Meeting: Council **Date:** 10 December 2015

Wards Affected: All Wards in Torbay

Report Title: Reduction of Energy Consumption and Carbon Emissions

Is the decision a key decision? Yes

When does the decision need to be implemented? January 2016

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1. Proposal and Introduction

1.1 Torbay Council has signed up to the Carbon Reduction Commitment programme which is a Government initiative to tackle Climate Change and commits to improving the energy efficiency of streetlights, investigating renewable energy sources and measures to 're-gain the night sky'. This scheme commenced in 2010.

2. Reason for Proposal

1.2 To further reduce the Energy Consumption and Carbon Emissions within Highways Street Lighting in residential areas, thus reducing Torbay Council's energy costs in the future.

3. Recommendation(s) / Proposed Decision

3.1 That, subject to 3.2 below, Option 2 to replace existing lanterns with LED (conventional gear) as detailed in Appendix 1 to the submitted report is implemented.

3.2 That the Scheme be funded by prudential borrowing or borrowing from Salix on terms to be agreed by the Chief Finance Officer over a 10 year period to provide a revenue saving from 2017/18.

4. Background Information

4.1 Various measures have been implemented in recent years to reduce energy consumption and carbon emissions. Since 2006 all lanterns used are fitted with energy saving electronic ballasts which reduces consumption by at least 5.5%.

4.2 Torbay Council's Community and Customer Services are responsible for 16,926 units of which 14,700 are street lights, 11,738 within residential areas and 2,962 on main road.

4.3 In financial year 2009/10 Torbay Council secured £275,000 of Salix funding to implement street lighting energy and carbon reduction schemes which were completed end of March 2010.These schemes consisted of ;

- Replacing 650 no. lanterns and 220 no. gear tray replacements from 250watt conventional gear to 150watt using electronic ballasts.
- Replacing gear trays to all 530 illuminated bollards to LED.
- Removing the illumination from 107 traffic signs mounted on street lights due to the relaxation of lighting requirements.

Additional Schemes

- A decision was made by Full Council to implement part night lighting in residential areas where 1 in 6 lights would be left on at strategic locations, lights would be switched off between 12.30am until 5.30am GMT. On completion of the scheme in 2011, 8,380 lights were converted to part night with a calculated saving of £144,750 pa and 734tonnes of carbon.
- £515,000 of SALIX funding was secured in 2014/15 to convert lanterns on main roads to LED, the project consisted of replacing 1573 older lanterns to LED and upgrading newer lanterns to white light both of which dim down after midnight. The existing lanterns were rated at 150w whilst the new LED lanterns are 91w and on a few roads 69w. The upgrading of the lanterns is nearing completion so the exact savings has yet to be calculated, however so far this year between 1st April and 31st July the consumption has reduced by 95,335Kwh or 51.19 tonnes carbon and at current energy rate of 12.6p a £12,012 saving.

4.4 All highway street lights are unmetered, in order for the energy usage to be calculated all electrical equipment to be used are tested through an independent testing laboratory the results of which are listed by ELEXON who control the procedure to ensure the correct figures are used when assessing energy usage of a product. The calculations within this project are those agreed by ELEXON with quantities extracted from the Authority's Asset Management Computer System. We are continually looking at ways to further reduce our consumption which provides best cost benefit for Torbay with minimum impact on its residents.

4.5 The LED scheme for main roads was successful and a similar scheme could be implemented for residential areas, the scale of the project would depend on the monies available as there are a significantly more lights in residential areas than there are on main roads. As for the main road scheme we can compare costs between replacing all lanterns with LED or a mixture of replacement and refurbishment.

4.6 If monies available only covers a proportion of residential areas, concentration should be given to replace/convert lanterns of higher wattage i.e. 70w Son where the maximum savings can be achieved. Calculations will be based on the existing 19w LED maintenance lantern using our experiences and consultation with lantern manufacturers to provide the best solution for both the Council and residents of Torbay. All the proposals offered use all night lighting where selecting the right profile will add very little cost and energy consumption to a part night unit. The calculations show that with all night lighting it will only cost 45p a year more i.e. 0.12p per unit per night.

4.7 Installation of the lanterns can either be tendered or included in the existing term maintenance contract. The provision of resources and completion time would be a major factor in this decision. As the contract has already been through the competitive tendering process the rate should also be competitive.

4.8 The 3 proposals offered for consideration in Appendix 2 show comparative figures for the use of interest free Salex funding and Prudential Borrowing over a longer repayment term.

Whilst upgrading may be a cheaper option, warranties will only apply to replacement parts, ie gear trays. By replacing lanterns complete we have units fit for purpose with a warranty of a minimum 10 years and this will affect ongoing maintenance costs during the repayment periods.

4.9 If limited funding is available concentration should be given to those lanterns providing greatest savings, which in this case would be those with a 70w Son light source on conventional gear. Second priority would be 70w lanterns using electronic gear as these provide fewer saving than those above.

4.10 Although Option 1 is the cheapest proposal with a quicker payback, Option 2 is identified as the most cost effective, either as a whole or part depending on finance available. Both these options could be financed through an interest free SALIX grant as they both have a payback of less than 5 years or by Prudential Borrowing over a 10 year period.

4.11 By funding the schemes from Prudential Borrowing, there would be a requirement to pay interest at 4.5%, however the payback period could be increased to 10 years giving an actual revenue saving from 2017/18 as shown in Appendix 1, however the financial burden period would be increased.

Appendices

Appendix 1: Street Lighting repayment options
Appendix 2: Technical Summary
Appendix 3: Graph showing Reduction of Energy Use
Appendix 4: Energy Graph
Appendix 5: Residential Lighting Options