Re-energising Port Adelaide Enfield Community for a Sustainable Future Project

CEEP Final Report

This activity received funding from the Australian Government

Australian Government
Department of Industry, Innovation and Science
Contents
1.0 Executive Summary ................................................................................................................................. 5
2.0 Project Objectives ................................................................................................................................. 8
3.0 Project Energy Efficiency Activities ................................................................................................. 10
4.0 Project Demonstration and Communication Activities ........................................................................ 12
4.1 Project stakeholders involved in the demonstration and communication activities 12
4.2 How was the local community informed about the project? ............................................................. 13
4.3 How was the community educated about energy efficiency more generally? ......................... 13
4.4 Project energy efficiency demonstration and communication undertaken throughout the project life .......................................................................................................................... 13
5.0 Outcomes and benefits of the Project ............................................................................................... 16
5.1 Energy Efficiency Improvement Tables – notes to consider when interpreting data from table 4 – 11 on following pages ................................................................................................. 16
5.2 Forecasted energy efficiency and cost saving improvements before commencement of project and at project completion ........................................................................................................... 18
5.3 Measuring and monitoring results summary ..................................................................................... 26
5.4 What other benefits did the project bring? ......................................................................................... 26
5.5 What have been the ancillary benefits to the community from the energy efficiency measures undertaken? ......................................................................................................................... 28
6.0 Demonstration and Communication outcomes .................................................................................... 29
6.1 Community energy efficiency activity evaluation results .................................................................... 32
6.2 Project contributions to a broader uptake of the energy efficiency activities and energy management improvements .................................................................................................................. 33
6.3 Lessons learnt from the communication engagement exercises ................................................... 34
6.4 Project benefits for low socio-economic or disadvantaged groups ................................................ 36
7.0 Budget .................................................................................................................................................. 37
8.0 Project operation, mechanisms and processes .................................................................................... 38
8.1 Project delays, issues and changes ....................................................................................................... 40
8.2 What are the main point Council has learnt from the project operation, mechanisms and processes? ........................................................................................................................................... 40
8.3 What would Council do differently if a similar project was carried out again? ............................... 41
9.0 Conclusion ........................................................................................................................................... 42
Tables

Table 1: Project Objectives.............................................................................8
Table 2: Project Energy Efficiency Activities ..............................................10
Table 3: Continued project energy efficiency activities .............................11
Table 4: Energy Efficiency Forecast and improvements 1 .........................18
Table 5: Energy Efficiency Forecast and improvements 2 .......................19
Table 6: Energy Efficiency Forecast and improvements 3 .......................20
Table 7: Energy Efficiency Forecast and improvements 4 .......................21
Table 8: Energy Efficiency Forecast and improvements 5 .......................22
Table 9: Energy Efficiency Forecast and improvements 6 .......................23
Table 10: Energy Efficiency Forecast and improvements 7 .....................24
Table 11: Energy Efficiency Forecast and improvements 8 ......................25
Table 12: Ancillary Benefits.......................................................................28
Table 13: Demonstration and Communication Outcomes .........................29
Table 14: Demonstration and Communication Outcomes ........................30
Table 15: Demonstration and Communication Outcomes .........................31

Figures

Figure 1: Project Launch. ...........................................................................9
Figure 2: Savings from LED lighting at Clearview Bowling Club ................14
Figure 3: Seed Sola Sizzla at Kilburn Football Club, August 2015. Celebrating success ... 15
Figure 4: Clearview Bowling Club, reduced energy consumption from LEDs ..........27
Figure 5: Community Pledge card ...............................................................35
Figure 6: A photo of the business representatives that attended the Eco Mapping training session .................................................................36
Figure 7: Management Structure .................................................................39
Figure 8: Reenergising PAE Community seminar .........................................43
Attachments

Attachment A - Project Energy Efficiency Improvement.......................................................... 44
Attachment B – Final Financial Report................................................................................. 49
1.0 Executive Summary

The Australian Government's "Community Energy Efficiency Program", a competitive, merit-based grant program provided two-thirds funding to the City of Port Adelaide Enfield, to implement projects that have delivered a range of energy efficient measures and brought many associated benefits to the community including energy and cost savings.

*The Re-energising Port Adelaide Enfield Community for a Sustainable Future* project has included initiatives aimed at improving the energy efficiency of a selection of eight community facilities aimed mainly at facilities where there was potential to reduce high energy consumption and greenhouse gas emissions.

Energy efficiency initiatives that were funded in the project include:

- Air conditioning improvements
- Draft proofing
- Installation improvements
- Window insulation
- Hot-water system up-grades
- Internal lighting upgrades

The other component of the project included the delivery of energy efficiency awareness training to community groups and individuals to empower them to reduce their daily energy consumption. This exercise included a series of training sessions undertaken at Council's Enfield and Port Adelaide Libraries, Kilburn Community Centre, Adelaide Business Hub, Uniting Care Wesley facilities and five community sporting clubs. Upon training completion, monitoring of energy efficiency measurements will be carried out for 1 year to determine the energy efficiency improves at each location. This final report will include the monitoring results to date. It is anticipated that post energy efficiency retrofits, Council will reduce 887MJ/m2 of energy from Council buildings footprint and save approximately $46,327.00 in total per year.

Since the energy efficiency retrofits have taken place, LED lighting changes alone at Clearview Bowling Club, Metrostars Soccer Club and Kilburn Football & Cricket Club will reduce power consumption by 11,070 kWh and save the Clubs approximately $6,481 per year in electricity bills. It has been rewarding to see this change and equally rewarding to see change in the way individuals and organisations view the value of energy efficiency. Through this project the community has had an opportunity to share their energy story, learn from experts, refine the way they use energy and help inspire others to be energy efficient.
This Project has received some positive feedback from the community in terms of project management, communication and practical implementation and it has positioned Council well to invest in similar projects in the future.

The Project has achieved some great results, meeting the Community Energy Efficiency Program objectives and expressing some opportunities for improvement.

Council would like to take this opportunity to acknowledge the support of the Project Manager, Project Team, Sponsor and external consultants (SEED Consulting Services and Enemess Energy Services) that assisted in the Project Planning, implementation and monitoring and also the Department of Industry and Science for making this project possible.

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.
2.0 Project Objectives

Table 1: Below indicates a number of Re-energising Port Adelaide Enfield for a Sustainable Future Project objectives that were created to meet the requirements of the CEEP funding objectives.

<table>
<thead>
<tr>
<th>City of Port Adelaide Enfield CEEP Objectives</th>
<th>Project Objectives</th>
<th>Contributions to meet objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support a range of local councils and</td>
<td>• Improve the energy efficiency of varying types of facilities including community</td>
<td>Energy Efficiency Upgrades in eight Council community buildings</td>
</tr>
<tr>
<td>community organisations to increase the</td>
<td>used buildings and lighting.</td>
<td>Energy reductions achieved through these changes</td>
</tr>
<tr>
<td>energy efficiency of different types of</td>
<td>• Improve the long term financial viability of community facilities and Council's</td>
<td></td>
</tr>
<tr>
<td>non-residential Council and community-use</td>
<td>health and quality of life objectives for the low social demographical areas within</td>
<td></td>
</tr>
<tr>
<td>buildings</td>
<td>Council.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Demonstrate and encourage the adoption of improved energy management practices</td>
<td>24 hours' worth of energy efficiency awareness raising activities carried out, including;</td>
</tr>
<tr>
<td></td>
<td>within Councils, organisations and the broader community.</td>
<td>12 Eco Mapping training sessions.</td>
</tr>
<tr>
<td></td>
<td>• Increase awareness of community organisations about the benefits of improved</td>
<td>Over 110,000 people provided with energy efficiency program news items</td>
</tr>
<tr>
<td></td>
<td>innovative energy management practices.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Encourage local business and community groups to adapt to improved energy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>efficiency practices and cut pollution.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: From the left; Craig Hughes (Project Manager), Cr Claire Boan (Councillor), Cr Carol Martin JP (Councillor), Jan Stokes (Adelaide Business Hub) and Gary Johanson (Mayor City of Port Adelaide Enfield) at the Project launch event.
3.0 Project Energy Efficiency Activities

All the energy efficiency upgrade works completed complement each other to achieve an energy efficiency outcome. All Energy Efficiency upgrades were installed by a variety of certified contractors managed by Council and MYKRA building Services. The HVAC (Air Conditioning) system supply and installation was managed by DCM Services. All the upgrades were installed in Council community buildings, including sports clubs, libraries and community centres and were chosen on the basis of being one of the highest energy consumers per square meter area with the majority of the buildings located in some of the most socio-economically vulnerable and disadvantaged suburbs in Australia – including Port Adelaide, Enfield, Broadview, Kilburn and Blair Athol.

Table 2 below indicates the details:

<table>
<thead>
<tr>
<th>Building name</th>
<th>Address</th>
<th>Type of energy efficiency upgrade</th>
<th>Any site specific implementation issues or technical problems?</th>
<th>How did you overcome these issues?</th>
<th>What has been learnt from these activities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearview Bowling Club</td>
<td>1 Coleridge crescent,</td>
<td>Ceiling insulation, internal lighting, replace wall furnaces, window insulation film on windows,</td>
<td>Installing ceiling insulation in small roof cavity and solar system on roof restricting access to roof cavity. The original LED lighting upgrade specification did not include the requirement to replace old and brittle fluorescent tube light fittings</td>
<td>The solar system was removed and re-installed within a short timeframe to access roof space to install new insulation. Replace old and brittle light fittings at the implementation stage</td>
<td>A detailed assessment needs to be carried out for how ceiling insulation is installed within the project planning phase to gain a better understanding of what is required. Determine number of light fittings that need to be replaced. LED lumens lighting levels are higher than previous lighting.</td>
</tr>
<tr>
<td>Kilburn Football &amp; Cricket Club</td>
<td>Lionel Ave, Blair Athol</td>
<td>Ceiling insulation, internal lighting, remove and replace storage hot water unit and fit low flow shower heads</td>
<td>None identified</td>
<td>None identified</td>
<td>Need to confirm with the club operators a number of times before works, what is planned to be upgraded, when will the works be undertaken and how. LED lumens lighting levels are higher than previous lighting.</td>
</tr>
<tr>
<td>Port Adelaide Rugby Union Club</td>
<td>Langham Place, Port Adelaide</td>
<td>Ceiling insulation, internal lighting, install ventilation to the bar and fit low flow shower heads</td>
<td>None identified</td>
<td>None identified</td>
<td>LED lumens lighting levels are higher than previous lighting.</td>
</tr>
<tr>
<td>Building name</td>
<td>Address</td>
<td>Type of energy efficiency upgrade</td>
<td>Any site specific implementation issues or technical problems?</td>
<td>How did you overcome these issues?</td>
<td>What has been learnt from these activities?</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Portland Sports &amp; Community Club</td>
<td>16 Langham Place, Port Adelaide</td>
<td>Ceiling insulation, HVAC system, replace front windows with insulated windows, replace four wall furnaces, install insulating film on southern windows and fit low flow shower heads.</td>
<td>The specification to replace the old flow shower heads did not specify a particular shower head product.</td>
<td>At the implementation stage Council decided to purchase a shower head that is height adjustable over the standard non-adjustable showerhead that was installed in some of the showers – which in conclusion were not practical for the height of the football players.</td>
<td>Place more details about the shower heads into specification. LED lumen lighting levels are higher than previous lighting levels.</td>
</tr>
<tr>
<td>Metrostars Soccer Club</td>
<td>Fourth Avenue, Klemzig</td>
<td>Ceiling insulation, HVAC system, internal lighting, install insulation film on northern windows and fit low flow shower heads.</td>
<td>Window film is highly reflective on the outside on sunny days.</td>
<td>No action is planned to be undertaken.</td>
<td>Avoid placing window film on certain windows to reduce reflection. LED lumen lighting levels are higher than previous lighting levels.</td>
</tr>
<tr>
<td>Port Adelaide Library</td>
<td>2-4 Church St, Port Adelaide</td>
<td>HVAC system and internal lighting.</td>
<td>The original procurement design and installation specification of new HVAC system did not include economy cycle specifications due to design and retrofitting complications</td>
<td>An additional procurement process was undertaken for the supply and installation of an after-market economy cycle system. This caused delays in works completion.</td>
<td>LED lumen lighting levels are higher than previous lighting levels.</td>
</tr>
<tr>
<td>Kilburn Community Centre</td>
<td>59 Gladstone Ave, Kilburn</td>
<td>Internal lighting</td>
<td>None identified</td>
<td>None identified</td>
<td>LED lumen lighting levels are higher than previous lighting levels.</td>
</tr>
</tbody>
</table>
4.0 Project Demonstration and Communication Activities

The Reenergising Port Adelaide Enfield Community for a Sustainable Futures project – Communication Strategy specified that there will be free business and community training events that will aim to encourage behaviour change within low-social demographical communities and generate measurable outcomes including:

- At least 50 individuals or entities reduce their energy use over a 1 year period
- At least 100 individuals provided with energy efficiency management support
- At least 110,000 people being provided with energy efficiency information
- 10% increase of venue bookings due to building upgrade improvements

The main objective of a communication strategy for this program was to proclaim the energy efficiency message to drive behaviour change and reduce energy and greenhouse gas emissions for various local community organisations resulting in savings which can be transferred to other activities to assist in improving and increasing services and quality of life.

4.1 Project stakeholders involved in the demonstration and communication activities

- Five local sporting clubs
- Community Centres
- Local libraries
- Adelaide Business Hub
- Port Adelaide UnitingCare Wesley
- Residents
- Schools
- Churches
4.2 How the local community was informed about the project

The local community was informed by a variety of different avenues:

- City of Port Adelaide Enfield website/social media
- Messenger advertising
- In-daily news website
- City of Port Adelaide Enfield Pen to Paper Community News
- Metrostars Soccer Club social media page
- Adelaide Business Hub website/social media page
- Port Adelaide Rugby Union Club website/social media page
- SEED Consulting Services webpage/social media page
- Pull-up display banners about the program located at each of the energy efficiency upgrade buildings and other sites such as; Adelaide Business Hub, Port Adelaide UnitingCare Wesley and Port Adelaide Civic Centre
- Posters on display at each of the energy efficiency upgrade buildings and other community centres in the Council area
- Eco Mapping training participant give away bags, including resources that can be used to reduce electricity consumption

4.3 How the community was educated about energy efficiency more generally

City of Port Adelaide Enfield Pen to Paper Community News included a news column about the Re-energising Port Adelaide Enfield Community Program and the benefits it brought to the community. The Pen to Paper is distributed to over 120,000 readers in one issue. The published issues include; August/September 2014, October/November 2014, June/July 2015 and August/September 2015 (Refer to Attachment B for Pen to Paper News Articles).

4.4 Project energy efficiency demonstration and communication undertaken throughout the project life

The project demonstrated and communicated energy efficiency benefits throughout the life of the project via Community News letters, Eco Mapping training, the energy efficiency seminar. Recently the project hosted three “celebration of success” tours at Metrostars Soccer Club, Clearview Bowling Club and Kilburn Football & Cricket Club to highlight the energy efficiency improvements made by these buildings.
Figure 2: Example illustration of the type of information and communication strategy developed by the City of Port Adelaide Enfield to communicate findings and successes of LED retrofitting lights at Clearview Bowling Club, based on data collated by Seed Consulting.
The use of the novel “Seed Sola Sizzla” BBQ at the events was also a simple way to illustrate solar battery storage technology and the complexities of running high energy use equipment such as electric grills, with this type of technology and what is required to potentially run an entire home in the future.

Figure 3: Seed Sola Sizzla at Kilburn Football Club, August 2015. Celebrating success and energy savings from LED lighting, insulation, window film and new hot water heater.
5.0 Outcomes and benefits of the Project

5.1 Energy Efficiency Improvement Tables – notes to consider when interpreting data from the below tables 4 – 11.

Tables 4 to 11 below: Baseline energy efficiency data was collected through Level 2 audits of the 8 participating facilities in 2012/13. Baseline energy consumption relating to electricity and gas was reported, including:

- Baseline Energy Usage (MJ)
- Baseline Energy Efficiency (MJ/m²)
- Energy Efficiency Improvement (estimated) (MJ/m²)
- Cost of Activity ($) 
- Estimated Cost Savings ($)

Data has been presented similarly for 2015 (report templates), following completion of the works using monitoring equipment installed as part of the project to measure total electricity consumption at each site.

Site retrofit works were completed in April and May of 2015. This enabled three months of electricity monitoring data to be reviewed (Jun-Aug 2015). Gas consumption has not been monitored and billing is in mid-cycle, so gas data has not been included in initial site energy efficiency calculations.

Influencing Aspects

A number of aspects influence the monitoring data and initial energy efficiency savings presented. Baseline data was collected across a range of time periods but in each case (for each facility) 12 to 24 months of data were considered, with

1. baseline energy use and efficiency data presented for a 12 month period (MJ and MJ/m² respectively)
2. Post retrofit monitoring has used data collected for three months only (June-August 2015) and then scaled up to a 12 month equivalent.
3. The three months monitoring (June-August 2015) represents an active period (Winter sports) for some facilities.
4. Solar PV installed at 3 facilities (funded externally to the CEEP project) influences energy efficiency improvement (MJ/m²).
5. Gas consumption data was unavailable and will not be reported until full post retrofitting billing is received.
Discussion

Points 2 & 3 below are particularly relevant. Caution is recommended with respect to the Energy Efficiency Improvement (MJ/m²) data presented in the final reporting templates. The three months of preliminary data presented is insufficient to clearly demonstrate the full year savings. AT LEAST 12 months monitoring data is needed to fully determine likely savings (kWh, MJ and $).

Given that the initial monitoring period was in winter when clubs such as football, soccer and rugby are in full swing, the monitoring does not account for the "out of season" shut down period or change to other sport types (i.e. cricket). The data collected (and scaled up for the year) therefore projects much higher than what is expected for the full year. This is particularly the case for Metrostars soccer club where averaged data indicates an increase in consumption. This is not the case as retrofits such as LED lighting are already saving over 75% of energy use.

Additional monitoring is required to account for the influence of Solar PV systems. Full year’s data monitoring and interpretation will need to consider this.

The below table indicates the size and installation dates of the solar PV systems at five buildings. The Port Adelaide Library, Enfield Library, Kilburn Football & Cricket Club solar PV systems were all installed prior to the collection of baseline data and therefore have no influence on the total energy efficiency evaluation results.

However, at the Kilburn Community Centre and Clearview Bowling Club the Solar PV systems were installed after the baseline data collection date, therefore the solar generation at these sites have some influence on the evaluation results in terms of energy efficiency improvements in this report. Council in the final energy audit report will make a commitment to define the solar generation over 1 year at these sites and segregate mains power measurement from solar generation measurement.

<table>
<thead>
<tr>
<th>No.</th>
<th>Location</th>
<th>Size (KW)</th>
<th>Date installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Adelaide Library</td>
<td>2.7</td>
<td>19&lt;sup&gt;th&lt;/sup&gt; June 2009</td>
</tr>
<tr>
<td>2</td>
<td>Kilburn Community Centre</td>
<td>5</td>
<td>31&lt;sup&gt;st&lt;/sup&gt; May 2013</td>
</tr>
<tr>
<td>3</td>
<td>Enfield Library</td>
<td>12</td>
<td>7&lt;sup&gt;th&lt;/sup&gt; Feb 2012</td>
</tr>
<tr>
<td>4</td>
<td>Kilburn Football &amp; Cricket Club</td>
<td>15</td>
<td>25&lt;sup&gt;th&lt;/sup&gt; Nov 2011</td>
</tr>
<tr>
<td>5</td>
<td>Clearview Bowling Club</td>
<td>20</td>
<td>30&lt;sup&gt;th&lt;/sup&gt; June 2014</td>
</tr>
</tbody>
</table>

Estimated cost savings have not been changed in the reporting templates as there is insufficient confidence in monitoring data to date to accurately report the savings. The estimates provided in the initial baseline audits are still considered to be as accurate within the tolerances specified (Level 2 audit). Monitoring of 12 months of data will enable presentation of more accurate cost savings detail. (For more detail refer to attachment A – Project Energy Efficiency Improvement Template)
5.2 Forecasted energy efficiency and cost saving improvements before commencement of project and at project completion

Table 4: Indicates the forecast energy efficiency and cost saving improvements for Clearview Bowling Club building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 1</th>
<th>Clearview Bowling Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Coloeridge Crescent Reserve, Gordon Ave, Clearview SA 5085</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Bowling Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, internal lighting install, replace old wall furnaces, insulation of window film, install curtains and modify cool room.</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Energy Efficiency Outcomes as at 23/9/2015</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>243,290MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>288MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>142MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$93,251</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$7,985</td>
</tr>
<tr>
<td>Payback period (years)</td>
<td>13.7</td>
</tr>
<tr>
<td>Outcome achieved Y/N - comments</td>
<td>Yes</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$109,647</td>
</tr>
<tr>
<td>Budget increase for this sight (refer to 8 Budget for more detail)</td>
<td>Has not changed refer to section 5.1 notes</td>
</tr>
</tbody>
</table>
Table 5: Indicates the forecast energy efficiency and cost saving improvements for Kilburn Football & Cricket Club building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 2</th>
<th>Kilburn Football &amp; Cricket Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Lionel Ave, Blair Athol SA 5084</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Football and Cricket Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, internal lighting installation, removal of storage hot water unit and installation of low flow shower heads.</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Energy Efficiency Outcomes as at 23/9/2015</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>388,000MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>445MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>132MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$54,448</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$6,739</td>
</tr>
<tr>
<td>Payback period (years)</td>
<td>6.6</td>
</tr>
</tbody>
</table>
Table 6: Indicates the forecast energy efficiency and cost saving improvements for Port Adelaide Rugby Union Club building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 3</th>
<th>Port Adelaide Rugby Union Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Langham Place, Port Adelaide SA 5015</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Rugby Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, installation of internal lighting, install ventilation to bar and fit low flow shower heads.</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Energy Efficiency Outcomes as at 23/9/2015</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>104,130MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>259MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>66MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$23,936</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$1,083</td>
</tr>
<tr>
<td>Payback period (years)</td>
<td></td>
</tr>
</tbody>
</table>
Table 7: Indicates the forecast energy efficiency and cost saving improvements for Portland Sports & Community Club building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site</th>
<th>Portland Sports &amp; Community Club</th>
<th>16 Langham Place, Port Adelaide SA 5015</th>
<th>Sports &amp; Community Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, install air conditioning system, replace front windows with insulated windows, install film on southern windows and fit low flow shower heads.</td>
<td>Energy efficiency forecast</td>
<td>Energy Efficiency Outcomes as at 23/9/2015</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>174,060MJ</td>
<td>174,060MJ</td>
<td>Outcomes achieved Y/N - comments</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>296 MJ/m²</td>
<td>296 MJ/m²</td>
<td>No (need to wait for full year audit. Refer to section 5.1 for more detail)</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>91 MJ/m²</td>
<td>43 MJ/m²</td>
<td>Under budget</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$80,648</td>
<td>$45,000</td>
<td>Has not changed (refer to section 5.1 notes)</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$1,950</td>
<td>$1,950</td>
<td></td>
</tr>
<tr>
<td>Payback period (years)</td>
<td>23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 8: Indicates the forecast energy efficiency and cost saving improvements for Metrostars Soccer Club building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 5</th>
<th>Metrostars Soccer Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Fourth Ave, Klemzig SA 5067</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Soccer Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, installation of air conditioning, internal lighting, insulation film on northern windows and fit low flow shower heads.</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Baseline Energy Usage: 286,000MJ</td>
</tr>
<tr>
<td>Energy Efficiency Outcomes as at 23/9/2015</td>
<td>Baseline Energy Efficiency: 439MJ/m²</td>
</tr>
<tr>
<td>Outcomes achieved Y/N comments</td>
<td>Energy Efficiency Improvement: 120MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$60,656</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$3,235</td>
</tr>
<tr>
<td>Payback period (years)</td>
<td>13</td>
</tr>
</tbody>
</table>
Table 9: Indicates the forecast energy efficiency and cost saving improvements for Port Adelaide Library building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 6</th>
<th>Port Adelaide Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>2 - 4 Church St, Port Adelaide SA 5015</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Library and Council Administration</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Energy efficient upgrade to air conditioning and internal lighting</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Baseline Energy Usage 580,100MJ</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>Baseline Energy Efficiency 526MJ/m²</td>
</tr>
<tr>
<td></td>
<td>Energy Efficiency Improvement 168MJ/m²</td>
</tr>
<tr>
<td>Outcomes achieved Y/N</td>
<td>Yes</td>
</tr>
<tr>
<td>Comments</td>
<td>Under budget</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$83,878</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$10,608</td>
</tr>
<tr>
<td>Payback period</td>
<td>5</td>
</tr>
</tbody>
</table>

Has not changed (refer to section 5.1 notes)
Table 10: Indicates the forecast energy efficiency and cost saving improvements for Enfield Library building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site</th>
<th>Enfield Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>1 Kensington Crescent, Enfield SA 5085</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Library and Council administration</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Air conditioning installations and internal lighting.</td>
</tr>
<tr>
<td>Energy efficiency forecast</td>
<td>Baseline Energy Usage: 332,100MJ</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>Baseline Energy Efficiency: 361MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>Energy Efficiency Improvement: 125MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>Estimated Cost of Activity: $174,953</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>Estimated Cost savings: $8,206</td>
</tr>
<tr>
<td>Payback period</td>
<td>Payback period: 14</td>
</tr>
<tr>
<td>Outcomes achieved Y/N</td>
<td>Outcomes as at 23/9/2015: 332,100MJ</td>
</tr>
<tr>
<td>- comments</td>
<td>- comments: 361MJ/m²</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes: 238MJ/m²</td>
</tr>
<tr>
<td>Under budget</td>
<td>Under budget: $118,591</td>
</tr>
<tr>
<td>Has not changed (refer to section 5.1 notes)</td>
<td>Has not changed (refer to section 5.1 notes)</td>
</tr>
</tbody>
</table>
Table 11: Indicates the forecast energy efficiency and cost saving improvements for Kilburn Community Centre building selected for the program and energy efficiency and cost saving improvements at project completion.

<table>
<thead>
<tr>
<th>Building, Facility or Site 8</th>
<th>Kilburn Community Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>59 Gladstone Ave, Kilburn SA 5085</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Community facility</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Energy efficient upgrade of internal and external lighting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy efficiency forecast</th>
<th>Energy Efficiency Outcomes as at 23/9/2015</th>
<th>Outcomes achieved Y/N remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Energy Usage</td>
<td>288,400MJ</td>
<td>288,400MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>186MJ/m²</td>
<td>186MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>80MJ/m²</td>
<td>50MJ/m²</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$15,256</td>
<td>$19,315</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$8,262</td>
<td>$8,262</td>
</tr>
<tr>
<td>Payback period</td>
<td>2.3</td>
<td>2.3</td>
</tr>
</tbody>
</table>
5.3 Measuring and monitoring results summary

The project measuring and monitoring benefits and key learning outcomes were as follows:

- Large savings are possible and can be demonstrated, providing measurement is undertaken (up to $7000 per annum saving is significant for community based clubs).

- Links to weather impacts on heating and cooling (consumption and cost) that will continue to impact HVAC (Heating, Ventilation and Cooling) users as climate change creates more variability, particularly with heat wave conditions.

- Value of on-going monitoring to fully demonstrate savings over financial/calendar years.

- Demonstrated that big savings are possible from small behavioural changes (e.g. switch off fridges at sport club over “off-season” saved $4 per day); and).

- There needs to be a holistic review of total facility/ies to fully appreciate where best bang for buck is (i.e. high impact uses such as sports flood lights can have large impact if the spread of daily/weekly use is not fully understood; particularly in relation to possible future tariff changes away from consumption (kWh) to demand (kVA).

5.4 Other benefits from the project

This project has assisted Council sporting clubs with their bottom-line utility costs, allowing their operations to be more sustainable for the longer term, reducing lighting maintenance costs and improving comfort. Without this funding assistance from this project, the Clubs would have found it impossible to finance these energy efficiency retrofits.

When combined with a range of savings approaches, such as use of Solar PV, savings are unequivocal. For instance Clearview Bowling Club has benefitted from the install of a 20 KW solar PV system (external to the re-energising program) and halved the use of electricity and reduced the cost of electricity bills over a 12 month period by nearly two-thirds. The use of external service and monitoring equipment provided by the project has enabled many of the program participants to witness and work on energy efficiency opportunities for the first time. When presented with these opportunities individuals often take up the
challenge and become the advocate for change, not only assisting their particular club or organisation but also influencing the wider public through their interest, enthusiasm and drive. This is a positive outcome for our entire community.

Figure 3 provides a data summary from Clearview Bowling Club which indicates the savings in energy consumption and cost ($) being achieved through the Re-energising Port Adelaide Enfield Community project. For community clubs on tight budgets and decreasing revenue streams these savings are significant.

Community clubs will continue to seek the guidance of Councils, experts and club leaders to address the significant cost overheads, such as electricity. Clear, well designed and presented case studies, such as those presented in this report, will assist communication of the value and benefits of energy efficiency.

On completion of full year(s) monitoring, each of the clubs and community buildings participating in the project should be able to understand the changes in both their energy use profile and costs (billing). This is expected to demonstrate a reduction, as a consequence of both behavioural change and completed retrofit works.

![Energy Consumption and Cost Chart](image)

**Figure 4**: Clearview Bowling Club, reduced energy consumption and billing cost as a consequence of a range of energy efficiency initiatives including LED lighting, insulation, window tinting, blinds, cool room heat control and solar PV (the latter not funded by the program).
5.5 The ancillary benefits to the community from the energy efficiency measures undertaken

Table 12: This indicates that the project energy efficiency retrofits have improved the ancillary building benefits resulting in improved comfort levels, building amenity (inside and out) and better lighting quality.

<table>
<thead>
<tr>
<th>Building</th>
<th>Improved amenity (lighting)</th>
<th>Greater Comfort (ceiling insulation/HVAC)</th>
<th>Better lighting quality from LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearview Bowling Club</td>
<td>✓</td>
<td>✓(Ceiling insulation)</td>
<td>✓</td>
</tr>
<tr>
<td>Kilburn Football &amp; Cricket Club</td>
<td>✓</td>
<td>✓(Ceiling insulation)</td>
<td>✓</td>
</tr>
<tr>
<td>Metrostars Soccer Club</td>
<td>✓</td>
<td>✓(ceiling insulation &amp; HVAC)</td>
<td>✓</td>
</tr>
<tr>
<td>Portland Sports &amp; Community Club</td>
<td>✓</td>
<td>✓(Ceiling insulation)</td>
<td>✓</td>
</tr>
<tr>
<td>Port Adelaide Rugby Union Club</td>
<td>✓</td>
<td>✓(Ceiling insulation)</td>
<td>✓</td>
</tr>
<tr>
<td>Port Adelaide Library</td>
<td>✓</td>
<td>✓(HVAC)</td>
<td>✓</td>
</tr>
<tr>
<td>Enfield Library</td>
<td>✓</td>
<td>✓(HVAC)</td>
<td>✓</td>
</tr>
<tr>
<td>Kilburn Community Centre</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Referring to project feedback (sections 7.1 and 7.2) a number of people acknowledged the fact that upgraded LED lighting has substantially improved lighting levels and the ceiling insulation has proved to be a great insulator – reducing the need to use the heating and cooling systems.
### 6.0 Demonstration and Communication outcomes

**Table 13:** Is from the Communication Strategy submitted as part of the project funding application. A new column has been included to indicate achieved project outcomes.

<table>
<thead>
<tr>
<th><strong>Within the organisation</strong></th>
<th><strong>Action</strong></th>
<th><strong>Message</strong></th>
<th><strong>Measure</strong></th>
<th><strong>Projected Outcomes</strong></th>
<th><strong>Outcomes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.)</td>
<td>Representation of energy efficiency improvements per community facility on the Council Energy webpage.</td>
<td>a.) Council on behalf of the Federal Government takes energy efficient management seriously</td>
<td>a.) Number of people that see the information on the webpage</td>
<td>Approx. 30,000 people</td>
<td>Estimated @ 30,000. Web hits were 1075 plus local paper adverts (distribution of 137,729)</td>
</tr>
</tbody>
</table>

The above outcomes for this particular measure appears low, however it is believed that more than 30,000 people would have seen the project information when combining number of website visits with local newspaper advert and Community News Pen to Paper sightings. This is difficult to measure.

<table>
<thead>
<tr>
<th><strong>To other organisations</strong></th>
<th><strong>Action</strong></th>
<th><strong>Message</strong></th>
<th><strong>Measure</strong></th>
<th><strong>Projected Outcomes</strong></th>
<th><strong>Outcomes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>b.) Community facilities and clubs have been updated to utilise energy friendly systems to sustain clubs/community facilities for the longer term.</td>
<td>b.) Council maintains and takes care of its building assets</td>
<td>b.) Number of people who see media coverage about upgrades</td>
<td>Approx. 110,000 people</td>
<td>Approx. 120,000 people</td>
<td></td>
</tr>
</tbody>
</table>

The above outcomes appeared to work well due to different media used for the project such as; social media, Council and Club webpages, flyers, event video promotions, information sessions, seminar event and Celebration building tour events.
Table 14: Is from the Communication Strategy submitted as part of the project funding application. A new column has been included to indicate achieved project outcomes.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message</th>
<th>Measure</th>
<th>Projected Outcomes</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>To the community</strong></td>
<td></td>
<td></td>
<td>10% increase of venue bookings due to building upgrade improvements</td>
<td>Kilburn Community Centre venue booking increase 11%</td>
</tr>
<tr>
<td>c.) Promote energy efficient community facilities to attract more club members and hire of facilities</td>
<td>c.) Council facilities are a good choice for sports, events and activities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The outcomes above indicate that two facilities have increased the venue booking by 10%. At Kilburn Community Centre in conjunction with the LED lighting retrofits, internal rooms were renovated (works external to this project) which brought additional feature comforts to this building which highly likely influenced the increase in venue bookings.

**Encourage improved energy management to low Social-economic and other disadvantaged communities**

<table>
<thead>
<tr>
<th>Action</th>
<th>Message</th>
<th>Measure</th>
<th>Projected Outcomes</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within the organisation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.) Green team development for staff and community leaders to allow accountability to energy saving initiatives</td>
<td>d.) We are all responsible for saving resources including energy</td>
<td>d.) Number of green team members e.) Number of participants involved in Eco Mapping training</td>
<td>d.) 16 members e.) 100 participants</td>
<td>d.) 16 people e.) 69 people</td>
</tr>
<tr>
<td>e.) Eco mapping energy training with staff to encourage to reduce energy consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The outcomes above in section e.) indicate 69 people participated in the Eco Mapping activities. Energy efficiency management information was provided to over 100 people and it is hard to say whether they used the information or not.
Table 15: Is from the Communication Strategy submitted as part of the project funding application. A new column has been included to indicate achieved project outcomes.

<table>
<thead>
<tr>
<th>Action</th>
<th>Message</th>
<th>Measure</th>
<th>Projected Outcomes</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To other organisations</td>
<td>f.) Resource/support provided to people working with families</td>
<td>f.) PAE Council is dedicated to assist the Federal Government in delivering a clean energy future in these local communities.</td>
<td>f.) number of people assisted with energy efficiency management support</td>
<td>f.) 100 people</td>
</tr>
<tr>
<td></td>
<td>g.) Resources/support for local businesses</td>
<td>g.) number of individuals/organisations utilise Eco Training module in their own home or organisation</td>
<td>g.)50 individuals or entities</td>
<td>g.) 68 people</td>
</tr>
<tr>
<td></td>
<td>h.) Resource/support for local community organisations</td>
<td>h.) number of individuals/organisations reduce their energy consumption in their home or organisation</td>
<td>h.)50 individuals or entities reduce energy consumption</td>
<td>h.)10 organisations that we are aware of. There is likely to be others that have benefited that we have not been able to track</td>
</tr>
</tbody>
</table>

The outcomes above in sections f.) and h.) indicate lower numbers in comparison to projected outcomes mainly due to the fact that measuring external outcomes (outside the project building facilities) were difficult to follow-up and retain valuable data.
6.1 Community energy efficiency activity evaluation results

This is what some of the participants had to say about the Eco Mapping training experience:

Residents

The session “Gave us new ideas about how to reduce energy consumption, how to assess and monitor energy consumption patterns,....through the energy monitor devices and LED lights, and the benefits to the individual and also to the environment”.

“I recommend anyone who’s looking to save some dollars on power bills should attend this seminar to get some knowledge about saving our resources as well as some dollars”.

“I found the session really interesting, relevant and well organised”!

A participant at UnitingCare Wesley who said “No one tells you this stuff when you move in to a rental premises and it can make such a difference”. She learnt from the training that “simply heating water at night when the tariff is low and installing LED lighting saves money”!

Metrostars Soccer Club

“The conversion of halogen down lights and Fluo fittings to LED technology has made a significant difference, firstly with increased intensity, secondly with power reduction”.

“Most noticeable the 3 x new efficient air conditioning cassettes, together with the insulation batts in the ceiling. We have been running the heating at 22 degrees and sometimes shut the units down altogether once a level of comfort has been reached. In addition to this, the inclusion of door closers on external doors has prevented heat loss as well. The hall now is able to maintain a constant temperature with minimal energy consumption”.

“I believe this is one of those projects where the benefits are tangible and immediate, and I wish to take this opportunity in thanking those involved at the City of PAE for undertaking this initiative at Metrostars, and the support you have provided”.

32 | Page City of Port Adelaide Enfield
A staff member from UnitingCare Wesley said at the time of installing the monitoring equipment that "they agree monitoring would help to justify the cost of lighting retrofits" - they understood the value of monitoring data.

A resident who attended the Eco Mapping training used the plug in monitoring device to better understand the operating cost of a range of electrical appliances at home. Monitoring energy use of her clothes drier (used every day) was particularly useful. It has raised her awareness of energy use!

**Council Staff**

Library officers from the two libraries mentioned that the "retrofitted LED lighting has assisted in lighting up the book self-corridors like nothing else before"

The coordinator at the Kilburn Community Centre mentioned that "The LED stadium lighting is really bright and there is no need to turn the other fluoro lights on any more - so we should remove them!"

### 6.2 Project contributions to a broader uptake of the energy efficiency activities and energy management improvements

**Organisation:** Veolia Environment Services
**Location:** South Australia and Northern Tertiary operational branches

"*After attending the Council organised Eco Mapping Business Training session, Veolia organised a Green Team Toolbox meeting with their staff to review the Eco Mapping methodology and then organise a power saving audit throughout the South Australian and Northern Territory operational centres. From this audit the organisation aims to make changes to lighting and other electricity consuming devices in the near future and save thousands on their electricity bills.*"

"*Also Councils networking sessions encouraged Veolia Environmental Services to invest in solar power for the Veolia Wingfield Operations Depot*."

**Organisation:** Adelaide Business Hub
**Location:** Todd St, Port Adelaide

"*After attending the Council organised Eco Mapping Training session, Adelaide Business Hub organised a meeting with staff to discuss ways they could change their behaviour in utilising their lights in their various office and meeting rooms. Also due to the training staff also invested some extra time into researching for the best energy efficient dishwasher*."
"Adelaide Business Hub thought that the Reenergising Port Adelaide Enfield Community Program promotional materials and training materials were informative and easy to follow.

6.3 Lessons learnt from the communication engagement exercises

The process of community engagement on energy efficiency highlighted a number of important aspects:

- A lack of awareness on the types of energy savings possible in homes, clubs and businesses.
- People are unaware of the extent to which savings are possible through rapidly changing technology such as LED lighting.
- Extending information and demonstration though community clubs can be a successful method for transferring information, but:
  a.) There needs to be a clear identification of the problems and practices so that actions can be very targeted for best results; and
  b.) Information is increasingly transferred in non-traditional ways, that is, less by newspaper, flyer or newsletters, and more by social media and word of mouth.
- Prior to this project disadvantaged sections of the community were not receiving the best possible information on energy efficiency.
- Simple tools, one-on-one advice or direct install, and retrofitting are effective methods for invoking change of behaviour providing they are supported by evidence-based research and follow-up monitoring and evaluation.

Case studies like this project and regular information updates are important mechanisms for providing evidence to the community of potential energy savings, but by far the most impact is achieved through direct work on ground through retrofitting, where members of the public can experience the change and see results first-hand. Community Based Social Marketing (CBSM) research highlights the need for projects to clearly:

1) Select the behaviours to be changed;
2) Identify Barriers and Benefits;
3) Develop Strategies;
4) Pilot projects; and
5) Require broad-scale implementation and evaluation.

This process has been shown to impact on behaviour change. The community engagement program using the EcoMapping® tool, engagement seminars,
hands-on mapping, monitoring equipment, and pledge tools were elements of
this approach which set the region up well to continue into a phase of evaluation
and broad-scale roll-out of energy efficiency strategies and opportunities.

**Energy Saver Checklist:**
Saving electricity at home, work or play is easy.
Which of the following can you do?

- Switch off lights or appliances not in use
- Replace down-lights with LED equivalents
- Keep air-conditioning close to 24 degrees C
- Replace fluorescent light tubes with LED
- Stop draughts and gaps in doors & windows
- Have shorter showers - save hot water
- Help others to switch off

**Community Pledge**

Taking action at home, work and play is an important way
I can help to reduce energy use and create a better world for
our future generations. By signing this pledge to reduce my
electricity I am committing to a better future.

Starting today I/We ________________________________

of (address) ________________________________

Pledge to reduce my/our energy use by switching off
unnecessary appliances, swapping to energy efficient lighting
and consumer products, not running air-conditioning too
cold or too hot and helping others to switch off.

Signed ________________________________ Date ________________________________

[Port Adelaide Enfield]

[Australian Government Department of Industry and Science]

**Figure 5:** Is a Community Pledge card that was given out to people who attended the
"Celebration of Success" building tours. This provided an opportunity for people to
commit to a pledge by signing and then placing it on the fridge.
6.4 Project benefits for low socio-economic or disadvantaged groups

The City of Port Adelaide Enfield’s proposed project has ‘re-energised’ key Port Adelaide Enfield community facilities in disadvantaged suburbs, by providing energy efficiency upgrades to community clubs and community centres that primarily serve some of the most socio-economically disadvantaged areas in Australia indicated in the Socio-Economic Indexes for Areas (SEIFA), and which also accommodate increasing populations of new migrants and refugees. As well as ensuring greater financial sustainability for the clubs and centres through energy cost savings, the project has provided a program of social inclusion opportunities via community training programs and promotional events to raise awareness of the benefits of reducing energy consumption - in turn supporting both the Commonwealth’s and Council’s policies for a energy efficient future and greater social resilience.

The project has also undertake a significant education and promotion program to encourage community groups and families using these facilities to reduce their energy consumption by the use of tailored training and monitoring tools, to reduce energy costs and achieve environmental benefits.
One of Council's project targets was to increase the hire of the community facilities by 10% as a result of improved building amenity which has occurred in two of the retrofitted buildings accommodating opportunities for social inclusion.

7.0 Budget

Please find attached the City of Port Adelaide Enfield Community Energy Efficiency Program Financial Report – Attachment B. This report summarises income and expenditure including CEEP funding and co-contributions.

In summary the overall project including the energy efficiency upgrade component and the energy efficiency awareness component was achieved well within budget.

There were three buildings; Clearview Bowling Club and Kilburn Community Centre where the original budget had to be changed within the Energy Efficiency Upgrade Component of the project to accommodate for energy efficient technology improvements. At Clearview Bowling Club the budget had to be increased to allow for the removal and re-installation of an existing solar system (cost not originally forecast in the original project plan) for the effective implementation of the ceiling insulation works. At the Kilburn Community Centre the budget had to be increased to allow for more energy efficient LED lighting retrofits which were not forecast in the original project plan.

The other six buildings were upgraded well under the budget and these savings were allocated to finance the ceiling insulation and LED lighting upgrades at the above buildings.

The Awareness Raising Component of the project came with budget and there were no associated budget changes.

In June 2016 Council plans to undertake an energy audit of all the energy efficiency retrofit buildings. The Project Plan allocated a budget of $10,000 to carry out this work and is agreed to be completely funded by the Community Energy Efficiency Program (as specified in section 3.5 Project Budget and Technical Details table of the Project Plan). This energy audit will provide Council a though indication of the energy reductions trends post 12 months of implemented energy efficiency upgrades.

Acknowledging the estimated energy and cost savings as indicated in the monitoring data (attachment A Project Energy Efficiency Improvement Template) it is evident that the project has demonstrated value for money especially at; Kilburn Football & Cricket Club, Port Adelaide Library and Kilburn Community where the payback period has been measured less than 10 years. A separate
measuring exercise has also indicated since the energy efficiency LED lighting changes alone at Clearview Bowling Club, Metrostars Soccer Club and Kilburn Football & Cricket Club will reduce power consumption by 11,070 kWh and save the Clubs approximately $6,481 per year in electricity bills.

8.0 Project operation, mechanisms and processes

The project was sponsored by the City of Port Adelaide Director of Corporate Services. The project was managed by a Council Project Manager, with input and support from a multi-disciplinary Project Team. The Project Manager was responsible for reviewing the facility energy efficient audits prepared by Enemess Energy Services, refining the scope of works, overseeing the purchase of goods & services and liaising with the key project stakeholders. The Project Team in liaison with the Project Manager was responsible for the coordination of facility retrofits and upgrades and community engagement materials. The Project Manager reported to the Manager of Strategic & Corporate Planning and regularly liaised with the Project Team and energy efficiency consultants.

The energy efficiency external communication consultant (SEED Consulting Services) was responsible for communicating and providing awareness to community groups about the value of energy efficiency initiatives. The consultant was responsible for preparing and delivering 12 Eco Mapping training sessions, promotional materials, undertaking community engagement activities, such as an energy efficiency seminar and three celebration of success reenergise tours that provided measureable outcomes that have been included in this final report (indicated in section – Outcomes and Benefits of Project page 18). The communication consultant reported directly to the Project Manager.

The Community facilities upgrades and retrofits services were undertaken by building contractors MYKRA Building Services and DCM Services, selected via Council’s tender procurement process. The Project Manager and Project Team maintained a high level of communication with the relevant contractors, stakeholders and consultants to ensure the project aligned with project milestones and budget, with the exception of the sixth milestone where there were a few items in the milestone delayed. The project had sufficient dedicated internal and external resources to deliver the project milestones successfully (Refer to figure 7. Management Structure) for more information.
Figure 7: Management Structure

- In liaison with project manager review quotations, tenders, project communication resources as required.
- Assist in the selection and appointment of suitable contractors
- Organising access to facilities
- Develop publication and promotional materials for awareness raising program

- Engage Energy Efficient Consultants
- Engage contractors
- Review building audits, conduct due diligence and refine facility works program
- Purchase building services & goods
- Implement retrofit & upgrade works
- Coordinate awareness raising programs
- Project evaluation
- Project reporting & monitoring
- Media liaison (appointed to Director Corporate Services)
- Liaise with internal staff and follow-up actions where required
- Liaise with external consultants

- Endorsing project plan
- Monitoring project process
- Approving project deliverables
8.1 Project delays, issues and changes

The delivery of the sixth milestone was delayed due to the fact that the Project Team did not allocate enough time in the original project schedule for a comprehensive design of the new HVAC/economy cycle systems at both the Enfield and Port Adelaide Library. This project delay issue was discovered in December 2014 by the Project Team and they responded by prioritising these sites to be implemented above others.

A change was made to the original project procurement process part way through the project. The original plan was to undertake the electrical, plumbing and HVAC system works in different time phases where each contractor would be managed by the Project Manager directly, however Council determined that this would be an inefficient way of operating and therefore MYKRA Building Services were engaged by Council to manage all the different sub-contractors. This method allowed Council to carry out all the different phases of work at one or two buildings at one time to complete the work in a shorter timeframe. Overall, all MYKRA energy efficiency upgrade works were completed on time and within budget.

At Clearview Bowling Club extra time and resources had to be allocated to allow for the removal and re-installation of an existing solar system (The original works not forecasted in the original project plan) for the effective implementation of the ceiling insulation.

The original energy efficiency awareness program plan was changed from just holding Eco Mapping training sessions and bus tours to hosting training sessions, a free energy efficiency seminar and energy efficiency building tours to showcase the improvements achieved by the program. These changes were included as the project evolved to engage better with the community in regards to promoting energy efficiency.

8.2 The main points Council has learnt from the project operation, mechanisms and processes

All of the project deliverable items were delivered on time with the exception of the HVAC and economy cycle systems installation due to delays in the design stage. In future, similar projects could be managed better by attending to the development of the detailed engineering design of these systems earlier and allowing more time for the HVAC system installation. Council has learnt that the establishment of a detailed HVAC design with an accompanying implementation schedule will provide a good indication of the time required to install the systems.
Council has also learnt that you cannot under estimate the value directly installing and retrofitting for encouraging change of behaviour providing they are supported by evidence-based research and follow-up education, monitoring and evaluation.

Data presented as pre-and post-energy efficiency retrofit works for each site (including in Table 3,) provide a good indication of the progress of retrofits so far, however longer term monitoring will be needed (and intended as part of the Re-energising Port Adelaide Enfield Community project) to confirm the full year savings associated with the energy efficiency retrofits at each site. For instance the winter monitoring data (three months between June – August 2015) is substantially influencing Metrostars results making the averaged data look like an increase across a full year – which is not the case.

Thanks to this project Council is now better equipped to undertake a similar project in the future due to the project management and marketing experience gained and the various elements Council has learnt throughout the implementation stage such as the need to be flexible in the project budget to adapt to the rapid technology changes in LED lighting technology.

The importance of clearly defining measures which have reliable sources of data was also a key learning as the opportunity to capture information of change affected by individuals proved somewhat more complex than first thought.

8.3 What Council would do differently if a similar project was carried out again

Below are some key points Council would do differently if a similar project was undertaken again:

- Further consultation within the early planning phase of the project to discuss the best and most efficient process in procuring contractors.

- Within the early project planning phase determine resources and time needed to develop the various HVAC designs needed before the commencement of implementation by contractors.

- Allow the project plan to be flexible to accommodate energy efficiency awareness activities and changes in technology.

- Invest more resources into planning, designing and retro-fitting buildings with energy efficient items, measure the savings and communicate the benefits.
- Invest more into communicating project events, information and outcomes via social media and word of mouth avenues.
- Consider alternative measures and ways to capture data to demonstrate project success.

9.0 Conclusion

The Re-energising Port Adelaide Enfield Community project has enabled community and club members to engage in energy efficiency opportunity savings through a range of retrofit activities at the participating clubs and facilities, as well as through exposure to knowledge and training workshop programs.

In the case of the retrofit clubs, monitoring to date indicates that the savings in energy consumption and billed costs are in the range estimated in the initial baseline facility audits (Attachment A).

The project has demonstrated the value in engaging at three levels:

1) Through energy efficiency retrofitting of community facilities;
2) Engagement of community through information workshops and events; and
3) Collection and presentation of energy monitoring data to support both aspects above.

The importance of these three observations is that there is no one perfect solution to adoption of energy efficient activities and behavioural changes. These solutions are a feature of integrated approaches to energy efficiency, where time honoured systems processes such as "plan-do-check-act" create the best solutions.

The Re-energising Port Adelaide Enfield Community project was underpinned by these systems processes. Whilst engaging the community in behavioural change is difficult, blended approaches that can demonstrate positive case studies and personal experiences are vital to ongoing engagement.

The project still requires final systems auditing to fully demonstrate the energy (kWh) and cost savings ($) achieved. This will occur over the next year as monitoring of consumption and bills provides evidence of full bill cycle (post retrofit) and accounts for seasonal and club activity differences. Nevertheless, preliminary monitoring data indicates that savings are consistent with the estimates.
Most importantly the clubs and facilities have been provided, for the first time, with the ability to track and compare their own energy performance, develop their own action plan and access real (data) evidence to support future spending on energy efficiency opportunities.

Through the Re-energising Port Adelaide Enfield Community project and Federal government Community Energy Efficiency Program (CEEP), the City of Port Adelaide Enfield has been able to assist the community in an effective energy savings program where achievements have gone beyond the facilities and into the wider community. This should be viewed as a positive social benefit to us all.

The City of Port Adelaide Enfield will continue ongoing monitoring with community members involved at the various buildings and be regularly encouraged by Council to review energy consumption and continue working on their plans to be energy efficient for the longer term.

Figure 8: International Environmental practitioner Heinz Werner Engel founder of Eco Mapping speaking at the Reenergising PAE Community seminar.
Attachment A - Project Energy Efficiency Improvement

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Re-energising Port Adelaide Enfield Community for a Clean Energy Future</th>
<th>Project ID</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding Recipient</td>
<td>City of Port Adelaide Enfield</td>
<td>Date</td>
<td>22 September 2015</td>
</tr>
</tbody>
</table>

Building, Facility or Site 1

| Name of Building, Facility or Site 1 | Clearview Bowling Club |
| Location (address) | Coleridge Crescent Reserve, Gordon Ave, Clearview SA 5085 |
| Type of building, facility or site | Bowling Club |
| Activity Type and Measure | Ceiling insulation, internal lighting install, outdoor lighting install, replace old wall furnaces, insulation of window film, install curtains and relocate and replace cool room. |
| Energy Efficiency Estimate Method | The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000 |
| Baseline Energy Usage | 243,290MJ |
| Baseline Energy Efficiency | 288MJ/m² |
| Energy Efficiency Improvement | 139MJ/m² |
| Reporting Data (Measuring Energy Efficiency and Additional Data) | A total area of 845m² and occupancy no. Per week 240, daily hours of operation 3:30 – 9:00pm from Monday to Saturday. Building construction date: 1963. Real time electricity energy monitoring (kWh and peak kW) installed December 2014. |
| Cost of Activity | $93,251 |
| Estimated Cost savings | $7,985 |
## Building, Facility or Site 2

<table>
<thead>
<tr>
<th>Name of Building, Facility or Site 2</th>
<th>Kilburn Football &amp; Cricket Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Lionel Ave, Blair Athol SA 5084</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Football and Cricket Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, internal lighting installation, removal of storage hot water unit and installation of low flow shower heads.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3359:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>388,000MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>445MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>65MJ/m²</td>
</tr>
</tbody>
</table>

**Reporting Data (Measuring Energy Efficiency and Additional Data)**

- A total area of 872m² and occupancy no. per week 380, daily hours of operation 4:00 – 10:00pm Tues, Wed, Thur & Fri; Sat 11:30am – 11:00pm; Sun 12 noon – 9:00pm. Building construction date: 1996.
- Real time electricity energy monitoring (kWh and peak kW) installed December 2014.

| Estimated Cost of Activity         | $54,448                          |
| Estimated Cost savings             | $6,739                           |

## Building, Facility or Site 3

<table>
<thead>
<tr>
<th>Name of Building, Facility or Site 3</th>
<th>Port Adelaide Rugby Union Club</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Langham Place, Port Adelaide SA 5015</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Rugby Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, installation of internal lighting, install ventilation to bar and fit low flow shower heads.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3359:2000.</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>104,130MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>259MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>44MJ/m²</td>
</tr>
</tbody>
</table>

**Reporting Data (Measuring Energy Efficiency and Additional Data)**

- A total area of 401m² and occupancy no. per week 200, daily hours of operation 5:00 – 9:30pm Tue to Fri; 7:00am – 1:00pm Sat & Sun.
- Building construction date: 1984.
- Real time electricity energy monitoring (kWh and peak kW) installed December 2014.

<p>| Estimated Cost of Activity         | $23,936                          |
| Estimated Cost savings             | $1,083                           |</p>
<table>
<thead>
<tr>
<th>Building, Facility or Site 4</th>
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</thead>
<tbody>
<tr>
<td>Name of Building, Facility or Site 4</td>
<td>Portland Sports &amp; Community Club</td>
</tr>
<tr>
<td>Location (address)</td>
<td>16 Langham Place, Port Adelaide SA 5015</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Sports &amp; Community Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, install air conditioning system, replace front windows with insulated windows, install film on southern windows and fit low flow shower heads.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>174,960MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>296MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>43MJ/m²</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>A total area of 588m² and occupancy no. per week 350, daily hours of operation 4:00 – 7:00pm Mon &amp; Tue; 4:00 – 10:00pm Wed, Thur &amp; Fri; 9:00am – 11:00pm Sat; 9:00am – 9:00pm Sun. Building construction date: 1972. Real time electricity energy monitoring (kWh and peak kW) installed December 2014.</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$50,640</td>
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<tr>
<td>Estimated Cost savings</td>
<td>$1,950</td>
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<table>
<thead>
<tr>
<th>Building, Facility or Site 5</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Name of Building, Facility or Site 5</td>
<td>Metrostars Soccer Club</td>
</tr>
<tr>
<td>Location (address)</td>
<td>Fourth Ave, Klemzig SA 5087</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Soccer Club</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Ceiling insulation, installation of air conditioning, internal lighting, insulation film on northern windows and fit low flow shower heads.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>286,000MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>439MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>0MJ/m² (needs full year of data, influenced by seasonality)</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>A total area of 652m² and occupancy no. per week 400, daily hours of operation 5:00 – 9:00pm Mon – Fri; Sat 9:00am – 7:00pm; Sun 8:00am – 3:00pm. Building construction date: 1970. Real time electricity energy monitoring (kWh and peak kW) installed December 2014.</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$60,656</td>
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<td>Estimated Cost savings</td>
<td>$3,235</td>
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### Building, Facility or Site 6

<table>
<thead>
<tr>
<th>Name of Building, Facility or Site 6</th>
<th>Port Adelaide Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>2 – 4 Church St, Port Adelaide SA 5015</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Library and Council Administration</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Energy efficient upgrade to air conditioning and internal lighting.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>580,100MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>526MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>163MJ/m²</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>A total area of 1,102m² and occupancy no. per week 4,166, daily hours of operation Mon – Wed 9:30am – 5:30pm; Thur 9:30am – 8:00pm; Fri 10:00am – 5:30pm; Sat 9:00am – 4:00pm. Building construction date: 1991 Real time electricity energy monitoring (kWh and peak kW) installed December 2014.</td>
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<tr>
<td>Estimated Cost of Activity</td>
<td>$63,878</td>
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<td>Estimated Cost savings</td>
<td>$10,608</td>
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### Building, Facility or Site 7

<table>
<thead>
<tr>
<th>Name of Building, Facility or Site 7</th>
<th>Enfield Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>1 Kensington Crescent, Enfield SA 5085</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Library and Council administration</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Air conditioning installations, internal lighting and IT energy efficient enhancements.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>332,100MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>361MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>238MJ/m²</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>A total area of 918m² and occupancy no. per week 4,333, daily hours of operation Mon – Wed 9:30am – 5:30pm; Thur 9:30am – 8:00pm; Fri 10:00am – 5:30pm; Sat 9:00am – 4:00pm &amp; Sun 1:30 - 5:00pm. Building construction date: 1985 Real time electricity energy monitoring (kWh and peak kW) installed December 2014.</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$174,953</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$8,206</td>
</tr>
<tr>
<td>Building, Facility or Site 8</td>
<td>Kilburn Community Centre</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Name of Building, Facility or Site 8</td>
<td>Kilburn Community Centre</td>
</tr>
<tr>
<td>Location (address)</td>
<td>59 Gladstone Ave, Kilburn SA 5085</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>Community facility</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Energy efficient upgrade of internal and external lighting.</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>The Energy Audit study was undertaken in accordance with a level 2 audit as specified in AS3598:2000</td>
</tr>
<tr>
<td>Baseline Energy Usage</td>
<td>288,400MJ</td>
</tr>
<tr>
<td>Baseline Energy Efficiency</td>
<td>186MJ/m²</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>50MJ/m²</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>A total area of 1,548m² and occupancy no. per week 438, daily hours of operation 8:00am – midnight Monday to Sunday all year. Building construction date: 1996 Real time electricity energy monitoring (kWh and peak kW) installed December 2014.</td>
</tr>
<tr>
<td>Estimated Cost of Activity</td>
<td>$15,258</td>
</tr>
<tr>
<td>Estimated Cost savings</td>
<td>$8,262</td>
</tr>
</tbody>
</table>
Certification
I hereby certify in accordance with the conditions under which this Grant was accepted
that:
(a) all funding, and recipient contributions received were spent for the purpose of the Activity and in
accordance
with this Agreement, and that the Council has complied with the Agreement; and
(b) the unspent portion of the Funding is available for use within the next reporting period;
(c) at the time this Report has been provided to the Department, the Council is able to pay all the Council’s
debts as and when they fall due and the Council has sufficient resources to discharge all the Recipients’
debts
at the end of the current financial year.

Finance Manager

Mick Wetherall
28 September 2015

Director Corporate Services

Sarah Philpot
28 September
2015
Budget Section removed for Publication
- Attachments -

Awareness raising training seminar presentation used, seminar attendants and seminar poster and messenger advertising
Seed Consulting Services

Consulting Services

Seed

Port Adelaide

City of

Adelaide

Cygnet

Community

Director

Andy Chambers

Tuesday 31st March 2015

Guiding Change in Energy Use

Community Program

Indented Community

Re-energising Port Adelaide
- Monitoring equipment – help measure the change
- Window treatments (stop heat loss – south side)
- Air-conditioning upgrade
- Installation of roofing insulation
- Lighting upgrades – change to LED

What changes are being made?

- Create more resilient community venues and stronger clubs
- Create community awareness
- Save dollars ($) – create community awareness

What are the key benefits?

- For community venues and for residents
- Engagement to assist in understanding where energy & savings can be made

What is the Community Program?

- Re-energising Port Adelaide Enfield Community
1. Map the energy issues

- Computers & Printers
- Compressors
- Chp/Boilers
- Air-Conditioning
- Refrigeration
- Lighting

Creating a one page energy plan
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> 0</td>
<td>A long list of items or categories.</td>
</tr>
<tr>
<td><strong>2.</strong> 0</td>
<td>Description of another category.</td>
</tr>
<tr>
<td><strong>3.</strong> 0</td>
<td>Another long list with detailed information.</td>
</tr>
<tr>
<td><strong>4.</strong> 0</td>
<td>Final thoughts or conclusions.</td>
</tr>
</tbody>
</table>

- **Set a budget.**
- **By when?**
- **Who's responsible?**

**Action Plan**

- **Measure**

**Set Objectives and Targets**

**Ecomapping the Community Centres**

Creating a one page energy plan