

**CABINET**

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| <b>Date of Meeting</b> | Tuesday, 23 <sup>rd</sup> January 2018  |
| <b>Report Subject</b>  | Second Phase Capital Investment in the Street Lighting infrastructure and upgrade to LED lanterns |
| <b>Cabinet Member</b>  | Cabinet Member for Streetscene and Countryside  |
| <b>Report Author</b>   | Chief Officer (Streetscene and Transportation)  |
| <b>Type of Report</b>  | Operational   |

**EXECUTIVE SUMMARY**

The Council owns and maintains approximately 20,500 street lights and 3,250 illuminated signs across the County.

Since a review of the Council's Street Lighting Policy in 2015, a number of steps have been taken to help reduce both the energy costs and carbon footprint of the Authority's lighting stock, through a wide range of measures, including the introduction of dimming and part night lighting arrangements in some areas of the County.

With many of the remaining lanterns on the highway network coming towards the end of their design life, the Council applied for Welsh Government (WG) Green Growth - Invest to Save funding ('the Wales Funding Programme') to replace the existing units with more energy efficient Light Emitting Diode (LED) lanterns. As a result approximately £3.1m was received from the fund and approximately 12,000 of the Council's lighting units will have been replaced by the end of the current financial year (2017-18).

Following the success of the initial programme WG has indicated that further funding may be available to now complete the project. This will result in all of the Council street lighting infrastructure operating entirely on energy efficient LED lanterns. The second phase bid will be approximately £1.6m and this will allow the remaining 6,500 lights, which were not included in the initial project, to be changed.

The project will contribute towards the Council's Improvement Priority for the Environment by reducing our carbon emissions and it will also contribute towards meeting the principles contained within the Wellbeing of Future Generations (Wales) Act.

## RECOMMENDATIONS

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| 1 | That Cabinet approves the Phase 2 Wales Funding Programme submission for Capital Funding to replace the remaining Street Lighting lanterns with new and more energy efficient LED lighting units.  |
| 2 | That, subject to funding being awarded by Welsh Government, that a contract for the replacement LED lighting units be let under the All Wales Highways Lighting Framework to procure the lanterns. |

## REPORT DETAILS

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| <b>1.00</b> | <b>EXPLAINING THE BACKGROUND TO THE PROPOSALS</b>  |
| 1.01        | In 2015, the annual consumption of electricity for the Council's street lighting inventory was approximately 8 million kilowatt hours (kwh), at a cost of approximately £864k per annum, based on a unit cost of 10.53p/kwh. This gave an average annual cost per lamp of £36.38 or approximately 8 pence per illuminated asset per night. With a high probability of on-going increases in electricity tariffs, this cost was likely to rise and place an additional burden on the Authority's street lighting budget in future years.  |
| 1.02        | Industry estimates suggest that energy tariffs could increase by as much as 3-5% per annum over the next ten years however this increase could be potentially much higher, with the increase in 2017 alone being 16%. These increasing costs will have an adverse effect on the Council's ability to maintain the existing lighting network at the current operating level and in this eventuality, difficult decisions on the future of the street lighting service will once again be faced, unless further actions to reduce the total energy costs are taken now.  |
| 1.03        | <p>A number of energy saving options have already been introduced in the County to offset previous increases in the energy costs associated with the street lighting service.</p> <p>These include:</p> <ul style="list-style-type: none"><li>• Switching the street lighting off where lights were no longer necessary or over provided for.</li><li>• Part night lighting between the hours of 24:00 and 05:00 on main non-residential routes and in the County's Industrial Estates.</li><li>• Dimming all of the County's lighting units between the hours of 22:00 and 06:00 in all areas of the County.</li><li>• Changing approximately 12,000 lanterns to LED lighting following a successful funding bid to WG.</li></ul> |
| 1.04        | Despite the significant amount of energy efficiency work carried out over the past five years on the network, there remains a significant proportion of the inventory made up of either conventional sodium units (SON / SOX), identified by their yellow coloured light output or "Cosmo" lanterns which provide a creamy white coloured light output. These lanterns are still relatively energy inefficient compared to the most modern lanterns and  |

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|      | whilst many are still within their design life they will eventually require full replacement.   |
| 1.05 | The preferred option going forward would be to replace all of the remaining lanterns with modern and energy efficient LED lanterns. The design and reliability of LED lanterns has improved greatly over the last decade, with the latest technology producing a clearer white light, providing higher lumen output from a much lower wattage, thereby using less energy, and producing lower carbon emissions than the current lanterns. The cost of these lanterns has also fallen significantly in recent years as demand for new and more energy efficient solutions has grown.   |
| 1.06 | The new and more energy efficient LED lanterns can provide energy savings of up to 73% (depending on light output) when compared to the existing units however, despite the reducing purchase costs, a large initial capital investment is still required to procure the new units.   |
| 1.07 | The Wales Funding Programme supports projects which contribute to the WG's Energy Efficiency Strategy and WG is collaborating with Salix Finance Ltd to support Green Growth projects. This funding source is administered by Salix who have been supporting the Council by undertaking technical assessments of the proposed projects and consequently the Council was successful in its bid for £3.1m funding from this funding source in 2016/17   |
| 1.08 | The funding is provided in the form of a loan which is provided for energy efficiency projects, with the repayments being made from the savings gained from reduced energy usage. Once the loan is repaid, the Authority will continue to benefit from the energy savings delivered and a lowered carbon footprint for its street lighting service.   |
| 1.09 | Only those projects where the resultant energy savings achieved over the lifetime of the project, go directly back to the public sector and the public sector gains a direct financial benefit are eligible and in order to comply with the funding criteria, a project must both pay for itself from the resulting energy savings within a maximum 8 year period (unless the applicant can evidence a special case for investment above this payback criteria) and cost no more than £200 to save a tonne of carbon over the expected lifetime of the project.   |
| 1.10 | The overall cost of the FCC replacement project is greatly reduced by utilising the Council's own street lighting team to carry out some of the replacement work over a two year period, during the current two yearly inspection visit to each lighting column. With this approach to installation of the new units, an estimated payback period of approximately 8 years can be achieved and <b>Appendix 1</b> details the financial case for the project and the costs savings identified from the investment to replace a further 6,500 lanterns over the next two year period. It should be noted that the payback period takes no account of likely savings associated with reduced maintenance, inflationary increases in electricity prices and carbon reduction commitment (CRC) although these savings are shown in the attached financial model. |
| 1.11 | Approximately 400 tonnes of CO2 will be saved annually as a result of the second phase of the project and this will result in an annual reduction in  |

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|      | CRC costs of around £10k (based on costs of £16 per tonne). Whilst the CRC scheme will end after 2018/19, the business energy tax (i.e. CRC) will be transferred to the climate change levy (CCL) and this means that reducing energy consumption is essential to reducing future CCL costs.   |
| 1.12 | If the recommendation to proceed with this project is approved, a formal application to Salix will be completed and it is expected that if the bid is successful, the funding will be received before March 2018.  |
| 1.13 | The new lanterns will be fitted with LED lamps (bulbs) which have an approximate expected design life of up to 20 years, compared to typical SON / SOX lantern's lamp life expectancy of 2 to 5 years. This produces an additional benefit of the new lighting regime from the reduction in the number of faults on the network, which in turn reduces ongoing maintenance costs.  |
| 1.14 | Modern lanterns are manufactured in accordance with the Waste Electrical and Electronic Equipment Regulations (WEEE) and comply with all relevant environmental regulations. They can be recycled at the end of their useful life, further helping the Authority reduce its carbon footprint and meet its environmental recycling targets. The street lighting lanterns replaced under the proposed project will also be recycled in accordance with the WEEE Regulations.   |
| 1.15 | Subject to funding being granted, the service will undertake a compliant tender to procure the lighting units under the All Wales Highway Lighting Framework. The installation work will be undertaken by the Council's own Street Lighting team over a two year period whilst they undertake the planned bi-annual inspections of each lighting unit in the County supplemented by sub-contractors to ensure the targets for installation are met.  |
| 1.16 | Any interim energy savings which are accrued by the early installation of the new lanterns (i.e. before the initial repayment date) will be reinvested into the service to complete the replacement of remaining life-expired concrete columns. Following completion of this project, all of the 2,000 plus original concrete columns will have been replaced within the past 4 years, from various WG and Council capital funding streams. This has removed a significant risk from the service as many of the columns were in risk of collapse and the upgrade has greatly improved the value and resilience of the overall street lighting stock. |
| 1.17 | Further discussions will take place with local Town and Community Councils regarding the potential for them to also bid for funding from the Salix funding stream to update their own lighting network.  |

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| <b>2.00</b> | <b>RESOURCE IMPLICATIONS</b>  |
| 2.01        | The Financial Case for the project are detailed in <b>Appendix 1</b> . A request will be made to Salix to suspend the repayments on the loan for a period of two years to allow time for the installation work to be completed and for associated energy savings to be realised. Repayments will commence in year 3, with equal repayments being made in each of the subsequent 8 |

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|      | years.   |
| 2.02 | The installation work will be carried out by the Council's own Street Lighting teams supplemented by sub-contractors as required.      |
| 2.03 | The total potential 20 year financial benefit of the project will be between £1.6m and £2.9m - depending on future energy cost levels. |

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| <b>3.00</b> | <b>CONSULTATIONS REQUIRED / CARRIED OUT</b> |
| 3.01        | With Cabinet Member.                        |

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| <b>4.00</b> | <b>RISK MANAGEMENT</b>   |
| 4.01        | A desk top Equality Impact Assessment has been carried which concluded that the proposals do not negatively affect any of the protected groups and that there are no equality issues from the proposals. |

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| <b>5.00</b> | <b>APPENDICES</b>  |
| 5.01        | Appendix 1 – Financial Case and loan repayment schedule. |

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| <b>6.00</b> | <b>LIST OF ACCESSIBLE BACKGROUND DOCUMENTS</b>   |
| 6.01        | <b>Contact Officer:</b> Stephen O Jones<br><b>Telephone:</b> 01352 704700<br><b>E-mail:</b> <a href="mailto:stephen.o.jones@flintshire.gov.uk">stephen.o.jones@flintshire.gov.uk</a> |

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| <b>7.00</b> | <b>GLOSSARY OF TERMS</b>   |
| 7.01        | <b>LED</b> - (Light Emitting Diode)<br><b>SON</b> - (High pressure sodium)<br><b>SOX</b> - (Low pressure sodium)<br><b>WEEE</b> - Waste Electrical and Electronic Equipment Regulations<br><b>Salix Finance Ltd</b> – Independent, publicly funded organisation committed to providing the public sector with interest free capital finance for energy saving projects<br><b>CRC</b> - Carbon Reduction Commitment<br><b>CCL</b> - Climate Change Levy |