ARGYLL AND BUTE COUNCIL **Environment, Development and Infrastructure**

DEVELOPMENT AND INFRASTRUCTURE SERVICES **12 November 2015**

STREET LIGHTING INNOVATIVE ENERGY SAVING PROJECT – UPDATE REPORT

1.0 EXECUTIVE SUMMARY

1.1 Street lighting energy costs the council approximately £700,000 per year at current rates. Over the next 10 years energy costs are predicted to double to approximately £1,5000,000 if we do nothing to reduce the amount of energy consumed**.** This innovative lighting project is based on a financial model of the existing energy costs inflated year on year and the costs that would be incurred if no action was taken (avoidable costs). The project replaces existing street lighting luminaires with energy efficient LED units.

In addition to these rising costs the council has an obligation to reduce its carbon consumption by reducing energy. There are a number of initiatives that can be progressed to reduce energy. However, reducing street lighting energy is considered to be one of the most effective methods of reducing carbon consumption and reducing energy costs.

This report sets out the progress on developing the business case in regard to the street lighting project for upgrading the lighting assets within Argyll and Bute. This is proposed to provide more energy efficient lamps and thus reduce the cost to the Council in regard to energy consumption. The project team has worked with Zero Waste Scotland / Scottish Futures Trust and their consultants to assist in developing an Energy Model and business case to determine the type of lighting solution and delivery model that the Council adopts for future Energy Savings.

The business case concludes that the council should progress with replacing the existing luminaries (the lanterns on top of the lighting columns) with LED units and also replace lighting columns with the balance of the savings generated from reduced energy consumption. These improvements to be funded from the energy savings which will free up revenue to service capital loan charges required to finance the project. It is also proposed that an element of the savings is surrendered to contribute towards service choices.

2.0 RECOMMENDATIONS

2.1 It is recommended that this committee recommends to Policy and Resources

Committee that the Council:

- Progresses with an innovative lighting energy efficient scheme as detailed in this business case, the costs of which are summarised in 5.4 of this report, in order to reduce future cost pressure relating to street lighting electricity.
- Agrees to a tender process being completed and that the energy efficient scheme is progressed utilising the most cost effective model as determined from the tender process.
- Agrees that the remaining reduced electricity budget, as a result of the innovative lighting scheme, is inflated in line with energy costs on an annual basis.
- Agrees that the balance of savings generated is used to fund a column replacement program with replacements being prioritised on condition.

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3.0 INTRODUCTION

3.1 This report sets out the progress on developing the business case in regard to the street lighting project for upgrading the lighting assets within Argyll and Bute. This is intended to provide more energy efficient lamps and thus reduce the cost to the Council in regard to energy consumption. The project team has engaged with Zero Waste Scotland / Scottish Futures Trust and their consultants to assist in developing an Energy Model and business case to determine the type of lighting solution and delivery model that the Council adopts for future Energy Savings.

4.0 RECOMMENDATIONS

4.1 It is recommended that this committee recommends to Policy and Resources Committee that the Council:

- Progresses with an innovative lighting energy efficient scheme as detailed in this business case, the costs of which are summarised in 5.4 of this report, in order to reduce future cost pressure relating to street lighting electricity.
- Agrees to a tender process being completed and that the energy efficient scheme is progressed utilising the most cost effective model as determined from the tender process.
- Agrees that the remaining reduced electricity budget, as a result of the innovative lighting scheme, is inflated in line with energy costs on an annual basis.
- Agrees that the balance of savings generated is used to fund a column replacement program with replacements being prioritised on condition.

5.0 DETAILS

5.1 The Current Position

The Council currently owns some 14,212 signs and street lights.

Energy costs in regard to street lighting are expected to increase over time. Current analysis of Energy Market predicts that Electricity prices have been forecast to increase in line with CPI. Due to advances in lighting technology, there is now an opportunity to review street lighting provision with a view to making revenue savings on energy costs.

The Business case (BC) reviews the current and forecast budget pressures placed on the Council, with regard to the energy costs of operating street lighting, and investigates methods and technologies available to reduce the increasing financial costs.

5.2 The Business Case

The main objectives of this project are;

- to reduce the Council's public lighting energy bill
- lower the associated carbon footprint
- identify savings that the Council would make which could then be utilised to improve infrastructure, in particular lighting columns, to a more sustainable basis and therefore improve the reliability of the network
- to assist in containing the maintenance costs within existing budgets

The BC has been developed to look at options to meet these objectives. The BC demonstrates that replacement of luminaires is the preferred option for this project because it gives the opportunity to upgrade the existing street lighting asset by replacing luminaires with LED equivalent whilst providing a revenue saving.

A financial summary has been provided in Appendix D of the business case which is appended to this report. This summary includes the cost pressures that can be avoided with the project.

Appendix 1 to this report provides a list of Frequently Asked Questions relevant to this project, some of which were raised at the Members seminar held on 5th October 2015.

5.3 Delivery options

The BC outlines the delivery options to complete luminaire replacement throughout the Council area.

The BC demonstrates that the top 4 options are:

I. Design from framework/agency and internal management and Installation (over 2 year period).
II. Design from framework/agency, internal management and external installation (over 2 year period).

III. External design and installation (over 2 year period) with contract management internal.

IV. Hybrid of the I and II above i.e. Design from framework/agency, contract management in house, eg Helensburgh, Dunoon and Oban delivered external and remainder internal (over 2 year period).

5.4 Financial Overview

The table below is included at Appendix D of the Business Case. The table details the significant cost pressures that would be incurred if we do nothing. The table also details the funding that would be available to fund loan charges for column replacement. Section 8 of the Business Case demonstrates how this could be utilised to replace columns as part of the project rather on a long term programme.

The financial model assumes that the remaining reduced electricity budget is inflated in line with energy costs on an annual basis.

It is also proposed that an element of the savings is surrendered to contribute towards service choices.

Project assuming lanterns only installed	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26
Forecast electricity cost under 'do nothing' scenario	891,042	913,370	945,465	1,085,543	1,123,429	1,206,971	1,265,904	1,348,005	1,424,739
Assumed current budget	771,000	800,796	806,457	816,142	870,334	882,407	909,754	926,116	952,027
forecast electricity cost on completion of LED programme	299,254	329,050	334,711	344,396	398,588	410,661	438,008	454,370	480,281
Net saving against existing budget	471,746	471,746	471,746	471,746	471,746	471,746	471,746	471,746	471,746
less finance costs	(269,263)	(269,263)	(269,263)	(269,263)	(269,263)	(269,263)	(269,263)	(269,263)	(269,263)
Unallocated Savings	202,484	202,484	202,484	202,484	202,484	202,484	202,484	202,484	202,484
Contribution to Service Choices	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
Funds available to fund prudential borrowing for column replacement	52,484	52,484	52,484	52,484	52,484	52,484	52,484	52,484	52,484
Cost pressure that will be avoided	120,042	112,574	139,009	269,400	253,095	324,564	356,150	421,889	472,711

5.4 **The Next Steps**

The final delivery model will be determined after a tender process which will identify the most cost effective model for the council to progress.

In order to be able to demonstrate a value for money process, a tendering exercise is required which is envisaged to take between 4 – 6 months post business case approval. The tender process will determine the delivery model. Whichever model is progressed an external resource for the design and project management will be required to provide the necessary expertise and capacity to deliver this element of the project.

Assuming project approval the following provides an outline timetable for the project tasks:

Dates	Key Tasks
Nov 15 – March 16	Procurement strategy, tender documentation
March 16 – May 16	Tender period, evaluation and award
December 15 – Jan 16	Establish Project Team
November 15 – March 16	Specifications and Service Procedures
July 2016 – April 18	Luminaire Replacement
December 2016 – December 18	Column replacement

6.0 CONCLUSION

6.1 This report sets out the progress on developing the business case in regard to the street lighting project for upgrading the lighting assets within Argyll and Bute. This is proposed to provide more energy efficient lamps and thus reduce the cost to the Council in regard to energy consumption. The project team has worked with Zero Waste Scotland / Scottish Futures Trust and their consultants to assist in developing an Energy Model and business case to determine the type of lighting solution and delivery model that the Council adopts for future Energy Savings. The project also offers £150,000 towards service choices.

7.0 IMPLICATIONS

7.1 Policy — No formal policy is currently in place for street lighting. However the initiative detailed in the report aligns carbon reduction agenda with the Council's carbon agenda.

7.2	Financial	The project implementation would be on a “spend to save” basis with reduced energy cost being used to fund the upgrade. The project provides an opportunity for a £150,000 contribution towards service choices.
7.3	Legal	None.
7.4	HR	This project will require a different team structure for street lighting, this will be determined dependent on the delivery model progressed.
7.5	Equalities	None.
7.6	Risk	Non-delivery will result in increased energy costs and equipment that will not be compatible with new standards.
7.7	Customer Services	If we do not proceed there is risk of increasing energy costs that would outstrip budget, and public complaints could escalate, giving rise to an increased number of complaints.

Executive Director of Development and Infrastructure Pippa Milne
Policy Lead: Cllr Ellen Morton
October 2015

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Appendices

Appendix 1 – FAQs
Appendix 2 – Business Case (which includes Appendices A – D)

Appendix 1 – Frequently Asked Questions

Q – Has the financial model been used by others and has the model been verified?
A – The model has been produced by Scottish Futures Trust on behalf of Scottish Government, has been used by over 20 Scottish Local Authorities and has been independently audited by BDO.

Q – Has there been a sensitivity analysis built into the financial model and how do we know the model is accurate.
A- Sensitivities have been built into the model. Like any model there will be variables in practice, not least in the price of energy over the life of the project. The model makes a number of assumptions which have been tested against known parameters. Whilst the model has been independently audited and verified, the final financial outturn will not be known until the end of the project. The financial analysis has been supported by use of the street lighting toolkit created by Scottish Futures Trust (SFT). This model has been externally audit by BDO, a firm of accountants, to confirm its robustness and accuracy and appropriately uses underlying technical data to generate financial forecasts. The toolkit has been successfully used with 11 councils in Scotland to develop street lighting business cases, and has been formally adopted by the Department of Energy and Climate Change ('DECC') for use by Councils in England and Wales.

Q – Why is the energy savings for street lighting LED conversions not as high as they are for domestic property conversions?
A – There are a number of reasons including: old street lighting systems being to a lower energy output than domestic incandescent lighting (which is higher output to achieve as near to natural light output as possible 'v' old street lighting systems which generally produce an orange light with very poor colour definition but consume much less energy). This means that there is less energy saving with street lighting than there is with domestic lighting. Also, the charges for energy through the small hours of the night are less. There is limited domestic consumption during these hours resulting in a further cost differential between the two systems.

Q – Is the lighting inventory up to date?
A – Yes, a project has been completed to collect inventory data. This has been loaded into WDM.

Q – How will the energy savings be realised given that the lighting energy is unmetered?
A- The council provides an energy return to the energy companies. Basically we state the number of units and their power rating. This information is used to produce the energy invoice. It is imperative that the inventory is kept up to date and that accurate energy returns are provided to the energy companies to ensure that the correct levels of savings are realised.

Q – Is LED lighting different to conventional lighting?
A – Yes, light from LEDs is whiter, gives better colour definition and there is less light spilt to the side of what is being lit and less upward light pollution.

Q – Can the lights be dimmed and switched off during certain times?
A – In theory, yes they can. However, the additional costs for the additional equipment and the limited energy savings are not considered to be cost effective and have not been

included within the scope of the project. The units will be pre-dimmed which will reduce further the energy consumption and costs. This is being done as research has demonstrated that the human eye cannot detect a 30% dimming.

Q – Is there an option to do nothing?
A – No, doing nothing would result in significant increases to energy costs and monetary fines for not meeting carbon reduction targets.

Q – Are all columns being replaced as part of the project?
A – The project is predicated on reducing energy consumption, the focus of the project is to replace luminaires and only those columns in need of early replacement. The maximum number of columns being replaced under this project will be 15% of the overall stock, this being based on the worst condition columns being replaced.

Q – Will the 5th core cable systems be replaced as part of the project?
A – No. These systems will remain the responsibility of the power companies. There is insufficient funding in the project to deal with the 5th core and replace these with private supplies. *Note Private Supply is where the power company supplies a cable to a fuse pillar, between the pillar and individual lighting columns would be a 'private cable' owned and maintained by the council.*