Final Report

Energy Efficiency in My Street: Reducing energy use in Yarra Ranges one street at a time

Australian Government
Department of Industry and Science
This activity received funding from the Australian Government

Yarra Ranges Shire Council
2 March 2015
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>3</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>4</td>
</tr>
<tr>
<td>Project Objectives</td>
<td>5</td>
</tr>
<tr>
<td>Project Energy Efficiency Activities</td>
<td>6</td>
</tr>
<tr>
<td>Project Demonstration and Communication Activities</td>
<td>7</td>
</tr>
<tr>
<td>Outcomes and Benefits of the Project</td>
<td>10</td>
</tr>
<tr>
<td>Communication Outcomes</td>
<td>10</td>
</tr>
<tr>
<td>SEIFA Community Benefits</td>
<td>12</td>
</tr>
<tr>
<td>Project Budget</td>
<td>16</td>
</tr>
<tr>
<td>Project Management and Delivery</td>
<td>18</td>
</tr>
<tr>
<td>Challenges and Learnings</td>
<td>19</td>
</tr>
<tr>
<td>Conclusion</td>
<td>21</td>
</tr>
<tr>
<td>Declaration</td>
<td>22</td>
</tr>
<tr>
<td>Appendix 1: Final Financial Report &amp; Declaration</td>
<td>23</td>
</tr>
<tr>
<td>Appendix 2: Switch &amp; Save Brochure</td>
<td>25</td>
</tr>
</tbody>
</table>

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

Located on metropolitan Melbourne’s eastern fringe, Yarra Ranges is home to a population of 145,000 and covers the largest area of any metropolitan council. Spanning approximately 2,500 square kilometres, the municipality stretches from the densely populated outer suburbs up into the surrounding foothills, agricultural valleys and forested areas of the Great Dividing Range. It is one of Victoria’s largest, most varied and scenic municipalities. There are more than 55 suburbs, townships, small communities and rural areas in the Yarra Ranges.

The Energy Efficiency in my Street: Reducing energy use in Yarra Ranges one street at a time project set out to upgrade old and inefficient streetlights in specific disadvantaged communities across the municipality. Apart from improving the amenity of local streets, the project sought to demonstrate that investing in energy efficiency can be an effective way of reducing day to day running costs. Engagement with residents translated this to a household level, and supported householders to reduce their utility bills by improving the energy efficiency of their homes.

Yarra Ranges Council has a target of reducing greenhouse gas emissions by 30% on 2000 levels, by 2020. This target is identified in the Council Plan 2013 – 17, the Resource Management Strategy (2007), and Adapting to a Changing Climate and Energy Future Strategy (2010). Upgrading streetlighting was identified in the Resource Management Strategy (2007) as a key action to reduce greenhouse gas emissions. Council embarked on a municipality-wide upgrade in 2013, and received federal funding under round two of the Community Energy Efficiency Program (CEEP) to deliver the Energy Efficiency in my Street project in parallel with this broader upgrade.

The project was not without its challenges. Inclement weather and steep terrain delayed installation crews at times, and contractual arrangements hindered Council’s ability to prioritise CEEP funded works, within the larger streetlight upgrade occurring throughout the municipality. Energy Efficiency in my Street was ultimately delivered with great success, replacing over 700 inefficient streetlights and achieving a 68.5% reduction in energy use from streetlighting in disadvantaged communities across the Yarra Ranges. The project also delivered some valuable lessons along the way – from refined contractual arrangements that will expedite future on-ground works, to communications strategies that will improve community engagement outcomes.
Project Objectives

The *Energy Efficiency in my Street: Reducing energy use in Yarra Ranges one street at a time* project was designed to contribute to the objectives of the Community Energy Efficiency Program (CEEP) by:

- increasing the amenity and energy efficiency of lighting in low socio-economic, rural communities. This was achieved by replacing old, degraded and inefficient fittings with new lights that meet current Australian Standards
- promoting improved energy management practices within Council and the community; achieved by establishing a cross-departmental working group within Council to both project manage the installation works and to deliver a tailored communications plan to the target communities
- supporting local manufacturers, suppliers and installers of energy efficiency technology and equipment – all of whom were sourced from within the Greater Melbourne region
- contributing to the national effort to reduce greenhouse gas emissions – by reducing the demand for electricity, the project will reduce greenhouse emissions from streetlighting in the target communities by 225 tonnes per year.

Specifically, the project set out to:

1. Achieve a reduction in energy use and operating costs for streetlighting in the low socioeconomic communities of Yarra Junction, Millgrove, Wesburn, Warburton and surrounds, and Healesville and surrounds.

2. Provide information to residents of these communities as their neighbourhood underwent the energy efficient street light change over, supporting them to invest in energy efficiency measures that would reduce their household running costs.
Project Energy Efficiency Activities

The project involved a direct replacement of 722 Mercury Vapour (MV) lights with T5 fluorescent tube technology, and was delivered as part of a broader streetlight upgrade being undertaken by Council, changing almost 7,000 lights across the whole municipality.

Before this project took place, virtually all of the streetlights servicing local roads in the CEEP funded communities were old 80 Watt Mercury Vapour technology, and nearing the end of their useful life. T5 fluorescent lights (2x14 Watt) were selected to replace existing lights on the basis that they would:

- meet relevant Australian Standards in regards to safety and light levels
- give a more uniform spread of light across and along the street
- have better “colour rendering” and visibility (more like natural daylight) with less glare
- last longer, with less depreciation in light output over time

At the time this project was launched, the T5 fluorescent tube lighting system and Compact Fluorescent Lighting (CFL) were the only two available energy efficient lighting options that had been approved by the distribution company that owns the lighting infrastructure in the Yarra Ranges. LED lights were considered desirable, but at the time of the program’s design and launch, there were no LED lights that had been approved anywhere in Victoria as a replacement for standard streetlights.

Streetlights turn themselves on and off automatically, using an electronic daylight sensor built into the light fitting. While day length varies from season to season, each light operates for an average of 11.9 hours per day, or a total of 4,341 hours over the course of a year.

Compared to the existing MV lights, the T5 fluorescent technology selected for this project consume almost 70% less energy. They also require less frequent maintenance, as the fittings and fluorescent tubes have a longer lifespan than their MV counterparts. These reductions in energy consumption and maintenance requirements combine to substantially reduce the ongoing cost to Council of providing high quality streetlighting to these communities, even in the context of rising energy tariffs and a price on carbon.

Because no additional lights were installed, and no lights were decommissioned throughout this project, the length and category of road covered remains unchanged. Therefore ‘kilometre of road’ covered and ‘category of road’ do not factor in the calculations of efficiency gains for this project.
Project Demonstration and Communication Activities

The project’s communications activities aimed to capitalise on the street lighting upgrade to provide targeted energy saving information to residents in three low-scoring SEIFA areas. These areas are serviced by 722 lights (approx 10% of the 7,000 street lights identified for the broader streetlight upgrade delivered across the Yarra Ranges municipality).

117 lights in Yarra Junction – Millgrove - Wesburn
174 lights in Warburton and surrounds
431 lights in Healesville and surrounds

The demonstration and communication activities were designed to:

- Promote the street lighting project as an example of different tiers of government working together along with local business to deliver a project that has community benefits.
- Demonstrate the energy efficiency benefits that this project is able to achieve.
- Promote the broader adoption of improved energy management practices within local households, within Council and across other organisations, Councils and the broader community.

These activities aimed to convey:

- the range of energy efficiency actions that can be taken by the general community
- how to minimise energy consumption and energy consumption costs, particularly in the home
- how local industry and businesses can be involved in energy efficiency projects
- the greenhouse savings that can be gained through implementing specific energy saving actions.

The key groups of people the project sought to communicate with were:

Internal to Council
- Councillors
- Senior Leadership Team (SLT)
- Other areas of Council with facility and lighting responsibilities.

External to Council
- Low income residents in the relevant townships
- Local Business
Key Messages included:

- Council is acting to reduce energy use, reduce greenhouse gas emissions and save money.
- Residents and businesses also have opportunities to save energy and money by investing in energy efficiency.
- Council wants to share what it has learnt through this federally funded project.

Information was provided before the installation works began, throughout the project and at the project’s conclusion via:

- Local print media such as the Leader Newspaper (advertorial) and Council’s “Yarra Ranges Local” publication distributed to all residents
- Council’s public website and internal intranet
- Briefings with individual Councillors
- Reports and presentations to Council’s Senior Leadership Team
- Dedicated FAQ’s factsheet available online, distributed via email and Community Links, and directly from streetlight installation crew members.
- On-hold messages at Council’s customer call centre
- Attended display stands at community events such as Healesville Autumnfest & Ecotopia Junction festival (Yarra Junction)
- Promotional Brochure – Switch & Save
- Environment focused e-newsletters (distributed electronically to Landcare groups, schools, local environment and volunteer groups)
- Social media, including Facebook and Twitter
The single most substantial communications activity was the production of a dedicated brochure – Switch & Save – promoting the streetlight upgrade project and detailing energy efficiency measures residents could apply in their own homes. Six thousand copies were printed and distributed to the townships of Yarra Junction, Millgrove, Wesburn, Warburton and surrounds and Healesville and surrounds. Distribution was timed, as near as possible, to coincide with the upgrading of streetlights in each area.

Illustration 1: Front cover of the Switch & Save brochure. For the full brochure, see Appendix 2
Outcomes and Benefits of the Project

The project achieved its energy efficiency targets, with a reduction in energy consumption of 285 kWh or 1025 MJ per street light, per year. This represents an improvement in energy efficiency of 68.5%, and amounts to a saving of over 300,000 kWh per year in the target communities.

The new lights will save $38,500 per year in energy and maintenance costs. With a total project cost of $254,400 (including communications and reporting), the project will pay for itself in 6.6 years.

Greenhouse emissions from streetlighting will be reduced by 225 tonnes per year in these townships, saving 4,500 tonnes (CO2e) over the 20 year life of the new lights.

Ancillary benefits to the community include brighter and more uniform lighting, less glare, and clearer colour rendering that is more like natural daylight. Less than 1% of new lights required adjustments to control unwanted light spill. The vast majority of feedback from residents has been positive, reporting improved amenity and safety.

Communication Outcomes

The Switch & Save brochure invited readers to give Council their feedback by completing a short survey (by phone or online). To encourage participation, every survey respondent was offered the chance to win $1,000 towards more energy efficient household appliances. The feedback survey and prize draw were deliberately promoted on page 5 (of 8) to ensure that only residents who had engaged with the brochure (beyond the front cover and first few pages) would respond.

The primary purpose of the survey was to assess the effectiveness of a printed brochure in engaging low income residents in considering energy efficiency measures at home. To control for the influence of distribution method, different methods were employed in the two distinct geographic areas (Healesville and Upper Yarra Valley). This also presented an opportunity to test competing theories on how residents prefer to receive information from Council.

725 copies of the brochure were made available through Yarra Ranges Council outlets, to the townships of Yarra Junction, Millgrove, Wesburn, Warburton and surrounds. Outlets included the Community Link (customer service centre), Maternal Child Health Service, Library and Emergency Relief service. Brochures were in place
from Mon 28th July to Fri 31st Oct, 2014. An additional print run was available, should the supply of brochures in these outlets be exhausted, but this was not necessary.

5275 copies of the brochure were distributed to Healesville and surrounds (postcode 3777) as inserts in the local weekly paper (Mountain Views Mail) on Tue 22nd July. Of these, 2320 papers were delivered directly to households, and the remaining 2955 placed in outlets throughout the region.

The survey itself was designed to assess the effectiveness of each distribution method, the perceived usefulness of the brochure content, the appetite for energy efficiency in the community, and any barriers to further engagement. To this end, the survey asked respondents to provide the following details:

1. Name, contact phone number, postcode
2. How did you get hold of the Switch & Save brochure?
3. How helpful was the Switch & Save brochure?
4. What have you done at home to save money on energy bills?
5. What would help you take the next step towards saving energy and reducing your bills?

This survey and the accompanying prize draw opened on Monday 21st July, and were closed at 5pm, Friday 31st October, 2014. A total of 6 residents completed the survey during this period. A seventh resident contacted Council by phone during the survey period to offer feedback, but declined to leave his details and did not wish to be entered into the prize draw.

While a one in one thousand response rate rules out drawing reliable conclusions from the responses to individual questions, it is worth noting that all 6 respondents:

- were residents of Healesville or its immediate surrounds
- found the brochure in their local paper
- had already made efforts to improve the energy efficiency of their homes
- rated the brochure content helpful or very helpful

Possible explanations for the response rate include, but are certainly not limited to:

- Residents overlooked the brochure (in their newspaper), or never encountered it in their local community outlets
- People picked up the brochure but didn’t read beyond the first few pages
- Readers explored some or even all of the brochure, but weren’t sufficiently motivated by the prize draw to complete a short survey
• Readers lacked access to phone and/or internet services to provide their response

Testing the relative influence of these (and other possible factors) on the ultimate result was beyond the scope of this program, but these observations will certainly inform the design and delivery of future communications activities undertaken by Council.

Whatever the explanation, the extremely low response rate (regardless of delivery method) suggests that the format of a printed brochure is likely the primary factor influencing engagement. Given the target audience, literacy levels, isolation/mobility in the community and even attitudes toward Council may play a role in limiting individuals’ access and receptivity to printed material.

In contrast, the face to face engagement undertaken via community festivals in the target areas – Healesville Autumnfest & Ecotopia Junction (Yarra Junction) – engaged more than ten times as many residents in two days, in conversations that typically spanned several minutes. Both festivals took place very early in the project, well before the Switch & Save brochure could be developed and approved. Instead a range of interactive displays, games and websites (via mobile tablets) were used to engage passers by and tailor conversations to the needs and interests of individual householders. Evaluation of these events found that more than 80% of visitors left the display stand with a clearer understanding of actions they could take to improve the energy efficiency of their home.

In future, Council will likely preference these face to face engagement methods over printed or even online material as the primary avenue for pursuing communications objectives. That said, printed material and online resources would still be considered a valuable complement where they enrich face to face contacts and provide more detailed and relevant information.

**SEIFA Community Benefits**

Yarra Ranges Council area scores 1,038.8 on the SEIFA index of disadvantage, indicating it is less disadvantaged than the national average. However within Yarra Ranges’ large geographic area of almost 2,500 square kilometres, there are pockets of disadvantage. Yarra Ranges Council is the seventh largest local government area in Melbourne in terms of population size, and the largest in geographical area. Yarra Ranges can be described as an Interface Council, home to over 55 suburbs, townships, and small communities in a mixture of rural and urban areas.

The three districts or small areas of greatest disadvantage identified by ABS data (2006) identified as targets for this project are profiled in Table 1, below.
<table>
<thead>
<tr>
<th>Township/Area</th>
<th>SEIFA score</th>
<th>Total Households</th>
<th>Low Income Households</th>
<th>High Income Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarra Junction – Millgrove – Wesburn</td>
<td>952.3</td>
<td>1724</td>
<td>848 (49.2%)</td>
<td>148 (8.6%)</td>
</tr>
<tr>
<td>Warburton and surrounds</td>
<td>962.4</td>
<td>1210</td>
<td>628 (51.9%)</td>
<td>111 (9.2%)</td>
</tr>
<tr>
<td>Healesville and surrounds</td>
<td>983.8</td>
<td>3053</td>
<td>1,383 (45.3%)</td>
<td>366 (12.0%)</td>
</tr>
<tr>
<td><strong>Yarra Ranges Council area</strong></td>
<td><strong>1038.8</strong></td>
<td><strong>49,796</strong></td>
<td><strong>20,316 (40.8%)</strong></td>
<td><strong>8067 (16.2%)</strong></td>
</tr>
</tbody>
</table>

Table 1: Characteristics of the three areas in Yarra Ranges targeted by this project

The project ultimately engaged over 100 residents from the targeted low socio-economic communities, via its various communications avenues, with information to support better energy efficient behaviours in the home. By timing this engagement to coincide with the upgrade to streetlighting in each neighbourhood, Council demonstrated that energy efficiency can be a sound investment that reduces running costs while delivering improvements to quality of life.
<table>
<thead>
<tr>
<th>CEEP OBJECTIVES:</th>
<th>Energy Efficiency in My Street OBJECTIVE</th>
<th>TARGET</th>
<th>OUTCOME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>Achieve a reduction in energy use and operating costs for streetlighting in low socioeconomic communities of Yarra Ranges — specifically, the townships of Yarra Junction, Millgrove, Wesburn, Warburton and surrounds, and Healesville and surrounds.</td>
<td>Upgrade old MV lights to T5 fluorescent units that consume less energy</td>
<td>Achieved through product selection and sourcing</td>
<td>Changeover completed, with some delays to original schedule due to weather, terrain and contract management issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace 722 lights across all 5 low-SEIFA townships</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide information to residents as their neighbourhood underwent the energy efficient street light change over, supporting them to invest in energy efficiency measures that would reduce their household running costs.</td>
<td>Produce customised &quot;Switch &amp; Save&quot; brochure and deliver to residents in 5 townships</td>
<td>Achieved with mixed results, depending on delivery method</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promote improved energy management practices within Council</td>
<td>Engage relevant Council departments, including Infrastructure Services, Communications, Customer Service to adopt and promote improved practices</td>
<td>Achieved through collaboration between Council departments</td>
</tr>
</tbody>
</table>
### ADDITIONAL CEEP BENEFITS:

<table>
<thead>
<tr>
<th><strong>Better services and improved amenity of buildings and community facilities</strong></th>
<th><strong>Energy Efficiency in My Street BENEFIT</strong></th>
<th><strong>TARGET</strong></th>
<th><strong>OUTCOME</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increase the amenity of streetlighting in targeted communities</td>
<td>Upgrade lighting levels to Australian Standard, including improved light distribution and colour rendering with less glare</td>
<td>Achieved through product specifications</td>
</tr>
<tr>
<td><strong>Minimise energy consumption and costs to manage the impacts of the carbon price</strong></td>
<td>Minimise energy consumption and running costs of streetlighting</td>
<td>Reduce energy consumption and running cost of streetlighting by 68.5%</td>
<td>Achieved through product specifications</td>
</tr>
<tr>
<td><strong>Build the knowledge and capacity of the energy services and construction industry, and support competitive Australian energy efficiency technology and equipment manufacturers contributing to the national effort to reduce greenhouse gas emissions.</strong></td>
<td>Contract local manufacturers, suppliers and installers of energy efficiency technology and equipment wherever possible</td>
<td>Source lighting hardware and installers from within the Greater Melbourne Metropolitan region</td>
<td>Achieved through tendering process</td>
</tr>
</tbody>
</table>

| **Table 2: Evaluation of the project’s contribution to CEEP Objectives and Benefits** |
Project Budget

The project was delivered within the forecast budget of $253,771, including a CEEP funding contribution of $84,760. (See Appendix 1: Final Financial Report)

Substantial savings were made on materials, labour and contract management, due to the economies of scale created by the broader streetlighting upgrade taking place across the whole municipality.

In addition, Yarra Ranges partnered with a neighbouring Council within a regional alliance, to jointly manage the tenders for each municipality’s streetlight projects. The Eastern Alliance for Greenhouse Action, is a partnership of seven Councils in Melbourne’s east working to reduce greenhouse gas emissions across the region. Because this alliance is well established, no additional costs were incurred as a result of partnering throughout the tendering stage. Careful communication was required to ensure that the respective projects progressed at compatible rates, but this extra effort was more than compensated for by the budgetary savings achieved.

After tendering together, the two councils contracted separately. This proved a wise strategy when for their own reasons, each party emerged with quite different timeframes and priorities for the implementation phase. Yarra Ranges proceeded with this project, while the other council put a halt on theirs. Fortunately, neither was inconvenienced or encumbered by the other’s decision. Though this experience the respective councils, and the whole alliance, has learned the value of partnering within boundaries that preserve each parties autonomy.

Once the deliver phase of the project was underway, significant unforeseen expenses included:

- the Network Modification Agreement fee charged by the Distribution Network Provider. The portion of this fee (10%) attributed to the CEEP Funded townships came to $29,052, and was not budgeted for at the project’s outset. This expense was ultimately borne by Yarra Ranges Council in the course of delivering the broader project.

- Project Evaluation and Reporting requirements were significantly higher than expected. Staff time required to satisfy the Department’s reporting requirements was much higher than anticipated, as the challenge of achieving highly localised works and specific reporting milestones within the delivery of a complex and much broader project required extensions to originally projected deadlines. Changes to staffing arrangements within both Yarra Ranges Council, and the Department added further complexity and contributed to delays.
These unforeseen expenses were largely countered by the cost savings achieved in procurement and labour management. In all, the project was completed $26,932 under the projected budget. With a simple payback period of 6.6 years and a return on investment of 15%, the project represented excellent value for money.
Project Management and Delivery

Within Council, the streetlight upgrade project was coordinated by the Infrastructure Services team. All the lights in CEEP funded areas were upgraded in the course of this broader project. Communications activities were coordinated by the Strategy & Sustainability team, with support from officers in the Communications and Parks & Environment departments.

Council contracted Ironbark Sustainability to manage the day to day installation works for all streetlights upgraded in the municipality, based on their extensive experience in managing large scale changeovers of street lighting dating back to 2010. Ironbark committed to managing inventories of materials, monitoring progress, incidents and issues, providing regular reporting to Council, carrying out quality control audits, OH&S audits, recycling process audits and traffic management audits.

Overhead Maintenance Services Pty Ltd (OHMS) were appointed to coordinate the installations. OHMS provided trained technicians, working in small crews of two to three members, with each crew employing a truck-mounted, elevated work platform. Works typically took place on weekdays between 8am and 2pm.

The installation of lights in CEEP funded townships commenced in late June 2014. The project started behind schedule, and continued to suffer delays due to OHMS crews not prioritising the CEEP funded townships over those in the broader municipal upgrade, as directed by Council staff and Ironbark. The project was completed with installation of the last T5 light in the last week of November 2014.

Ironbark Sustainability undertook inspections and assessments throughout the project. On-site assessments covering off on OH&S, traffic management and environmental requirements were undertaken with the contractor found to be compliant. Several depot assessments covering off on OH&S and environmental requirements were undertaken and all were deemed compliant. Four quality assessments covering off on installation works were carried out with one found to be compliant. The quality non-compliances were minor with 7 non-operational lights reported which have subsequently been repaired. Other minor non-compliances were of an administrative nature such as incorrect annotations of installation maps that did not in any way impact on operation.
Challenges and Learnings

The streetlight upgrade project (of which *Energy Efficiency in my Street* formed a part) was the largest energy and emissions reduction project ever undertaken by Yarra Ranges Council. It was also the largest bulk changeover of streetlighting hardware ever attempted on the Ausnet Services electricity distribution network. Amidst a project of this scale and complexity, the *Energy Efficiency in my Street* program was, not surprisingly, the source of many challenges (great and small) and rich learning.

Complaints from residents about light spill occurred at a handful of locations in the CEEP funded townships. Audits of these sites were promptly undertaken, followed by rectification works to retrofit baffles into each light fitting, specific to each site’s requirements. This was sufficient to resolve residents’ concerns. Otherwise, there were no technology challenges or issues. T5 luminaries were used throughout the entire project and proved, on the whole, to be reliable and highly effective.

The biggest challenge in delivering this project was reconciling the reporting requirements of CEEP funding with the complexities of delivering the streetlight upgrade across the whole municipality. This broader project involved upgrading almost 7,000 lights in over 50 townships spread across a municipality covering 2,500 square kilometres. CEEP funding represented less than 5% of the total $1.85 million cost for the broader project, and covered only 5 townships in the municipality. In the midst of a project of this scale, influencing installation crews to prioritise works in CEEP townships proved consistently challenging.

While complaints from residents regarding light spill were minor (less than 1%), sending installation crews back to previously completed areas to fit baffles also added to delays. Inclement weather also hampered progress on occasion, and made forecasting of job completion rates difficult; and the steep terrain for which the Yarra Ranges are known proved a challenge for some work crews. This experience has highlighted to Council staff the need for clearer upfront communication with contractors and consultants from outside the municipality. Where peculiarly local features such as climate and topography have a bearing on project delivery, special attention should be given to ensuring subcontractors have factored these into their projections.

On the whole, the broader project has been completed well under budget and in a timeframe acceptable to Council. Unfortunately, changes to the installation schedules in some CEEP project townships required Council to submit an Ad Hoc Report to the Department and negotiate multiple amendments to CEEP Milestone funding deadlines, adding substantially to the administrative burden of the project.
Most delays ultimately stemmed from the project manager's (Ironbark) inability to direct and enforce agreed installation schedules in CEEP funded townships. Council was continually frustrated to learn week after week that installations had progressed across the municipality, but not in the grant funded areas, in spite of frequently and persistently communicating to Ironbark that the latter were to be prioritised. In future, Council would consider more carefully the contract structure underpinning any project of this type, particularly where it relates to managing on-ground delivery. The goal would be to ensure there was sufficient detail in the contract/s to support a more flexible, responsive and accountable approach to delivering specific works (especially works tied to discrete funding) within a broader project.
Conclusion

The *Energy Efficiency in my Street: Reducing energy use in Yarra Ranges one street at a time* achieved a 68.5% reduction in energy use and operating costs for streetlighting in low socioeconomic communities in Yarra Ranges.

Coinciding with the lighting upgrade, communications activities engaged residents with information that supported them to invest in energy efficiency initiatives that would reduce their household running costs and improve comfort.

While the true effectiveness of the printed brochure was difficult to measure directly, it was well received by all those who provided feedback. Other engagement strategies, including face to face conversations at community events, appeared to have more impact. In future, a more comprehensive and complementary mix of strategies will likely be employed for projects of this type, within a more refined and robust evaluation framework.

Delivering a relatively small project with very specific reporting requirements within a much larger and extremely complex council-wide capital project proved extremely challenging. Council's influence over the scheduling of works at a township level was not always commensurate with the timeframes and priorities set out in the initial CEEP funding agreement. In future Yarra Ranges Council would ensure that the finer details of contract arrangements provided more clarity and control, and/or any funding agreements relating to small sub-projects provided the flexibility to accommodate the complexities of a major capital project.

Overall, the project achieved excellent value for money, and engaged a substantial portion of its target audience. Many valuable lessons were learned, and teams within Council are now better equipped to undertake future projects with refined strategies that promise a smoother path to success.
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 Yarra Ranges Council

☐ 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: 2/3/2015

Name: Glenn Patterson
Position: CEO
Organisation: Yarra Ranges Council

Witness Signature: ___________________________ Date: 2/3/2015

Name: Simon Woodland
Position: Learning for Sustainability Officer
Organisation: Yarra Ranges 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 Removed for Publication
Reduce Your Household Running Costs - For Good!

$SWITCH & $SAVE

TOP TIPS FOR BIG SAVINGS

INSIDE:
New appliances that pay for themselves!

SAVE $1,165/yr
Off an average energy bill

BAMBOOZLED BY BILLS?
DECODE THE DETAILS

Yarra Ranges Council

COUNCIL SWITCHES STREET LIGHTS - SLASHING $MILLIONS OFF ENERGY BILL
TOP TIPS FOR BIG SAVINGS

Yarra Ranges households spend over $100 million every year on energy. Check the red tag to see how much an average household could save by applying all of these simple tips.

Get Comfortable

Heating and Cooling

Wood, Gas, Air-Conditioning - whatever system you use to heat and cool your home, it shouldn’t have to work hard.

The tiny gaps and cracks in your home can really add up. Sealing up draughts is the cheapest way to cut your heating and cooling bills. Most gaps are easy to fix with products available from hardware stores.

Installing or topping up insulation is a bigger job, but it can reduce heat loss by 90% and pay for itself in just a few years by halving your heating bills. Then it keeps on saving you money, for life. You’ll also be more comfortable in a fully insulated home – all year round.

Get the Jobs Done

Whitegoods

Your fridge works harder than any other appliance in your home. It needs room to breathe, so it can disperse heat efficiently. Keep at least a 5cm gap between your fridge and any walls.

Clothes dryers are another big energy user. Any load you can dry on the line will dry for free. A front loading washing machine will use around half the water, power and detergent of a similar sized top loader. Front loaders also wash more gently, so your clothes last longer.
TOP TIPS FOR BIG SAVINGS

Entertain Yourself
Appliances

Relaxing at home can be a real drain on your wallet if appliances are left on standby. Switch off at the wall and save up to 10% off your energy bill.

When you’re shopping for new gear, remember: the price tag is just the beginning. Over time, greedy appliances can cost more to run than they ever did to buy.

<table>
<thead>
<tr>
<th>Screen Size</th>
<th>Star Rating</th>
<th>Energy Use*</th>
<th>Running Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>138cm / 54 inch</td>
<td>2 stars</td>
<td>868</td>
<td>$220 / yr</td>
</tr>
<tr>
<td>138cm / 54 inch</td>
<td>5 stars</td>
<td>268</td>
<td>$80 / yr</td>
</tr>
<tr>
<td><strong>Total Saving:</strong></td>
<td></td>
<td></td>
<td><strong>$140 / yr</strong></td>
</tr>
</tbody>
</table>

“...when we replaced our old fridge we didn’t want to spend too much. We paid $900 for a brand new, 4 Star model. I couldn’t believe how much energy it saved. Our electricity use dropped instantly and we’ve saved $250 in our first year. It never occurred to me that a new fridge could pay for itself so quickly!”

Rachel, Healesville

ENERGY SAVINGS GUIDE
When shopping for any appliance, look for the model with the most stars. A model with just 1 extra star can be 30% cheaper to run. Compare appliances (even older models) online at www.energyrating.gov.au
TOP TIPS FOR BIG SAVINGS

Light up your world

Lighting

Lights don’t need extra power to get started – that’s a myth. So turning lights off when they’re not needed will always save energy.

Halogen down-lights use a lot of energy and create drafts and gaps in your ceiling insulation. Much more efficient LED and compact fluorescent replacements are now available and could save you $20 a year per light.

Getting into hot water

Water Heating

Gas, Electric, Solar - whatever system you have, it takes a lot of energy to heat water. Don’t end up in hot water when your bill arrive!

Electric storage systems typically cost the most to run – expect to pay around $1300/year.

Or for $200/year you can get your hot water from the sun. A solar hot water system (with gas boost), might cost an extra $3000 up front (compared to a new electric storage system) but you’ll save more than $1000 a year on your power bills.

Remember too that a water-efficient shower head and washing machine will reduce both your bills. You’ll save water, and the energy it takes to heat it.
ENERGY SAVER CHECKLIST

Heating & Cooling
- Seal all gaps and cracks.
- Insulate ceiling to R6, walls and floor to R4.
- Heat to 18-20°C in winter. Cool to 24-26°C in summer.

Whitegoods
- Give the fridge room to breathe.
- Dry clothes on the line for free.
- Wait for a full load in the laundry, and wash on a cold cycle.

Appliances
- Switch off sleeping appliances at the wall.
- Use the energy star labels when shopping.

Hot Water
- Insulate the hot water pipes.
- Set the thermostat to 60°C on storage systems to avoid overheating.
- Turn off hot water system while away on holidays.
- Upgrade to a solar hot water system.

Lighting
- Turn off lights whenever they aren’t needed.
- Replace halogen lights (and their hidden transformers) with LED alternatives.
- Install covers above all recessed down lights to eliminate draughts and any gaps in ceiling insulation.

How Much Could You Save?
Every household is different.
These estimates are based on a typical bill, but you can calculate your own savings and explore your options at:

- www.switchon.vic.gov.au
- www.energymadeeasy.gov.au
BAMBOOZLED BY YOUR BILLS?

Decode the details
A power bill can be packed with information. The top things to look for are:
1. How much energy you used.
2. How much you are being charged per unit.
3. The number of days covered by your bill.
4. What it costs to stay connected each day.

These combine to create your total bill like this:

\[
\text{Your Total Bill} = \text{How much energy you used} \times \text{How much you're charged per unit} + \text{How much you pay to stay connected} = \text{Your Total Bill}
\]

**IT’S WORTH KNOWING...**

Some bills may be based on an estimate of your usage, but your meter should be read at least once a year so you only pay for the energy you’ve actually used.

For more information on your billing rights visit:

www.yourchoice.vic.gov.au
1. **Switch to solar**

Got a sunny roof? - Collect your own free energy

The cost of installing solar panels has plummeted in recent years. With some deals you can pay nothing upfront - the system pays for itself in a few years from the savings on your energy bill. Quality panels will go on providing free energy for 25 years.

It's always wise to shop around, but solar on your own rooftop has never been more affordable.

2. **Shop around for cheaper energy**

Find a deal that works for you

Switching to a current 'market contract' that suits you better could lead to big savings. If you've lived at the same address since 2001 and haven't started a new energy contract in that time, you may still be on what's called a 'standard contract'. Comparing energy offers online is getting easier. Search: 'compare energy', or visit [www.switchon.vic.gov.au](http://www.switchon.vic.gov.au)
There's a big switch coming to Yarra Ranges

We’re replacing thousands of streetlights across the Yarra Ranges with more efficient technology. This big switch will cost us $1.85 million upfront, but the new lights will slash our energy bill by 70% overnight. That means they’ll pay for themselves in a few years, and save us around $8 million over their lifetime! This activity received funding from the Australian Government as part of the Community Energy Efficiency Program.

We’re excited to be investing in an energy efficiency project that pays for itself, reduces our bills and helps the environment. If you’d like to do the same in your own home, we’d love to help.