

DECISION-MAKER:	CABINET		
SUBJECT:	REDUCING ENERGY CONSUMPTION AND CARBON EMISSIONS IN THE CITY'S STREETLIGHTING SERVICE		
DATE OF DECISION:	16 JULY 2013		
REPORT OF:	CABINET MEMBER FOR COMMUNITIES		
<u>CONTACT DETAILS</u>			
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STATEMENT OF CONFIDENTIALITY
None

BRIEF SUMMARY

This report considers the opportunity to reduce energy consumption and carbon emissions in the City's Street Lighting Service, by dimming streetlights during periods of the night.

RECOMMENDATIONS:

- (i) That lighting levels in residential areas following the installation of new lighting units are reduced by:
 - 25% between dusk and midnight
 - 50% between midnight and 5am
 - 25% between 5am and dawn;
- (ii) That lighting levels on main Primary and Secondary traffic routes, following the installation of new lighting units, be reduced by 25% between midnight and 5am; and
- (iii) To note that some exceptions to this policy for operational reasons may be necessary from time to time and these will be recorded by the street lighting service.

REASONS FOR REPORT RECOMMENDATIONS

1. The Council has adopted a carbon reduction policy that has set a CO₂ reduction target of 40% by 2020.
2. The potential energy consumption (kWh) and carbon emission (CO₂) savings realised by dimming street lights are quite considerable.

ALTERNATIVE OPTIONS CONSIDERED AND REJECTED

3. The Council, using its PFI partner SSE, is more than halfway through the renewal of all the City's streetlights. This Core Investment is currently two months ahead of programme.
4. The new street lighting units can be controlled and dimmed by a Central Management Systems (CMS). This system is completely flexible and can allow individual street lights to be turned off or dimmed to any percentage remotely within seconds. Therefore, there are now unlimited alternative options available.
5. The proposals are in line with best energy practice and are based on experiences from other councils.

DETAIL (Including consultation carried out)

Policy

6. The original objectives of the PFI were agreed by Cabinet on 19th January 2009:
 - improved /appropriate lighting levels;
 - improved road safety;
 - crime reduction;
 - maximise energy efficiency;
 - improved maintenance standards;
 - improved structural and electrical integrity of the lighting network.

Replacement Programme

7. The Street Lighting PFI will replace approximately 28,000 lighting units across Southampton in the five year core investment period. The replacement programme is on schedule to be completed in 2015.
8. Over 13,000 units have already been replaced in the following Wards: Peartree, Bevois, Freemantle, Redbridge, Bitterne Park, Swaythling, Portswood, Shirley, Millbrook, and Coxford.
9. The output of the new 'white' lights far exceeds the illumination levels previously afforded by the orange/amber 'sodium' lighting.

Lighting Policy

10. The current dimming policy adopted by the City Council and contained as part of the PFI contract, allows for 25% dimming between the hours of midnight and 5am in residential roads. This has been automatically applied as the new "white light" units have been installed.
11. The dimming regime has been applied to all street lighting in residential roads except those with evidenced Section 17 Crime and Disorder Act or Road Safety implications. For example: dimming does not take place in the Main City Centre Zone, City Parks, Suburban Shopping Precincts and Car Parks etc.

Lighting Demonstrations

12. A demonstration of the capabilities of the CMS was presented to the Deputy Leader, the Cabinet Member for Environment and Transport, and other Key Stakeholders; the Police, City Safety Team, and City Crime Prevention Officer, on the evening of 20th February 2013.
13. The trial showed no discernable change to the perception of the reduced “white light” levels when compared to the previous ‘orange/amber’ sodium light. Good advanced visibility and facial recognition of pedestrians under the reduced illumination was retained.
14. The trial noted the optimum lighting levels that could be achieved during the different times of the night in both residential and main roads, whilst retaining a safe night time environment for the travelling public and reducing energy consumption and carbon emissions.
15. A further three lighting demonstrations have been held during June 2013. These have been well attended by Members and representatives of community groups, including Neighbourhood Watch Groups.
16. At all the demonstrations, the benefits of the proposed system were clearly shown and there were no objections to the proposed lighting levels using the white light units.
17. The dimming of street lighting on main traffic routes will require risk assessments to be carried out depending on the pedestrian and traffic flows, road speed and accident data. Once completed, there is no reason why, during the quieter period of the night when traffic flows have dropped significantly, the lighting level for these roads should not be reduced.
16. Assurances were provided to the Police and Community Safety that the CMS would allow lighting levels to be amended in areas for operational reasons and a protocol is being developed to facilitate this. The flexibility of the system will enable lighting levels to be increased in any areas as necessary.

Energy consumption reduction

17. At the commencement of the PFI contract in April 2010, energy consumption for street lighting across the City was 10.7m kWh for the financial year 2010/11, with carbon emissions of 6,000 metric tonnes.
18. There are savings in energy achieved by SSE under that contract, due to the replacement of old inefficient lights and also additional energy savings accruing from the dimming proposal.

Residential Areas

19. By the end of the Core Investment Period in 2015, the contractual energy reductions within the PFI contract and the residential lighting level changes recommended in this report are forecast to reduce annual energy consumption from 10.7m kWh to 8m kWh (saving approximately 3m kWh each year (- 27%) and carbon emissions will reduce from 6,000 to 4,300 metric tonnes (saving approximately 1,700 metric tonnes of CO₂ (- 28%).

Main Traffic Routes

20. By the end of the Core Investment Period in 2015, the traffic routes lighting level changes recommended in this report are forecast to reduce annual energy consumption by an additional 363 kWh/year and a further 196 metric tonnes of CO₂ (-3%).

RESOURCE IMPLICATIONS

Capital/Revenue

21. There will be no capital expenditure within the Environment and Transport Portfolio Capital Programme to effect these changes. Any alterations to the CMS are covered under the approved PFI Contract payments and the Council receives revenue grant of £2.0m per annum to assist with these payments.
22. The Council is responsible for the purchase of electricity and the payment of the monthly consumption for street lights and negotiates this with an Energy Supplier on an annual basis. Under the PFI Contract the Service Provider, Scottish and Southern Energy (SSE) are responsible for the volume of energy consumed and deductions are applied should the volume increase above the agreed base load.
23. Based on the current contract rate of 8.7 pence (gross of Climate Change Levy and Feed In Tariff 9.5 pence) per kWh at the start of the PFI Contract in April 2010, the load was 10.7m kWh at a cost of £1,019,000.
24. The contractual energy reductions within the PFI contract and the proposed dimming policy for **residential roads** will reduce energy consumption down to 8m kWh, which equates to a saving of £250,000 per annum for the remainder of the contract after completion of the Core Investment Period in March 2015.
25. The contractual energy reductions within the PFI contract and the proposed dimming policy for **main traffic routes** will further reduce energy consumption by 363,400 kWh per year equating to an additional saving of £34,000 per year
26. Therefore, the total saving is anticipated to be £284,000 per year which is a 28% saving as compared to the original 2010/11 annual energy cost of £1,019,000. The elements within this total saving are set out below:

	£
Contractual Energy Reductions	172,000
Dimming – Residential roads	78,000
Dimming – Main Traffic Routes	34,000
Total	284,000

27. However, it is necessary to bear in mind that energy costs are subject to fluctuations in the wholesale energy market and these savings will be impacted as energy costs increase.
28. The earlier that the dimming strategy can be implemented, the earlier that the CO₂, Carbon and energy savings can start to be realised. Until the Core Investment Period is completed in March 2015, these savings will be proportional to the number of the new lighting units in operation. The dimming changes could be implemented within a month of this report being approved. The savings would then start to be realised two to three months after this.

Property/Other

29. None

LEGAL IMPLICATIONS

Statutory power to undertake proposals in the report:

30. The Council, as Local Highway Authority has the powers to reduce the street lighting output within the streets that it is responsible for.

31. The Council has a duty to consider S17 of The Crime and Disorder Act in all decisions that it makes. This Act requires Local Authorities to consider the impact of any decision on the level of crime and disorder. Care has been taken to ensure that these proposals will not compromise community safety.

Other Legal Implications:

32. None

POLICY FRAMEWORK IMPLICATIONS

33. Proposals to reduce energy usage are fully inline with Council policy.

34. The proposals will not disadvantage any members of the community. The proposed lighting levels will ensure that everyone can still use the highway at night. An Equality Impact Assessment has been completed.

KEY DECISION? Yes

WARDS/COMMUNITIES AFFECTED:	All
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SUPPORTING DOCUMENTATION

Appendices

1.	None.
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Documents In Members' Rooms

1.	None
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Equality Impact Assessment

Do the implications/subject of the report require an Equality Impact Assessment (EIA) to be carried out.	Yes
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Other Background Documents

Equality Impact Assessment and Other Background documents available for inspection at:

Title of Background Paper(s) Relevant Paragraph of the Access to Information Procedure Rules / Schedule 12A allowing document to be Exempt/Confidential (if applicable)

1.	None	
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