4.1 SUSTAINABLE STREET LIGHTING
(KH:LIGHT50)

Responsible Director: Ossie Martinz

EXECUTIVE SUMMARY

PURPOSE
The purpose of this report is to seek in principle support from Council for the replacement of the inefficient street lighting.

KEY CONSIDERATIONS/ISSUES
As part of Council’s Environmental Sustainability Road Map 2011-2015, a target was set to reduce Council greenhouse gas emissions by 20% by 2020. To achieve this target, it is reliant upon retrofitting the street lighting that is expected to achieve an 18% reduction.

Council has eight thousand two-hundred 80W MV lights within its streets that are managed by the distributor business, United Energy, with Council paying for the ongoing electricity costs, maintenance and replacement (OMR) costs. These lights contribute approximately 8,800 tonnes of greenhouse emissions per year and $575,000 in electricity costs. In order to progress and independently determine the benefits of this project, Council engaged Ironbark Sustainability to develop a business case (refer attachment) that identified current costs, future costs, payback period and the action plan.

Council at its meetings of 28 February 2012 and 26 February 2013 considered a report for the replacement of inefficient street lighting and to seek grant funding. Since that time the State Government has removed its Green Light Plan grant funding program and Council was unsuccessful with the first and second round of grant funding from the Federal Governments Community Energy Efficiency Program (CEEP). Grant funding should still be sought where it becomes available if prior to completion of the changeover to reduce the overall impact of the initial investment.

FINANCIAL IMPLICATIONS
In total the project considered is expected to cost between $3.3 million and $6.1 million. Net cost savings to 2031 (after project costs) are projected to be between $5.8 million and $19.2 million. The project becomes cash flow positive in 6 to 9 years depending on which technology and implementation timeframe is adopted.

CONCLUSION/RECOMMENDATION
It is recommended that Council support the replacement of the inefficient street lighting to minimise its CO2-e emissions action consistent with the principles and targets of the Environmental Sustainability Road Map whilst reducing its operations costs.
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RECOMMENDATION

That Council:

1. Notes the updated business case.

2. Supports the replacement of inefficient street lights throughout the city with more efficient street lights to reduce carbon emissions.

3. Refers the funding for the project to the Council’s financial plan for consideration over a two year period and continues to investigate other funding streams as they became available.

INTRODUCTION

This report seeks Council endorsement to commence planning for the potential replacement of 80 Watt Mercury Vapour (WMV) street lights with equivalent energy efficient street lights. The transition to the new lighting regime will be dependent on funding via Council’s Strategic Resource Plan and annual Budgets.

BACKGROUND

Council adopted an Environmental Sustainability Road Map (ESRM) in June 2011 which is a key document for supporting Council’s strategic objectives and commitment to the principles of environmental sustainability. The Environmental Advisory Committee which is made from Community representatives and Councillors has provided valuable input on the four year Road Map and has given support to Council to achieve its targets.

As part the ESRM a target was set to reduce Council’s greenhouse emissions by 20% by 2020. To achieve this target, it is reliant upon retrofitting the street lighting which the most important action item that is expecting to achieve an 18% reduction in CO2-e emissions.

Council at its meetings of 28 February 2012 and 26 February 2013 considered a report for the replacement of inefficient street lighting and to seek grand funding. Since that Council has been unsuccessful with the first and second round of grand funding from the Community Energy Efficient Program (CEEP).

Other nearby Councils that have or are in the process to converting to sustainable streetlighting include: Glen Eira, Whitehorse, Boorondara, Maroondah and Stonington.
**DISCUSSION**
These 80W MV lamps can be replaced with sustainable street lights, which reduce energy usage by around 65% and a reduction in greenhouse gas emissions. In addition, there are financial savings in Operational, Maintenance and Replacement (OMR) costs of around 50% and begin to be generated immediately as each light is replaced. Note that OMR is approved by the Essential Services Commission (ESC), for the distributor business, United Energy, is payable to them by Council, dependant on the light in use and is not contestable.

Besides offering lower costs, energy consumption and greenhouse emissions, the new lights can provide better lighting outcomes for the community, including:
- Greater uniformity of light across and along the street;
- Better colour rendering and visibility; and
- Less depreciation of the light output over time, with lower glare.

There is continual changing technologies, along with acceptance by the distributor business in relation to street lighting, including light emitting diodes (LED’s) which should be considered at time of tendering to ensure value for the community is considered.

The project will require that all materials from the old lights to be recycled, including the globe, which is currently possible.

**SOCIAL IMPLICATIONS**
Public lighting plays a critical role in relation to the health and wellbeing of the community through lighting paths and roadways to promote and increase utilisation and provide sense of safety. In addition to providing sustainable street lighting, which results in less harmful carbon emissions, it demonstrates to the community that Monash is committed to minimising its effects on the environment which also plays a role in improving the health and wellbeing of the broader community.

**FINANCIAL IMPLICATIONS**
After unsuccessful applications for Community Energy Efficiency Program funding rounds one and two, the project considered is estimated to cost between $3.3 million and $6.1 million, subject to the chosen light type. The project becomes cash flow positive in 6 to 9 years. These costs are dependent on which technology and the timeframes adopted as per table 1 based on the average scenario.
Table 1. Outcome of different technology choice based on the average scenario

<table>
<thead>
<tr>
<th>Measure</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LED*</td>
</tr>
<tr>
<td>Total project cost</td>
<td>$6.1 m</td>
</tr>
<tr>
<td>Simple net savings to 2031</td>
<td>$13.15 m</td>
</tr>
<tr>
<td>Greenhouse reduction (tonnes over 20 years)</td>
<td>57,089</td>
</tr>
<tr>
<td>Year where cash flow is positive</td>
<td>9</td>
</tr>
</tbody>
</table>

*The capital cost varies significantly if using LED and the fluorescent options. LED light is not currently approved for use by United Energy but this technology is progressing at a rapid rate furthermore it is important to consider as a choice until Council is ready to procure the project.

It is important to clarify prices for these lights that change often, so the best time to choose the technology will be at the time of tendering when actual prices are known. Costs are likely to be driven down in time as more competition occurs with more suppliers coming into the market and efficiencies gained with technology improvements. Spreading the implementation may assist in selecting the best available technologies at the time, whilst not unduly deferring the benefits being gained through the change. This could be achieved by possibly funding the project over two financial years.

Other funding options, instead of outright funding, that could be considered, is a rental plan for the luminaries without any capital investment, although interest would be payable to the amount purchased. It will need monthly payments that could be based on the OMR reductions over the life of the rental plan. Alternatively, light replacement could be aligned with the four yearly scheduled 80WMV bulk globe replacement program by the electrical distributors to reduce the installation costs. There is also opportunity to secure funding through the Clean Energy Finance Corporation. These options should be considered at tendering time.

Although Council is responsible for funding the initial cost of the luminaries, they are required to be gifted to the distributor business, United Energy, at the time of installation and will become United Energy property. If they become damaged or fail following installation, United Energy is required to fund the direct replacement as per current arrangements with the older technology.
Despite Council not being successful in obtaining grant funding, it is recommended that it should continue to seek funding opportunities if they become available.

**CONCLUSION**

It is beneficial for Council to invest in the replacement of the 80WMV street lights to minimise its CO2-e emissions whilst reducing its operations costs with energy efficient street lights.

The timing and implementation of the lamp replacement program is dependent on financing.