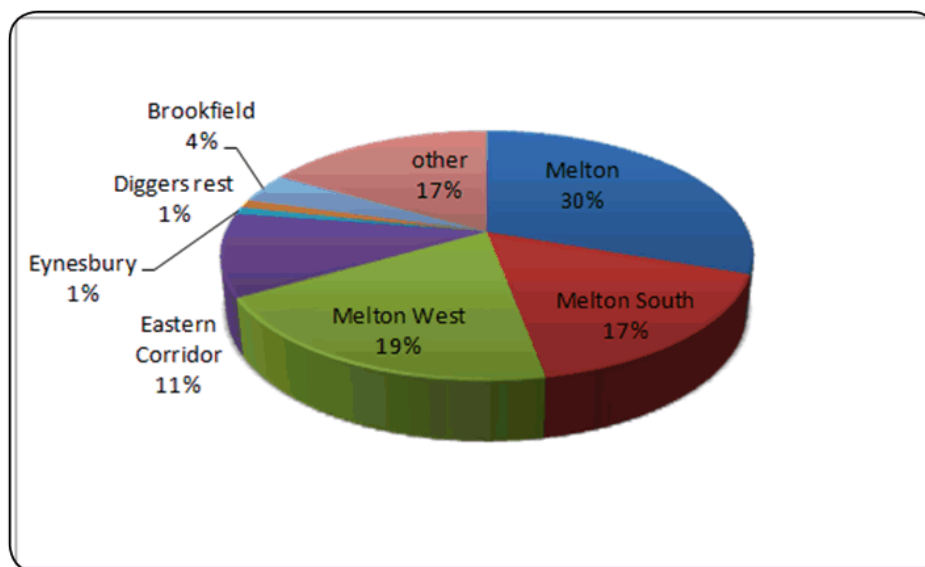
In total 51 education sessions were held resulting in training 544 people from August 2014 until March 2016. The table below shows the number of participants educated by the three key groups:

Table 5 Number of participants

Training Programs and number of participants				
Group No	Ambassador Group		Leaders group	Professionals group
1	Sudanese	29	13	10
2	Aboriginal and Torres Strait Islander	23	25	18
3	CALD	26	17	21
4	Burmese	58	23	14
5	Spanish speaking Seniors	52	N/A	65
6	Bhutanese	48	N/A	11
7	Macedonian	35	N/A	56
Total		271	78	195

The chart below also shows that at least 65% of the LEADS training participants were part of the most disadvantaged and vulnerable sectors of the City of Melton's community. It strongly demonstrates that the LEADS community engagement program achieved its most important objective that was providing energy efficiency education to the disadvantaged and vulnerable sectors of Melton community.

Figure 1 Melton areas covered by training





6.2 Evaluation process

6.2.1 Pre and Post Training Surveys

Training participants were assessed before and after training through a survey developed by the LEADS team. The data collected was to evaluate the efficiency of the training and the impact it has on the participant's knowledge and behaviour. Note that, the majority of participants completed surveys but not all. Appendix 2 provides a sample of the before and after surveys.

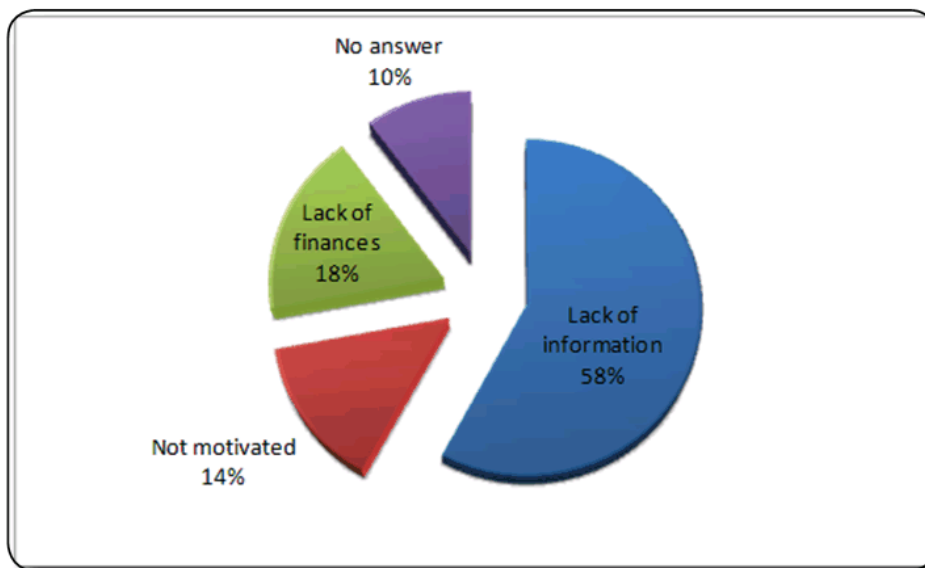
The key findings from the surveys relate to the following criteria:

- Barriers to being energy efficient
- Energy bill literacy
- Ability to switch retailers
- Understanding of the Energy Star Rating System for appliances.

Barriers to be energy efficient

Figure 2 illustrates that 58% of the training participants agreed that lack of information is the biggest barrier to being energy efficient, followed by lack of finances.

Figure 2 Barriers to be energy efficient





This finding validates the LEADS community engagement program's approach. The training addresses the lack of information barrier to being energy efficient. The following before and after survey results show that the program has been largely successful in meeting some of the major areas where there was a lack of understanding.

Energy bill literacy

Understanding energy bills is one of the most important topics of the LEADS training. Figure 3, shows that before training only 39% of participants had looked at their bills and understood them, after training 99% of the participants understood their energy bills and were aware of their energy use.

Figure 3 Energy bill literacy



The benefits of understanding energy bills include participants being able to;

- Monitor their energy use
- See evidence of energy efficiency actions
- Determine tariffs
- Identify mistakes in billing.

A common finding amongst the Ambassadors groups was that concessions were not being applied and unfavourable energy plans and tariffs were being applied.

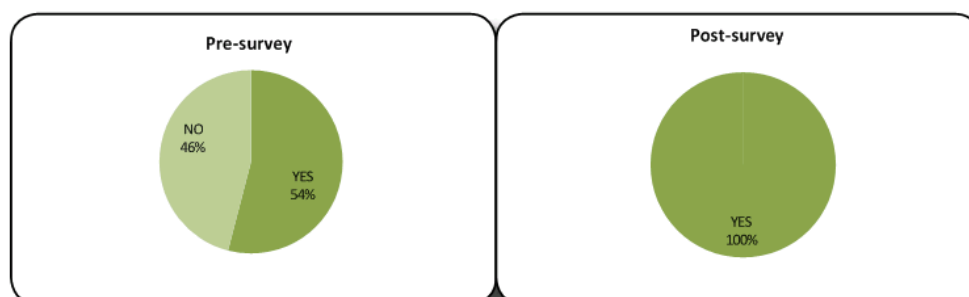
Understanding of the Energy Star Rating for Appliances

An understanding of this pictorial method of comparing products is a particularly powerful tool for those who have low literacy in English (Ambassador group). At the beginning of training almost half of the participants didn't know how to choose the most efficient appliance.

At the completion of the training there was excellent comprehension of the system and this was demonstrated through role playing about selecting the best appliances.

Figure 4 shows the high level of comprehension of the star rating of appliances and the key features to look when buying a new appliance. All participants showed that they understood the star ratings.

Figure 4 Understanding of star rating of appliances





Commitment to being energy efficient

After completion of the course, participants were asked if they were ready to make changes in their energy habits. There was a very positive response with 99% of participants stating that they were ready to make changes and improve their energy usage.

6.2.2 Program Evaluation

After finalising the training sessions in April 2016, the LEADS team developed an evaluation questionnaire to find out if there was energy reduction in the domestic consumption of the Ambassadors group participants and also evaluate how they are managing their power usage. Appendix 3 provides a sample of the evaluation questionnaire.

The groups evaluated were: Sudanese, Aboriginal, Macedonian, Spanish, Burmese and Bhutanese in four sessions during April 2016. Note this evaluation only targeted the Ambassador group as it was the easier group to reach (due to the tight timeline). All Ambassadors (271) participants were invited and only 94 were available to attend. As a part of these evaluation sessions interviews were held with some of the participants, their feedback and comments were recorded in a video that to date (03/05/2016) is still in the production stage.

The most important feedback and comments from participants were:

- Khem Khanal from the Bhutanese group reported savings of \$91 in his bill (three months) by turning off the lights when leaving the room and not using hot water to wash clothes anymore.
- Australian Senior, Pat Anderson said: 'I have saved 50% on my bill by turning off appliances at the wall and using the air conditioner more wisely. I have also got 30% discount when paying on time'
- Pauline Perry, Australian Senior said: 'I have changed my energy retailer and now I am saving \$50 in my monthly bill'.
- Beverly Owen from the Spanish Seniors group mentioned: 'I have saved around \$100 in my bill, I have changed my old lights to LED lights and I am more aware of turning off the lights when leaving the room'.
- Her energy bill shows that same time last year her average household daily usage was 11.90 kWh, this year was after training it has dropped to 8.90 kWh.
- Basilio Murawczuk from the Spanish Seniors group reported that his bill has decreased from \$400 to \$180 after installing solar panels.
- German Valenzuela from the Spanish Seniors group said that he changed his Energy Retailer and since then his bill has dropped 20%. He also mentioned that he did select the new retailer taking in account that the new one uses renewable energy, something that he learned from the LEADS Community Engagement Program.
- Slobotka Smilevski Macedonian participant reported that after the training she has got \$950 (credit) back from the retailer after she has claimed her pensioner discount. She has got also 30% discount in electricity bill and 18% discount in her gas bill when paying on time.
- Sudanese participant Abuk Ajeng, reported that her bill was around \$1,000 before training; after almost two years of have completed the program with Melton City Council, she has now \$1,000 credit in her account. She stated that the most important change in her behavior was changing the way she was using the energy produced by her solar panels.

The following results demonstrate that the LEADS Community Engagement Program has been a very successful program. It was found from the post survey that 99% of participants were ready to make changes in their energy habits; the evaluation results shows that 99% of participants have changed their energy habits since completed the program and therefore 97% have reduce their energy usage. The changes since they have completed the program are:

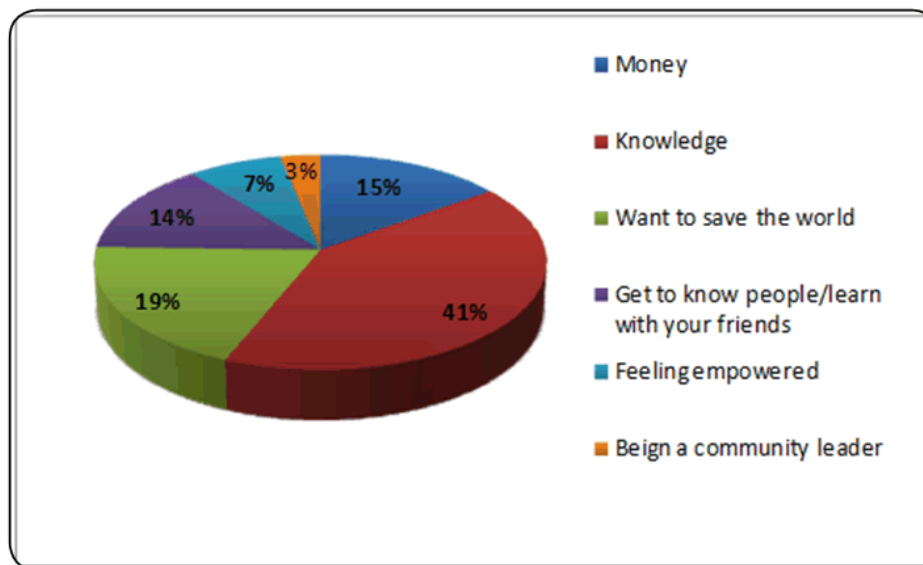
- 90% are now switching off the lights when living the room
- 85% are setting the right heating and cooling temperature during winter and summer
- 90% have switched to energy efficient lights
- 79% are now aware of the star rating of appliances
- 82% are turning off appliances at wall after use
- Only 38% of participants have connected their In-home display and are using it. This result clearly demonstrates that we need to provide further support to them to connect and understand how the display works.



Majority of the participants agreed that understand their energy bill was the most useful topic learned during the program, followed by turning off appliances at wall when not using them.

According to the chart below 41% of participants stating that knowledge was the biggest motivation for them to participate in the program. This finding clearly demonstrates once again that the LEADS Community Engagement Program provided participants with enough information and resources to overcome the biggest barrier to being energy efficient that according to the program's pre survey was lack of information. Following by this, 19% of participants 'want to save the world' and 13% were motivated to being part of program by money (this money is represented by the savings in their energy bills and also the compensation provided for their time).

Figure 5 Most important motivation to attend the program



6.2.3 Benefits to Low Socio-economic and Disadvantaged Communities

- The Ambassadors group were identified as being particularly disadvantage in terms of not speaking English and often having great difficulty understanding the new cultural assumptions behind energy bills, negotiating energy contracts and paying for their energy bills. They benefitted from the program in the following ways:
- Participants were educated on how to reduce their energy usage and therefore reduce their bill stress. Throughout the training it also became clear that many of the participants were suffering with severe bill stress including disconnection and court action threats.
- With this information many discrepancies in the bill were resolved for example solar feed – in tariff incorrect, no pension discount, incorrect charges etc.
- Energy audits were organised for the Sudanese and Burmese participants who were struggling with huge bills. Audits were conducted with the help of Kildonan Uniting Care.
- The majority of the senior participants were pensioners who didn't know their rights as consumers. They felt more empowered after learning about Energy and Water Ombudsman Victoria and their discounts entitlement.
- The Ambassadors' time was compensated by providing each participant gift cards valued at \$600. To be eligible, it was a requirement to complete the training and to educate 10 people in the community on energy efficiency.
- Participants from Ambassadors and Leaders groups educated other community members including their family and friends. In total 3,495 were educated through 'train the trainer' model
- Many participants from diverse communities felt that they were being accepted in the community. They got this feeling when they had to educating ten people each. Eg. Sudanese women training the Australian women to be energy efficient.
- Most of the participants from the Ambassadors group were empowered with the opportunity to be trained for the first time in their life.



- VEET scheme was utilized to help the community members to replace their halogen down lights with LED's and incandescent globes with CFL globes. Other items to weatherize the homes were also provided.
- After training, interaction within Council and community groups has improved. Eg. Interaction with family services and community planning.
- An In-home display was provided to the Ambassadors and Leaders participants in the completion ceremony. The aim was to help them track their energy usage.
- The training to be energy efficient also incorporated the waste management topic delivered by Resource Officer from City of Melton.
- The Energy and Sustainability expo helped community groups to form partnerships.
- Bhutanese group also partnered with Council's Bird Walk group.
- Community cohesion was a result of mixed training of Bhutanese, Australian seniors and Sudanese group. The participants continue to interact on the streets and shopping hubs.

6.2.4 Participants feedback

As a part of the evaluation of the LEADS community engagement program participants were asked to fill out a survey and to provide further comments and feedback about the program, there were lots of comments from the participants, showing they were appreciative of the program, we have summarized them in the table below. Appendix 4 also shows some other comments from participants.

Table 6 Participants feedback

Group	Comment
<p>Ambassadors group</p>	<ul style="list-style-type: none"> • 'This course help me a lot because now I can read my bills I know my right and what to ask, I am so powerful now.' • 'Was a very interesting course, learnt a lot and excited to share with others to save energy and our environment for our kids and future generations. Highly recommended. The trainer was a lovely lady, patient with everyone and very well presented.' • 'The course was a fantastic benefit to me and also to the other people in the class. Thank you for the opportunity to participate.' • 'I have really enjoyed being part of this. I was wondering if there are going to do anymore course like this one.' • 'It was very worthwhile doing, the teacher was excellent and learnt more than anticipated.' • 'I am very happy in this program because I learn a lot of things and I am so proud in City of Melton and much appreciation and thank you.' • 'I really enjoyed the classes. The skills and knowledge I learnt will help me make better energy efficient and smart decisions now and in the future.' • 'Everything about the training was so interesting, I have learnt so much more about how to save more energy and the environment as well. Our teacher, she was so nice to us as she was always ready for my questions and after the questions she explained it to me. I am so proud for you Sunita well done let the Melton Council provided more.' • 'Thanks for your lesson now I will go home and save my energy and will always remember to turn the light when I am out.' • 'Very interesting course helpful, I think it is important to do the same at schools or younger generation to learn to save the planet and also to save money.' • 'I am absolutely with the information about my rights as a costumer and read my bills. You motivated me to change my habits and in a pleasant atmosphere let me learn all about new details of electricity world' • 'Very interesting course. I think it is important to do the same at schools for younger generation to learn how to save the planet and also to save money'.



Group	Comment
Leaders group	<ul style="list-style-type: none"> • The community needs more of this info and its programs. This is very good' • 'Thank you for the opportunity of allowing me to better understand my energy efficiency usage' • 'This was much more involved than I expected, but I thoroughly enjoyed it, and I feel that I am much better informed.' • 'Insight into how to save money on power bills. Greater awareness in energy efficiency ' • ' Such a friendly multicultural group and made me aware that we all are wanting help with energy usage' • 'I really enjoyed working in teams, team presentations and having input and discussions about energy, education and sustainability.' • 'This was a great training opportunity. I am very glad I said 'yes'. Sunita is a great trainer. She covered a large amount of info well. Other Councils should duplicate this energy initiative. It was worthwhile!' • 'It was very well conducted and presented. I enjoyed as well as learnt heaps and made great friends too.' • 'I feel totally motivated to make changes myself and to encourage other to do likewise.
Professionals group	<ul style="list-style-type: none"> • 'This was an excellent training opportunity. I have found it incredible informative and practical. Not only will try to change my habits at home, feel I will now be in a better position to educate whom I support at work.' • 'Loved it- will be a proud champion of the program when dealing with community groups. • 'Very well facilitated, great content, presentation & activities, great information.' • 'Good subject, presented very well. Of great value personally and for my working environment' • 'Very glad I did the course. It has made me think about so many things I do and how I can change' • 'I found the session extremely informative and interesting, Will put a lot of the information into practice and will pass the information on to fellow colleagues, clients and families.' • 'I've been able to take some resources with me to review and follow up in my own time, which will be helpful'

6.2.5 Successes and Learnings

Recruitment of participants

- Recruitment of Ambassadors participants was very effective due to networking through Council staff and community
- Visiting the groups at their usual meetings was the most successful recruitment activity
- Leaders' recruitment was a bit more difficult than Ambassadors. Although, there are already existing environmental groups in Melton, only few members of these groups were interested in participate.
- Participation in events like Councils expos and festivals, provided the opportunity to find leaders willing to be educated on energy efficiency
- There was a 50 % rate of non-attendance for both the leaders and professionals.
- Letters to different Environmental groups didn't lead to any positive outcome apart for making them aware about the LEADS Program. Participants from one of these groups got involved after a presentation was given to the group
- We had anticipated involving the schools but there wasn't enough time as the Energy Efficiency Educator left the project two months prior to the official close
- Emails and paper adverts didn't work for recruitment

**Training Method**

- A good relationship between the educator and the participants was the key to success. There was respect for everyone in the class irrespective of their learning skills and styles. The trust between the two made the program strong.
- The presentations and teaching styles had to be changed along the way to suit the trainees.
- Train the trainer approach was very successful as a lot of members in the community were educated on being energy wise.
- Adaptive management was undertaken after training based on the next group and their requirements.
- Night time and weekday sessions worked very well for Ambassadors and weekend sessions went well for leaders
- For successfully running of the program just an educator wasn't enough on site. External help for setting up, packing up and layout of food was needed. Internal help was also sought all the time
- Role plays were a fun method to evaluate the absorption of information at the last day of training
- Evaluation needs and technique should have been worked out at the start but without knowing the audience it is difficult as well. Some basic form of evaluation need should have been identified.
- Each group had different educational needs and level of understanding. These were the findings along the way.
- Completion ceremonies were really important to generate the sense of pride along with empowerment. It was an event to be celebrated.
- Location was determined based on easy accessibility of the group. Their needs were addressed at their location.
- Facilities were not totally equipped to run full day training events accompanied by catering needs. Some of the issues were around bins, AV system, white boards, chairs and tables etc.





7. CONCLUSION

The community engagement program has successfully achieved its objectives. It is indicative in the participant feedback responses collected at the end of the training and also in the final evaluation. The evaluation reflects that the innovative education program benefited lower socio-economic and disadvantage groups. According to the participants, the training helped overcome the greatest barrier to being energy efficient, which was primarily the lack of information on being energy wise.

The results from the evaluation of the training show that there is a much greater understanding of;

- Energy bills and how energy bill literacy can allow monitoring and reviewing of the effects of taking action to be more energy efficient. It also helped to determine if the correct tariffs and concessions are being applied
- The right to switch retailers to achieve a more favourable energy package
- Energy and star rating for appliances.

At least 65 % of participants educated were part of the most disadvantage and vulnerable sectors of the Melton community. It strongly demonstrates that the LEADS community engagement program achieved its most important objective that was providing energy efficiency education to the disadvantaged and vulnerable sectors of Melton community.

The targets set when the funding application was successfully granted were meant to be achieved in 36 months time but the actual time available was only 23 months due to the administrative process required to start the program. It also meant that the entire program had to be drafted, training resources had to be developed and recruitment had to take place before the training sessions were rolled out. There was provision of only one educator to conduct all the trainings for the period.

The table below shows the targets proposed and what the community engagement has achieved. Even though the targets for the leaders and professionals groups were not achieved the purpose of educate disadvantage and low-socioeconomic people has been reached. The recruitment process for the Ambassadors was a success and exceeded its target, while professionals' recruitment was the most challenged group. Engaging professionals to be away from their job for a full day session (7 hours) was very difficult. Instead of full day training, lunchbox sessions (2 hours) were implemented and successfully delivered.

	Training groups			
	Ambassadors	Leaders	Professionals	Total
Target	218	120	500	838
Trained	271	78	195	544
% Achieved	124%	65%	39%	65%

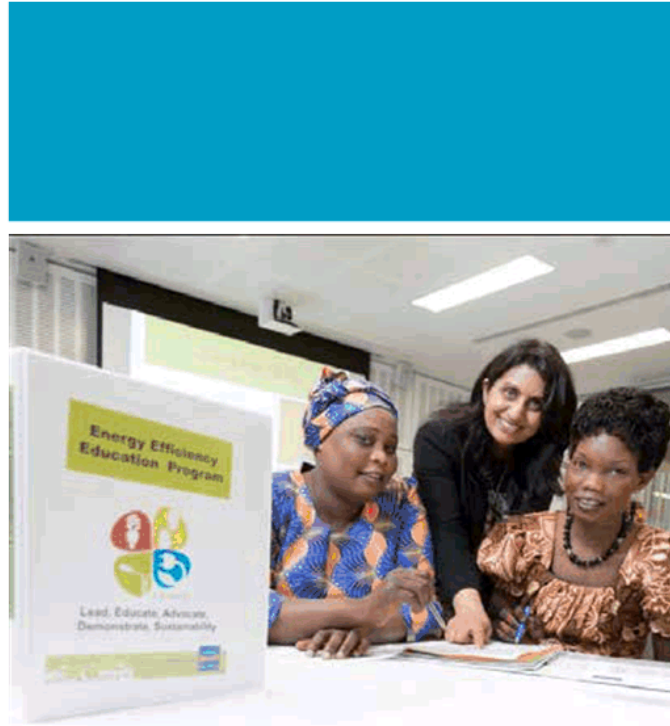
These results strongly demonstrate Council's commitment to addressing climate change delivering and innovative Community Engagement Program that has been successful not only educating low-socioeconomic and disadvantage community in Melton City also empowering leaders and professionals.

The successful outcomes of this program have not been confined to the municipality of Melton instead it has been recognised and appreciated widely. The program won the 2015 Keep Australia Beautiful Sustainable Cities Awards for the Community Government Partnerships and at the 2016 Victorian Local Governance Association Climate Award.





APPENDIX 1 HOME ENERGY AUDIT



Free Energy Efficiency Training

Save energy . Save Money .

W: melton.vic.gov.au
Phone: 9747 7200





Heating and cooling 38%

Heating and cooling can account for over a third of your energy use.

	What do you do at home?			What you can do to save energy
1	Do you only heat and cool rooms that are being used?	Yes 	No 	Consider closing doors to unused rooms so you only heat or cool the smallest possible area. If you have a ducted system it may already be divided into zones – eg living areas and bedrooms. Make use of zones to only heat or cool occupied areas.
2	In winter, do you open curtains, blinds and external shades so the sun can heat your home?	Yes 	No 	Use the sun as free heating in cooler months. Sunlight shining directly onto north, east and west facing windows can produce the same amount of heat per square metre as a one bar radiator. Use a compass or refer to your street directory or online maps to determine which direction your windows face.
3	When heating, do you set the temperature as low as you feel comfortable with?	Yes 	No 	Most people will find a temperature between 18°C and 21°C comfortable for heating. Every 1°C higher adds 10% to the running costs of your heating appliance.
4	Do you maintain your heating and cooling appliances to ensure they operate efficiently?	Yes 	No 	Follow the manufacturer's maintenance instructions and have your appliances serviced regularly.
5	When cooling, do you set the temperature as high as you feel comfortable with?	Yes 	No 	Most people will find a temperature between 24°C and 27°C comfortable for cooling. Every 1°C lower adds 10% to the running costs of your cooling appliance.
6	In summer, do you shade windows to keep your home cool?	Yes 	No 	In summer, close curtains and shade windows to the north, east and west to prevent heat from entering your home. Use a compass or refer to your street directory or online maps to determine the direction your windows face.
7	When you purchase a heating or cooling appliance do you seek advice about: <ul style="list-style-type: none"> the most appropriate appliance the right size appliance the energy rating label or, if there is no label, the running costs? 	Yes 	No 	The most efficient heating or cooling appliance is one that is suitable for what you need to heat or cool and, where relevant, has been sized appropriately. Consider contacting the Energy Advisory Service for specific advice tailored to your situation, see the back page for contact details.
8	Do you use reversible ceiling fans to assist your heating and cooling appliances?	Yes 	No 	Reversible ceiling fans create cool breezes in summer and can redirect warm air down in winter.
9	Does your home have insulation?	Yes 	No 	Consider having insulation installed in your ceiling and walls if you don't have it. If you have insulation already, ask a licensed insulation installer to check its effectiveness.
10	Have you sealed up gaps around doors and windows that let draughts in?	Yes 	No 	Use draught excluders, door and window seals or gap filler to prevent draughts, see page 6 for how to check for draughts. Important: When using an unflued gas appliance you must ensure you have adequate permanent ventilation.

Do your own home energy audit 3



Water heating 25%

Heating water for showers and clothes washing is a major energy user.

What do you do at home?		What you can do to save energy	
1	Do you take short showers - ie around four minutes?	Yes	No Taking shorter showers will save water and reduce the energy needed to heat water.
2	Do you have a solar, electric heat pump or a five star or better energy rated gas water heater?	Yes	No Choose an energy efficient water heater when your current water heater needs replacing. Visit sa.gov.au/energy/waterheaters for advice on choosing a water heater.
3	Is there insulation on external water heater pipes?	Yes	No Insulate pipes with foam tubing, known as lagging, to prevent heat loss, see page 6 for how to insulate hot water pipes.
4	Is your shower flow rate nine litres per minute or less?	Yes	No If the flow rate is more than nine litres per minute, consider installing a three star-rated water-saving shower head. To find out how to check your shower flow rate, see page 6.
5	Do you ensure taps don't drip in your home?	Yes	No Have dripping taps fixed as soon as possible. Not only do they waste water, leaking hot water taps waste energy too.

Other appliances 16%

Running costs for all the appliances in a home can add up.

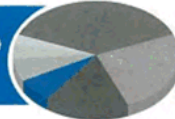
What do you do at home?		What you can do to save energy	
1	Do you know how much power your appliances use?	Yes	No If you know the input power of an appliance (eg 1,500 watts or 1.5kW) you can calculate how much it costs to run, see page 7. You can also borrow a power meter from the Home Energy Toolkit, see page 10.
2	Do you use the energy rating labels to compare running costs when you purchase appliances?	Yes	No Consider the ongoing running cost when choosing an appliance. Energy efficient models will cost you less to run over the life of the appliance.
3	Do you run your dishwasher and clothes washer with a full load?	Yes	No Washing a full load means fewer washes overall and reduces the amount of wasted energy and water.
4	Do you always wash clothes on a cool or cold water cycle?	Yes	No Cool or cold water cycles will use less energy than warm or hot cycles. The majority of energy used by clothes washers is for heating water.
5	Do you hang your clothes out to dry?	Yes	No Clothes dryers can use a lot of energy. Clean your lint filter regularly to ensure your dryer is operating efficiently. Hanging clothes out to dry is more energy efficient.
6	When you purchase a clothes washer or dryer, do you select an energy efficient model that is the right size for your needs?	Yes	No Consider energy and water efficient models when choosing a new clothes washer or dryer. Use the energy and water rating labels as a guide.

4 Do your own home energy audit



F Fridges and freezers 7%

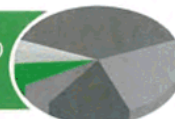
Most fridges and freezers are switched on 24 hours a day, 7 days a week.



What do you do at home?	Yes	No	What you can do to save energy
1 Do you run one fridge and freezer?	Yes ↓	No →	Only run additional fridges and freezers when necessary – eg a bar fridge may only be needed when you are chilling drinks for a barbecue and turned off at other times.
2 When you purchase a fridge and freezer do you choose an efficient model that is the right size for your needs?	Yes ↓	No →	When you replace your old fridge or freezer choose an energy efficient one. Choose the right size fridge first then select the model with a high star rating on the energy rating label.
3 Is your fridge temperature between 3°C and 5°C?	Yes ↓	No →	Adjust your fridge temperature to between 3°C and 5°C. If colder, more energy is used while higher temperatures allow food poisoning bacteria to grow, see page 6 for how to check the temperature. ⓘ
4 Is your freezer temperature between -15°C and -18°C?	Yes ↓	No →	Adjust your freezer temperature to between -15°C and -18°C, see page 6 for how to check the temperature. ⓘ
5 Are your fridges and freezers located in a cool, well ventilated area and out of direct sunlight?	Yes ↓	No →	Move the fridge or freezer to a cooler location if possible or shade windows to stop direct sunlight. Ensure air can circulate around all sides.
6 Do your fridge and freezer doors seal properly?	Yes ↓	No →	Replace door seals if ineffective, see page 6 for how to check your door seals.
7 Is there less than 5mm of frost build up in your freezer?	Yes ↓	No →	Defrost your freezer regularly. An auto-defrost model should do this automatically.

L Lighting 7%

Make a habit of switching off lights when you leave a room.



What do you do at home?	Yes	No	What you can do to save energy
1 Do you turn off lights when you leave a room?	Yes ↓	No →	Leaving lights on in an empty room wastes energy and adds to your bills. Make a habit of turning off lights.
2 Do you have energy efficient lamps or globes - eg fluorescents or LEDs (compact, tubes or downlights)?	Yes ↓	No →	Consider replacing inefficient lights with energy efficient lights
3 If your home has downlights, are you using LED or compact fluorescent downlight globes?	Yes ↓	No →	Halogen downlights can use a lot of power, eg 10 halogen downlights could use around 500W of electricity per hour.
4 If you have outdoor lighting, is it operated by motion sensors?	Yes ↓	No →	If you regularly leave your outdoor lights on, consider installing sensor lights so they only come on with movement and turn off after a short period.

Do your own home energy audit 5



Cooking 4%
 Use smaller cooking appliances when you can.

What do you do at home?		What you can do to save energy	
1	Does your oven door seal properly?	Yes ↓	No → Replace door seals if ineffective, see below for more information on checking door seals.
2	Do you use small kitchen appliances instead of the oven – eg microwaves, electric fry pans?	Yes ↓	No → Smaller appliances generally use less energy.
3	Do you use lids on pans when cooking?	Yes ↓	No → Lids help keep the heat in making cooking more efficient and reducing energy use.

Stand-by power 3%
 Switch off at the wall to avoid stand-by power costs.

What do you do at home?		What you can do to save energy	
1	Do you leave appliances on stand-by – eg televisions, stereos, computers?	Yes ↓	No → Turn appliances off at the wall to prevent stand-by power use. You can use the power meter in the Home Energy Toolkit to measure stand-by power use, see page 10.

More information

How to check for draughts

- You can check for draughts by:
- looking for daylight around the edges of doors and windows
 - looking for gaps around skirting boards
 - feeling draughts on a wet finger.

How to insulate hot water pipes

You can purchase foam tubing from hardware and plumbing stores. Look for one which has been cut along its length and has a self-sealing adhesive strip.

- To install:
- slide the foam tubing onto the external heater pipes
 - peel off the adhesive strip and join the sides together.

Check your fridge or freezer temperature

- You will need:
- a thermometer
- Place your thermometer below the top shelf and towards the front of the fridge, or anywhere in the freezer.
- Leave the thermometer in the closed fridge or freezer for about 30 minutes and then observe the temperature.

Check your shower flow rate

- You will need:
- a bucket and something to measure water volume such as a measuring jug
 - a stopwatch (available in the Home Energy Toolkit).

Turn the water on full and let it flow into a bucket for 10 seconds.

Measure the amount of water in litres. Multiply by six to determine the flow rate in litres.

- Shower flow rate example:
- Water flow in 10 seconds = 2 litres
 - 2 litres x 6 = 12 litres in 60 seconds
 - Flow rate is 12 litres per minute.

How to check door seals on fridges, freezers and ovens

Close the door on a piece of paper. The door seal should be strong enough to firmly grip it. Check in several places around the edge of the door.

Look for sections that are cracked and brittle or out of shape. If the paper slides out easily, or the seal is damaged, consider having it replaced.

6 Do your own home energy audit



APPENDIX 2 SAMPLE BEFORE AND AFTER TRAINING SURVEY





City of Melton
 Community Engagement Program – LEADS Project
 Pre-Survey

What is this survey for

Melton City Council is seeking community feedback about energy efficiency and reducing energy costs. Your feedback is welcomed and will be considered in planning for the community.

The Council would also like you to tell us how you feel about the opportunities in the City, suggestions and recommendations you feel would benefit or assist you and the community. Council's aim is to enhance your living in the City of Melton.

Confidentiality Statement

Individual identity and responses will not be made available to members of the public. All responses will be aggregated and will be used only for the enhancement of community wellbeing.

This survey is to be completed by the LEADS program participants.

About Energy Efficiency

Please tick appropriate box

1. How many people permanently reside in the house? 6

2. Do you frequently have visitors staying with you and for how long? Yes No

3. How many people are in the house during the day? 3

4. Do you know of ways to be Energy Efficient? Yes No

5. What are the barriers to saving energy at home?

Lack of Information

Personal reasons (not motivated)

Lack of finances

6. Do you understand your energy bills Yes No Have not looked at them

7. Do you have any current method of tracking energy cost? Yes No

8. Do you ever speak to your energy retailer and about what? Yes No

9. Do you know you can choose your own energy retailer? Yes No

10. Do you know about home energy audits? Yes No

If so, have you ever got an energy audit done in your house? Yes No

Our Community - Our Future



City of Melton
Community Engagement Program – LEADS Project
Pre-Survey

11. Do you understand what the star rating means on electric appliances Yes No

12. How many refrigerators does your household have? 2

13. Does the property have an electric hot water system? Yes No

14. How many electric heaters do you use in the house? 0

15. Do you understand about electricity production and its impact on the environment?
 Yes No Some

16. Do you know much about solar power? Yes No Some

17. How much did your last electricity bill cost? \$500

18. At what dollar figure does the electricity bill become unaffordable? Unaffordable means that you have to make changes in the way you live your life.

\$600

19. How often do you reduce your energy use at home for cost reasons?

ALWAYS

20. Do you think that the price of electricity and gas will go up in the next five years?

Yes No

21. How much do you think can you save on your bill after undergoing this training on energy efficiency?

20%

22. As we value your feedback, please add any further comments.

Our Community - Our Future



City of Melton
Community Engagement Program – LEADS Project
Pre-Survey

About City of Melton Community

How satisfied are you being a part of your community?

- Satisfied Neither satisfied nor dissatisfied Dissatisfied

Please explain _____

To what extent do you agree or disagree that it is a good thing for a society to be made up of people from different cultures?

- Agree Neither agree nor disagree Disagree

Please explain _____

How satisfied are you with how safe you feel?

- Satisfied Neither satisfied nor dissatisfied Dissatisfied

Please explain _____

About You

1. What is your age group? 60-50 49-40 39-30 29-20

2. What is your gender? Male Female

3. What is your country of origin? CHILE

4. Do you speak a language/s other than English at home? Yes No

If yes, which language? SPANISH

5. Are you of Aboriginal or Torres Strait Islander background Yes No

6. Which statement best describes your household type?

Couple with children Single Parent

Couple without children Lone person

7. Which suburb do you live in? TAYLORS HILL

8. How did you travel today? Car Bus Taxi Cycled Walked

9. Do you have a concession card? Yes No

Thank you for your valuable cooperation

Our Community - Our Future



City of Melton
Community Engagement Program – LEADS Project
Post-Survey

What is this survey for

Melton City Council is seeking community feedback about energy efficiency and reducing energy costs. Your feedback is welcomed and will be considered in planning for the community.

The Council would also like you to tell us how you feel about the opportunities in the City, suggestions and recommendations you feel would benefit or assist you and the community. Council's aim is to enhance your living in the City of Melton.

Confidentiality Statement

Individual identity and responses will not be made available to members of the public. All responses will be aggregated and will be used only for the enhancement of community wellbeing.

This survey is to be completed by the LEADS program participants.

About Energy Efficiency

Please answer and/or tick appropriate box

1. Do you understand your energy bills? Yes No

If not, please explain which parts you might find difficult

2. Do you understand your rights as an energy customer? Yes No
3. Do you know about the benefits and tools for conducting energy audits? Yes No
4. Do you understand the star rating of appliances? Yes No
5. Are you aware that you can change your energy retailer in spite of being a solar customer? Yes No
6. Do you now have a better understanding about solar power? Yes No
7. Do you know about the simple renovation tips that may help you to save energy? Yes No
8. Are you aware of the current energy rebates and grants? Yes No
9. Are you ready to make some changes in your energy habits? Yes No



APPENDIX 3 EVALUATION QUESTIONNAIRE – POST TRAINING





City of Melton
 Community Engagement Program – LEADS Project

Evaluation Questionnaire

Please tick appropriate box

1. Did you reduce your energy usage after the training?

Yes










No

2. Have you changed your energy habits since training?

Yes

No

Tick what have you changed:

<p>Reduced number of fridges</p> 	<p>Switching off the lights when leaving the room</p> 	<p>Setting the right heating and cooling temperature during winter and summer</p> 
<p>Switching to energy efficient lights</p> 	<p>Check star rating of appliances</p> 	<p>Turn off appliances at wall after use</p> 
<p>Use cold water to wash clothes</p> 	<p>Dress for the weather</p> 	<p>Setting air conditioner and heater thermostat between the correct temperatures</p> 



City of Melton
Community Engagement Program – LEADS Project

Evaluation Questionnaire

3. Is your In-home display connected?

- Yes
- No

4. Are you using your In-home display?

- Yes
- No
- Don't know how to use it

5. What was the most useful thing you learnt?

6. Did you feel that the training helped you to reduce your energy bill?

- Yes
- No

7. Have you learnt better ways to use your heating and cooling system to be comfortable in your home without worrying about costs?

- Yes
- No

8. Did you feel you had the resources, knowledge and confidence to train others on Energy Efficiency?

- Yes
- No



City of Melton
Community Engagement Program – LEADS Project

Evaluation Questionnaire

9. What motivated you to attend the training? (one sticker only please)

Money 	Knowledge 	Want to save the world 
Get to know people/ learn with your friends 	Feeling empowered 	Being a community leader 

10. Would you attend another training course by Council if it is was taught in a similar way?

Sustainability topics

- Yes
- No

Other topic such as road safety?

- Yes
- No

If yes, which one?

11. As we value your feedback, please add any further comments.

Thank you for your feedback



Was a very interesting course, learnt a lot and excited to share with others to save energy and our environment for our kids and future generations. Highly recommended. The trainer was a lovely lady, patient with everyone and very well presented.' (Sudanese participant – Ambassador group)

Such a friendly multicultural group and made me aware that we all are wanting help with energy usage' (Leader participant)

Everything about the training was so interesting, I have learnt so much more about how to save more energy and the environment as well. Our teacher, she was so nice to us as she was always ready for my questions and after the questions she explained it to me. I am so proud for you Sunita well done let the Melton Council provided more.' (Spanish participant - Ambassador group)

I really enjoyed working in teams, team presentations and having input and discussions about energy, education and sustainability.' (Leader participant)

This was a great training opportunity. I am very glad I said 'yes'. Sunita is a great trainer. She covered a large amount of info well. Other Councils should duplicate this energy initiative. It was worthwhile!' (Leader participant)

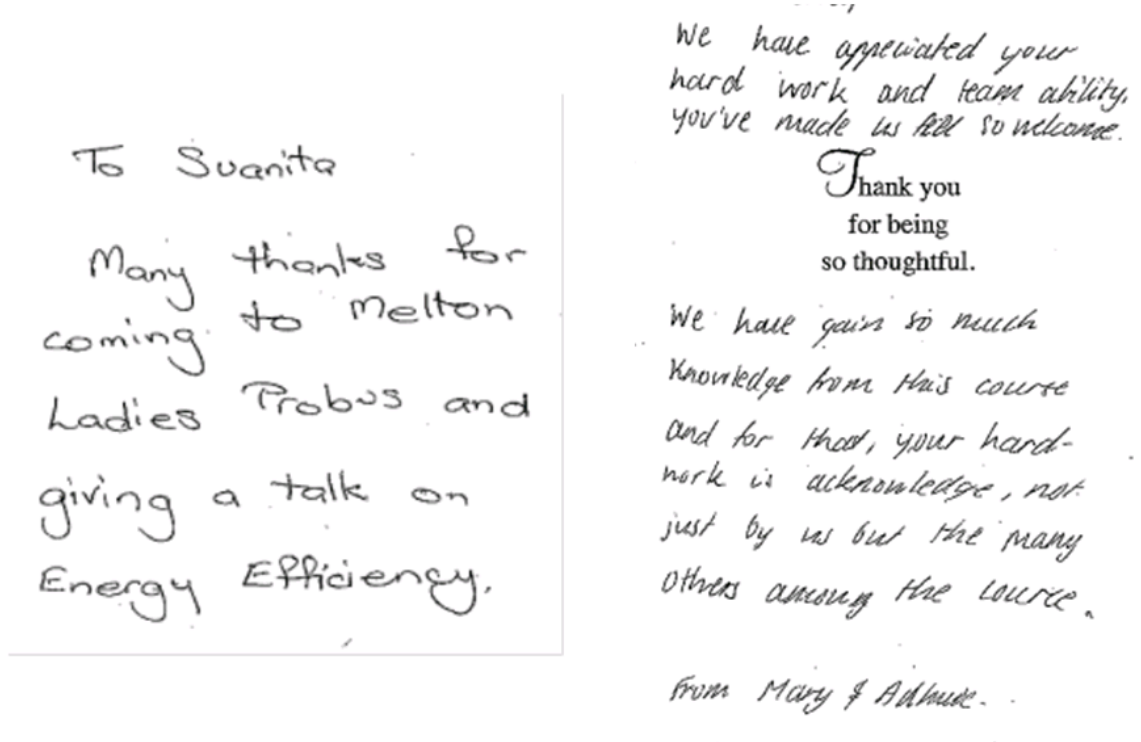


APPENDIX 4 FEEDBACK FROM LEADS ENERGY EFFICIENCY TRAINING PARTICIPANTS





As a part of the survey, participants were asked to provide further comments and feedback. Some of the responses are provided below.



Stacey Warlich. Brookfield.

October 2014.

I was lucky enough to be invited to join in with the LEADS training through the Melton Shire Council. I gained much knowledge which has helped me save money and resources in my home and garden.

In a time of needing to lower the dependency on fossil fuels and the need for sustainable resources, it helped me adopt a more sustainable lifestyle, which I was trying to implement, and my thinking has changed across much of my life habits.

I now have an organic vegetable patch that is fertilised with my homemade compost. Rain water catchment is a premium resource in my backyard for the patch. Mulch is used throughout my whole garden, instead of rocks or concrete, to help lower the indoor temperatures and lower the use of my home cooling system. I have replaced older appliances with new and more energy efficient ones. I deleted the need for two fridges as, no, we didn't need drinks fridge. And I have finally taught my adult son how to turn off lights, power points, the microwave oven and pull plugs out when not in use. The workshop was probably the worst place for leaving tools plugged in all the time.

I have also been able to teach these practices to my friends and neighbours, in order to help them lower their living costs and maybe do a bit of good for this beautiful planet of ours. I have found anyone and everyone I talk to, very receptive to the things learned through the LEADS training and will tell anyone who will stand still and listen. :-)



Case Study and Evaluation of Energy Efficient Education Program 23rd and 30th August 2014

I was interested in the Energy Efficient Education Program because I think as consumers our society uses more than is required in many areas of our lives. I feel there is an impact of this on our resources and what is called 'climate change'. I also feel as individuals we can make changes in our lives to make a difference. These changes can be small changes that build to larger changes depending on circumstances, opportunities and information. I did this course to gain information to see what changes can be made by our family.

The program was helpful not only because of the information gained from the leader, the presentation and the handouts but also the networking and experiences of the other participants. The program covered a variety of ways a household can save energy. The in-depth look at energy bills gave a greater understanding to understanding the bill and negotiating with energy companies. The other areas covered re-enforced, encouraged and enabled people to make changes in their homes, how to use appliances and modifications to areas in the home and garden to reduce energy usage and what government support is available.

After doing the program our household has become more aware of the energy that is used and has made small changes in the usage of lighting and heating. The resource folder is a useful tool to look up or refresh any information as required. The opportunity to share the information I have gained I feel is on-going. I have found the passing on the information difficult because it is hard to find the opportunity to share the information in the same depth as the program and perhaps the change in lifestyle does not cater to the exchange of information in the same manner. I have had difficulty making myself stop and learn how to use the Power-mate, therefore have not passed this equipment on to be used. Thermometers have been easier to hand out and have brief conversations about energy usage. If there was a card or handout with a website with the main points about energy usage and where they could borrow the Power-mate. The people attending the program could hand this out with their name and contact number to further develop the information to enable spreading the information more easily (although this does take resources to do).

I do see this program as giving valuable information to individuals which continues to be spread into the community, maybe a little slower than the time line expected. This information and the support of Melton City Council, the work of MCC staff to obtain the funding for the program is and will be appreciated by many residents to support changes in our environment.

Jill Bertley



Melbourne 12 /10/2015

Dear Sunita

When I was invited by Marta to participate in this course, I wasn't sure whether to join in or not. I asked myself what could I possibly learn that I didn't know already. I have a second thought and decided to come on board.

On the first day I thought, YES, I need to do this and get involved.

The way you conducted the course was so clear and you demonstrated to have deep knowledge of the subject.

I was then, that I realised I knew little about saving energy.

I feel very satisfied of what I have been learning and happy to spread my knowledge to my family and friends.

I enjoy having cups of tea during the day, now I don't turn the kettle many times, I fill a flask with boiling water in the morning and I have my cups of tea, but this time saving energy, money and time.

Sunita, Thanks for your great contribution and patience.

All the best in your future courses.

Kind Regards

Silvia Latorre.

