WELLINGTON SHIRE STREET LIGHTS AHEAD

(CEEP ID 2060)

Prepare By
Raymond Myers
Project Engineer – Wellington Shire Council

This Activity received funding from the Australian Government
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Executive Summary

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.

Street lights account for approximately 37% of energy usage by the Wellington Shire Council, which has significant implications for greenhouse gas emissions. To reduce this energy usage by an estimated 77% and thus energy costs, Wellington Shire Council with the assistance of an external agent sought co-funding from the Australian Government to replace these inefficient energy street lights with an energy efficient LED light.

Once funding was approved, Wellington Shire Council through its project implementation guidelines and as per the funding agreement, proceeded to deliver the project over the 2013/2014 and 2014/2015 financial years.

The delivery of this activity involved project pre-planning including identifying the number and location of lights to be changed, selection and procurement of light technology; project tendering and project award and administration and project completion.

Also involved in the delivery of the project is the submission of milestone reports on completion of significant milestones throughout the project.

The succeeding report is the final milestone report for the activity.
Project Objectives

The project aims to replace 2250 numbers of inefficient street lights with more efficient lights. By doing so Wellington Shire Council aimed to achieve the following objectives:

- Maximisation of energy savings within project budget
- Reduction of greenhouse gas emissions
- Reduction in Wellington Shire Council’s energy costs for public lighting
- Sharing the learnings and promoting energy efficiency with the community

The project was also guided by the following requirements:

- Ensuring proper procurement processes (as per the requirements of the Local Government Act and in conjunction with the Municipal Association of Victoria’s Street Lighting procurement project)
- The use of approved, safe and thoroughly assessed lighting technologies
- Requirement of safe and efficient work practices
- Community information and education that aims to:
  - Communicate information on the benefits of the project to residents, business and community organizations in saving energy and reducing greenhouse emissions
  - Engage industry (in particularly the Distribution Network Service Provider DNSP-Ausnet Services and lighting manufacturers) by demonstrating how these projects can be successful.
Project Energy Efficiency Activities

This activity which was intended to improve the energy efficiency of the street lights within the Wellington Shire Council involved the removal of the 2250 mercury vapour lamps within the Shire.

These inefficient lights were replaced with a more energy efficient LED light. This was the only light technology selected for the changeover and was implemented in the same fashion at every selected location. This involved:

1. identifying the light to be changed,
2. removing the existing 80 W mercury vapour lamp
3. installing the new LED light
4. confirming that the newly installed light is functioning

Project Demonstration and Communications Activities

The project demonstration and communications activities involved in the project were aimed at all residents in the Wellington Shire Council. These residents were informed of the project through notices in the community newspapers and also on the Wellington Shire Council website.

There were sustainability events launched during the planning stages of the project to also inform the community of the project objectives as well as offer education on sustainable use of resources.

To further ensure that the community was kept informed of the activity, regular updates of the location of the works were again posted in the community newspapers as the works progressed.

A final notice is also due to be sent out to confirm the completion of the replacement works.

Outcomes and Benefits and the Project

From the data obtained for the energy consumption of the mercury vapour lamps and the expected energy usage of the new LED lights it was estimated that the new technology will save up to 77% in energy usage reducing energy bills and greenhouse gas emissions.

As per the Monitoring and evaluation section set out in the Project Implementation Plan, a minimum of three months after the completion of the replacement works is required to obtain reliable information on the reduction of energy usage costs which will then confirm a reduction in energy.

Recent energy bills during replacement works have however shown a slight decrease in energy costs as shown in table 1 below.

<table>
<thead>
<tr>
<th>Billing Period</th>
<th>Energy Usage</th>
<th>Energy Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2014 for energy usage in March 2014</td>
<td>5380 kWh/day</td>
<td>$5,100.99</td>
</tr>
<tr>
<td>April 2015 for energy usage in March 2015</td>
<td>4707 kWh/day</td>
<td>$4,427.05</td>
</tr>
</tbody>
</table>

Note that because the changeover was a continuing process it’s difficult to deduce the number of days each replaced light was functional during the usage period. The reduction in cost and energy usage however indicate that a decrease has occurred and the degree of this decrease
will be more evident at the conclusion of the monitoring and evaluation phase, where there will be sufficient information to conclude whether targets are met and any benefits to the community. With a 12% percent reduction in energy usage already it's expected that these targets will be met.

The communication aspect of the activity was extended to all residents within the Wellington Shire Council. During the activity, several work notices in the Wellington News advert published in Gippsland Times and Yarram Standard made a total of 17,500 circulations across the Wellington Shire Council, the Wellington Matters Summer Issue which had a photo and caption on the activity was in a print run of 20,000 copies also distributed to residents across the entire Shire.

The public website for the Wellington Shire Council also recorded 166 visits in relation to the street lights change over during the activity including tender notice stage, indicating a community interest in the replacement works.

All towns within the Wellington Shire Council have benefited from this activity as it has improved the lighting standard in the town by improving visibility and better colour rendering of the street after dark.
Budget

Table 2 – Project Estimates at Funding Application

<table>
<thead>
<tr>
<th>Total Eligible Amount At Application</th>
<th>$780,188.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEEP contribution</td>
<td>$390,094.00</td>
</tr>
<tr>
<td>Wellington Shire Council co-contribution to CEEP</td>
<td>$390,094.00</td>
</tr>
</tbody>
</table>

Table 2 above shows the estimated costs of the project as per the funding application and Project Plan submitted to the Department of Industry. This was developed by an external agent and was based on the best estimates available at the time. It also didn’t include the cost Wellington Shire Council will have to pay to the DSNP – Ausnet Services shown in table 3 below.

Table 3 – Actual Project Costs

<table>
<thead>
<tr>
<th>Total Project Cost</th>
<th>$1,062,928.23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights Purchase</td>
<td>$693,000.00</td>
</tr>
<tr>
<td>Street Lights Replacement</td>
<td>$241,248.75</td>
</tr>
<tr>
<td>Project Admin Including Tender Advertisement</td>
<td>$996.48</td>
</tr>
<tr>
<td><strong>Payment to Ausnet Services – Not Eligible for Funding</strong></td>
<td>$127,683.00</td>
</tr>
</tbody>
</table>

Table 3 shows the total cost involved in the project. It shows the ineligible cost (amount required to be paid to Ausnet Services) incurred by Wellington Shire Council to complete the project.

Table 4

<table>
<thead>
<tr>
<th>Total Eligible Project Cost</th>
<th>$1,062,928.23</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEEP Contribution</td>
<td>$390,049.00</td>
</tr>
<tr>
<td>Wellington Shire Council Contribution</td>
<td>$672,834.23</td>
</tr>
</tbody>
</table>

Table 4 shows the total contribution by both the Australian Government and the Wellington Shire Council. Note that the contribution from the Wellington Shire Council also includes payment to the Ausnet Services shown in table 3 above which is not eligible for funding.

As observable from the above budget tables, the project exceeded the intended budget for the works. This is because the initial project costing were made using cost estimates from the most energy efficient street lights available at the time.

During the planning stage however, an even more energy efficient light was approved for use for public lighting by the Ausnet Services for the Wellington Shire Council

This new light (LEDs) was more expensive than the original proposed light (CFLs) but it presented more future savings in energy consumption and maintenance cost.

This made it a more feasible option from both an economic and sustainability view point and was therefore selected as the technology of choice for the activity.
Project Operation, Mechanisms and Processes

The initial funding application for this project was carried out with assistance from an external agent. It was then managed internally from the funding approval stage to the completion of the project. As the external agent had had previous experience submitting these types of applications, it was important to get initial assistance to help set up the project. As the funding application was successful, it is likely that this process will again be adopted for similar future projects.

Once taken over however Wellington Shire Council had enough resources to see through the project. These resources included different personnel from different departments within the organisation with different tasks including a project engineer who managed the technical and contractual part of the project, a sustainability officer and a media and public relations officer who together ensured the community was well informed of the project and its importance in energy usage reduction and greenhouse gas emissions reduction.

It can be expected that the organisation as a whole will be better equipped to manage future projects of a similar nature as it has now had experience delivering this type of project.

Some of this experience was derived from dealing issues in the early stages of the project planning, in particular the preparation of the tender specification including the level of qualification and certification required by a contractor to carry out the works. These were overcome by learning from the tender specification of other organisation who had recently undertaken works of similar nature and also engaging in conversation with our DNSP – Ausnet Services- to identify the qualification and certifications required by contractors before they can carry out the replacement works.

Through this the organisation has confirmed the importance of its project implementation guidelines in particular the significance of the pre-planning process in the successful delivery of all projects.
Conclusion

Through the successful replacement of 2250 number of inefficient street lights within the Wellington Shire Council with more energy efficient LED lights, the fundamental objective of this activity was achieved. This then allowed the successful achievement of the subsequent objectives including the reduction in energy usage and the thus the reduction of the emission on greenhouse gases by the Shire - more evidence to follow after monitoring and evaluation to confirm.

It further held sustainability events to share sustainable practices with the community with the expectation of educating the community on practices to reduce their energy usage.

It also confirmed to the Wellington Shire Council, the importance of its project implementation guidelines in the successful delivery of projects.
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 Wellington Shire 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: 
Name: Raymond Myers 
Position: Project Engineer 
Organisation: Wellington Shire Council

Witness Signature: 
Name: Harold Johnston 
Position: Project Engineer 
Organisation: Wellington Shire 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.
### Attachment A

#### Project Energy Efficiency Improvement Template

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>Wellington Shire Street Lights Ahead</th>
<th>PROJECT ID</th>
<th>CEEP2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUNDING RECIPIENT</td>
<td>Wellington Shire Council (WSC)</td>
<td>DATE</td>
<td>26/05/2015</td>
</tr>
</tbody>
</table>

**Building, Facility or Site 1**

<table>
<thead>
<tr>
<th>Name of Building, Facility or Site 1</th>
<th>Wellington Shire Street Lights Changeover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (address)</td>
<td>Wellington Shire Council</td>
</tr>
<tr>
<td>Type of building, facility or site</td>
<td>80W Mercury Vapour (MV) Street Lights</td>
</tr>
<tr>
<td>Activity Type and Measure</td>
<td>Change 2250 current 80W MV lamps to 18W StreetLED lamps</td>
</tr>
<tr>
<td>Energy Efficiency Estimate Method</td>
<td>Unmetered Load method according to Australian Energy Market Operator</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baseline Energy Usage</th>
<th>3,374,738 MJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Energy Efficiency</td>
<td>12,639 MJ/km/year</td>
</tr>
<tr>
<td>Energy Efficiency Improvement</td>
<td>2908 MJ/km/year</td>
</tr>
<tr>
<td>Reporting Data (Measuring Energy Efficiency and Additional Data)</td>
<td>257 km of P category road</td>
</tr>
<tr>
<td></td>
<td>2250 P category Lights</td>
</tr>
<tr>
<td></td>
<td>11.94 hours of operation of lights per day</td>
</tr>
<tr>
<td>Cost of Activity</td>
<td>$1,062,928.23</td>
</tr>
<tr>
<td>Estimated Cost Savings</td>
<td>$100,000.00 per year approx.</td>
</tr>
</tbody>
</table>