

**APPRAISAL OF OPTIONS FOR THE UPGRADING OR REPLACEMENT OF STREET
LIGHTING COLUMNS , LAMPS AND CABLING – UPDATE REPORT**

1.0 EXECUTIVE SUMMARY

Scottish Government has made an allocation of £43,000 to allow the Council to take forward aspects of Scotland's ambitious climate change targets in relation to street lighting. The Council topped up the allocation to a total of £200,000.

This funding is to be used to develop, in partnership with Scottish Futures Trust, a full business case and implementation plan for the replacement of current street lighting with more energy efficient alternatives.

A high proportion of the stock is in a poor condition, 50% is estimated to be in need of replacement either because of the condition of the column or cabling.

A detailed on site survey of all street lighting is being undertaken to gather the following information:

- Type of Lamp (light source)
- Type of Lantern (bulb holder)
- Control box
- Cut out (trip switch)
- Column condition
- Cable type and condition
- Point of control (electrical supply)

The existing model for energy costs relies on estimates. This will be updated based on the inventory to ensure that energy costs are accurately calculated.

Scottish Futures Trust has developed an options appraisal model. This model will be populated with the inventory data and form the basis of the business case for the replacement of street lighting.

That business case will be reported to the Environment, Development and Infrastructure Committee on completion.

RECOMMENDATION

Members are asked to:

- Note and endorse the report.

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2.0 INTRODUCTION

- 2.1 This report provides an update in relation to ongoing works associated with street lighting. The report provides a background to the general condition of the lighting stock including cable infrastructure. The report also provides detail on how the additional funding allocated to lighting is being invested and gives an outline programme for the collection of asset data, preparation of an energy model and business case, which will determine the type of lighting solution and delivery model that the Council adopts.
- 2.2 Energy costs are increasing at an estimated rate of 41% per annum, from £651,451 in 2013/2014 to £920,750 in 2014/2015

3.0 RECOMMENDATIONS

- 3.1 Members are asked to:
- Note and endorse the report.

4.0 DETAILS

- 4.1 Scottish Government have made an allocation of £43,000 to allow the Council to take forward aspects of Scotland's ambitious climate change targets, set out in the Climate Change (Scotland) Act 2009. This is part of an overall £2million Scottish wide allocation was approved through COSLA Leaders meeting on 27 September 2013. Allocations have been made on the basis of the length of urban roads. The funding has been made available to support local authorities' work on increasing the energy efficiency of street lighting.
- 4.2 At the budget meeting in February Council topped up the allocation to a total of £200,000. This funding is to be used to develop, in partnership with Scottish Futures Trust, a full business case and implementation plan for the replacement of current street lights with more energy efficient alternatives.

- 4.3 Scottish Futures Trust have developed an options appraisal model which requires a detailed inventory of our current lighting stock including the lamp type, column type, internal fitments and cabling arrangements.
- 4.4 At the present time Argyll and Bute Council has records of the location of approximately 95% of lighting columns but not the further detail required to populate the model. The funding available is being used to complete a more detailed inventory. Information being gathered includes;
- Type of Lamp (light source)
 - Type of Lantern (bulb holder)
 - Control box
 - Cut out (trip switch)
 - Column condition
 - Cable type and condition
 - Point of control (electrical supply)

Existing Street Lighting Inventory

Asset Type and Quantities

- 4.5 A high proportion of the stock is in a poor condition, 50% is estimated to be in need of replacement either because of the condition of the column or cabling.
- 4.6 The current stock estimates are as follows:
- 13,000 lighting units
 - 800 illuminated traffic signs
 - 250 illuminated bollards
- 4.7 Most of the lighting units are located in the larger towns and larger islands:

Helensburgh	3000
Oban	1850
Dunoon	1200
Rothesay	1150
Campbeltown	950
Lochgilphead	600
Rhu	420
Cardross	400
Garelohead	350
Rosneath	300
Mull	300
Islay	250
Tarbert	280

- 4.8 Asset Management records are held on a specialist IT system, WDM. Whilst the records are generally reliable there are some inaccuracies and anomalies. Until a

comprehensive survey has been completed it will not be possible to determine exactly what data currently held is reliable and what needs to be updated

- 4.9 Roads and Amenity staff are currently gathering the necessary information through on-site inspections. Data for Islay and Mull is now complete, Helensburgh and Lomond surveys are 30% complete.
- 4.10 Currently long life lamps are purchased when replacements are needed, giving a 12 year burn to extinction life as opposed to a normal lamp three year life

Energy Supplier and Cable Networks

- 4.11 The energy supplier for each column is dependent on its geographical location with the majority of columns being supplied by either Scottish Power or Scottish Hydro (SSE). The majority of the energy is supplied via an aged 5th core cable network that is prone to failure and although this is solely owned by the energy supplier they are not duty bound to replace the networks.
- 4.12 The 5th core cable network was at one time very popular with the utility providers. Most road cable networks consist of 4 individual cables contained in a common sheath (L1, L2 and L3 with a neutral). It was decided that it was more economical for the Distribution Network Operator (DNO) to install cables with an additional core (5th) rather than allow the Local lighting Authority to connect into the then standard 4 core road network. This was to reduce the general access and avoid compromising residential and commercial properties during accidents or replacement programmes.
- 4.13 No 5th core cable networks have been installed for some considerable time and in many cases the old networks were so prone to failure that the DNO replaced them prior to privatization. Those networks that remain are very old and unreliable with the cost of replacement significant.
- 4.14 Due to the nature of the 5th core cable installation, one failure can result in an entire section being cut off, with only the DNO being licensed to carry out any works to reconnect. It is possible for a single failure point to cause the outage of 100 units at the same time.
- 4.15 The unit prices for new connections, service transfers and disconnection provided by Scottish Power & SSE are comparable with other DNO's, but this does entail Argyll and Bute street lighting personnel providing the initial excavation in advance of the site works by the DNO and the back fill and reinstatement following completion of the works following connection. A closer relationship needs to be built with the Distribution Network Operator to ensure the replacement programme is as efficient as possible.
- 4.16 The energy payment is generated from the asset management information held on WDM. The system uses burning hours, lamp wattages, number of columns and the contracted energy price to calculate the payment. As a result the cost of energy for street lighting may change once the inventory is completed.

Proposal

- 4.17 The table below outlines the high level programme for completion of the business case:

Asset Inventory data collection and verification	completed by October 2014
Energy model – ensures we are paying only for the energy we consume	completed by December 2014
Business Case based on the SFT toolkit for the type and delivery model for street lighting	completed by February 2015.
Report to EDI Committee	April 2015

Scottish Futures Trust

- 4.18 Roads & Amenity and Finance colleagues have been working with Scottish Futures Trust (SFT). SFT have been involved in a successful recent pilot project involving two local authorities that resulted in the inclusion of large-scale LED street lighting within the local authority capital investment plans and the development of a toolkit to help other councils explore the financial need, and potential benefits, of an energy efficient investment in street lighting assets.
- 4.19 A further meeting has been arranged with Scottish Futures Trust on the 27th August, Finance, Special Projects and Streetlighting management will attend.
- 4.20 Tender documents are being prepared by Scotland Excel for purchasing electrical equipment which will allow true fixed costs to be fed into model.

Lighting Options

- 4.21 The survey work will inform a business case covering a range of options for the locations across Argyll and Bute. The options will include a range of solutions from doing nothing, the possibility of removing lighting/reducing the number of units in some locations, replacing with LED or High Pressure Sodium, dimming and switching off during certain times. It is possible that the final solution could be based on a range of the above to ensure that a proportionate and affordable lighting model can be provided for the whole of Argyll and Bute.
- 4.22 The funding allocated (£200,000) will be used to develop the inventory collection, energy model and detailed business case. The inventory collection is ongoing and is being carried out with existing staff. Additional data collection units (tough books that enable data to be directly input) have been purchased. There has been approximately £25,000 of the £200,000 sum committed to date with the remainder of the budget being used to complete the data collection process, energy model and detailed business case. The development of the detailed business case will require technical input from external specialists to provide a robust set of options. These

options will be developed to identify where energy and maintenance savings can be made. Savings from reduced energy consumption and maintenance will be used to finance capital investment for lighting upgrades. Any surplus from the £200,000 allocation will be used for lighting improvements that are consistent with energy reduction.

Funding Options

- 4.23 Funding may be available through several schemes including Scottish Futures Trust or Salix. Alternatively the Council may have the option of prudential borrowing. These options will be considered as part of the business case in consultation with Corporate Finance

5.0 CONCLUSION

- 5.1 Much of the Council's stock of street lighting is in need of replacement. A full and detailed inventory will provide the necessary information to assess options for the replacement of lighting and allow a business case to be prepared for consideration by members.
- 5.2 The replacement of lighting brings the opportunity to reduce energy costs and to improve the reliability of street lighting.
- 5.3 The Council is working with SFT to ensure that the business case produced takes advantage of the experience of other Councils in Scotland.

6.0 IMPLICATIONS

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| 6.1 | Policy | No formal policy currently in place for street lighting. However the initiative detailed in the report aligns with the Councils carbon reduction agenda. |
| 6.2 | Financial | Funding in place for the inventory collection, energy model and business case development. |
| 6.3 | Legal | None |
| 6.4 | HR | None |
| 6.5 | Equalities | None |
| 6.6 | Risk | Failure of lighting network in certain areas.

Increasing Energy costs |
| 6.7 | Customer Services | If we do not proceed, public complaints could escalate, giving a rise to an increased number of complaints |

Executive Director of Development and Infrastructure

Policy Lead Councillor Ellen Morton

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