Committee:	**Scrutiny Committee for Economy, Transport and Environment**
Date:	**19 September 2013**
Report By:	**Director of Economy, Transport and Environment**
Title of Report:	**Update on Street Lighting Changes Across the County**
Purpose of Report:	**To update Scrutiny of the street lighting changes that have been introduced across the County, the energy savings that have been achieved and the impact of the changes on community safety.**

RECOMMENDATION: The Scrutiny Committee is recommended to consider the street lighting changes and note the progress that has been made to date.

1. Introduction

1.1 The County Council owns and maintains approximately 39,000 street lights, 2,150 illuminated bollards and 5,000 illuminated signs across the county. The quantity of equipment being maintained by the County Council is growing every year as new residential developments are built and improvement and safety schemes are implemented that require maintenance and consume additional electricity.

1.2 This ever increasing demand for electricity and the recent budget savings, coupled with advancements in LED lighting technology, have meant that we have revised the Council's Street Lighting Policy to allow more flexibility when providing street lighting. This has ensured that we are able to provide lighting when and where it is of most benefit and introduce further energy saving initiatives to reduce our electricity consumption and deliver year on year financial savings and carbon reductions.

1.3 Prior to the agreement of the revised Street Lighting Policy, an Equality Impact Assessment (EqIA) was undertaken to establish the impact of changes to the street lighting service. A copy of the EqIA is contained in Appendix 4.

1.4 In April 2012, following the completion of two successful part-night lighting pilots in Heathfield and Uckfield, Cabinet approved an Invest to Save project to introduce energy saving measures across the whole County with the exception of the urban centres of Eastbourne and Hastings. These savings were delivered by a combination of reduced lantern wattages, dimming and the wider rollout of part-night lighting (where street lights are switched off at 00:30am and back on at 5:30am.)

1.5 In April 2013 in the wake of new and affordable technologies, an LED lantern replacement project was approved for Eastbourne and Hastings which will see the majority of existing street lighting lanterns on residential streets replaced with low wattage, optically efficient LED lanterns.

1.6 Before these changes in policy, a number of smaller Invest to Save schemes had been funded through the SALIX energy reduction programme. Over the last five years we have reduced our electricity consumption by over 1.5M kW/hrs (£146,000/year saving at the current electricity supply rate).

1.7 The Government has set a target to reduce carbon emissions by 80% by 2050. Street lighting accounts for approximately 17% of the County's carbon emissions (approximately 8,200 tonnes in 2012). Our Corporate Climate Change Strategy requires 3% year on year carbon reductions, so changing the way we deliver the street lighting service will help the authority meet this target.

2. Financial Appraisal

2.1 Capital funding was provided in 2012/2013 and 2013/2014 for a Street Lighting Invest to Save project that would enable the implementation of energy saving changes to the street lighting service as detailed in the amended Street Lighting Policy. £900,000 was provided over the two financial years.

2.2 The changes through the Street lighting Invest to Save energy reduction project were predicted to deliver annual savings of £178,637 (at the 2012/2013 electricity supply rate). Actual annual savings of £190,556 have been achieved. The project has therefore delivered 6.5% more electricity savings than originally predicted.

2.3 The electricity supply rate increased by approximately 11% from April 2013 so the annual savings have increased to £211,517.

2.4 Capital funding has also been provided in 2013/2014 for the replacement of the large majority of the residential street lighting in Eastbourne with LED lanterns (now that cost of this new technology has become affordable). Funding is also going to be provided in 2014/2015 to enable a similar project to be completed in Hastings. When completed, these LED projects will deliver combined annual street lighting electricity savings of approximately £280,000 which is a 23% reduction on our current electricity bill.

2.5 Additional maintenance savings of £184,000 between 1 July 2013 and 31 August 2015 have been identified and agreed with our General Maintenance Contractor, Colas Ltd. See appendix 1 for a summary of annual electricity costs and savings.

3. Supporting Information

3.1 Attached are:

Appendix 1:
- Summary of electricity cost savings
- Commentary on invest to save / stakeholder engagement / impacts of policy
- Environmental issues
- Community safety issues

Appendix 2: The current street lighting policy agreed by the Lead Cabinet Member for Transport and Environment in February 2012

Appendix 3: Details of the financial savings and carbon reductions from the Street Lighting Invest to Save project

Appendix 4: Predicted electricity and maintenance savings from the LED lantern replacement projects

Appendix 5: The Equality Impact Assessment summary.

4. Conclusion and Reason for Recommendation

4.1 The changes to the street lighting have been and will continue to be rolled-out in accordance with current street lighting policy using the same criteria across the entire County. The County Council has undertaken and will continue to undertake reviews of comments and issues three months after street lighting changes have been completed and in consultation with the Police.

4.2 The Scrutiny Committee is recommended to consider and note the contents of this report.

RUPERT CLUBB
Director of Economy, Transport and Environment

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Local Member: All

BACKGROUND DOCUMENTS
None

APPENDIX 1

1) Summary of Annual Electricity Costs and Savings (based on the 2012/2013 electricity supply rate)

Street Lighting Electricity Costs prior to Part–Night and LED Projects	Annual Electricity Savings from Part-Night Lighting project	Annual Electricity Savings from Eastbourne LED Project	Annual Electricity Savings from Hastings LED Project	Annual Contract Maintenance Savings Associated with the LED Lighting Projects	**Total annual savings associated with these projects**
£1,200,000	£190,500	£150,000	£130,000	£85,000	**£555,500**

2) Comments and appraisal: invest to save / stakeholder engagement / impacts of policy

2.1 A significant number of street lights have or will be changed in accordance with current policy through both the Invest to Save energy reduction project and the LED lantern replacement project.

2.2 As part of the initial Invest to Save project a communications plan was developed to ensure our proposals were communicated to local residents and that residents were given an opportunity to express their views. A similar approach has been adopted for the LED replacement project.

2.3 Public engagement events have been held for all of the larger towns and villages, and letter drops were carried out in some isolated streets where only limited ESCC lighting is provided. The engagement events were advertised in the local media, on posters distributed to local shops / libraries and via emails to local Councillors. Similar engagement events are being held in each ward as the LED replacement project progresses across Eastbourne (and Hastings in 2014/15).

2.4 The changes to the street lighting have generally been rolled out on an area by area basis throughout the Invest to Save energy reduction project so that local needs could be considered. The LED lantern replacement project is being undertaken on a similar basis and we are developing the re-lighting proposals in Eastbourne on a ward specific basis.

2.5 The County Council has and will continue to liaise with the Community Safety Team, Police, emergency services, parish, town and district/borough councils and stakeholders whilst developing proposals. The proposals have and will continue to be shared with the public at local engagement events and online.

2.6 All street lighting column replacements are now being designed using LED lanterns so further energy and Carbon savings will be realised. LED technology, that wasn't available or affordable when the part-night lighting was introduced across the county, will be introduced in those areas outside Eastbourne and Hastings as and when existing equipment needs replacing. However the part-night lighting may remain.

2.7 LED lanterns are also being installed on new columns when individual columns are replaced through maintenance.

2.8 The introduction of part-night lighting and LED lighting will offer significant long term financial savings through not only reduced electricity consumption but also a reduction in lamp replacement and maintenance visits. The reduction in maintenance requirements will also reduce the potential for disruption on the road network and the inconvenience to road users.

3) Environmental Issues

3.1 There are two main reasons to complete the changes to the street lighting. These are the financial savings from the reduction in electricity consumption and the associated reduction in carbon dioxide emissions. Overall the Invest to Save energy reduction project has reduced the street lighting carbon dioxide emissions by over 1,200 tonnes. When complete the LED lantern replacement project

will reduce our annual electricity bill by £280,000, reduce our Carbon emissions by further 1,700 tonnes and is essential if we are to achieve the £885,000 budget savings indicated in our financial plan and support the Corporate Climate Change Strategy.

3.2 Whilst undertaking the Invest to Save project, the County Council has replaced a large number of Sodium lanterns located on larger estate roads with modern lanterns fitted with a 'white' light source. These lanterns use a lower wattage lamp, provide improved colour rendering and reduce the amount of unwanted light spill. Several hundred lanterns have been replaced throughout the County thereby improving the lighting in numerous streets during the evening when most residents are active.

3.3 The rapid development of LED street lighting products now enables LED lanterns to be considered as a viable alternative to traditional light sources. The current products produce very little upward light spill and have good optical control that ensures that the majority of the emitted light is directed on to the carriageway and footway rather than be wasted as spill light. The 'sky glow' from Eastbourne and Hastings will be significantly reduced when the LED replacement projects have been completed.

4) Community Safety Issues

4.1 Before commencing any street lighting changes the County Council has consulted with our Community Safety Team, the Police and attended the Joint Action Group (JAG) meetings. The Police have generally been supportive of the proposals and we have made a number of amendments to the initial proposals following their comments.

4.2 In accordance with project procedures, post-implementation comments from the public have and are being collected to feed into three month reviews for each area. We have completed all of the reviews for the Invest to Save project with the exception of the Bexhill review which will be completed in October 2013. We have undertaken all of the reviews in conjunction with the Police and generally they have confirmed that they do not require the County Council to switch any of the street lighting back to all night operation. There has not been any increase in reported crime or anti-social behaviour that can be directly associated with the changes to the street lighting.

Street Lighting Policy PS10

2. ***To carry out design works generally as laid down in the current issue of the British Standard Code of Practice for the design of Road Lighting [BS 5489] and in accordance with a locally developed lighting strategy.***

3. ***Designs to be undertaken using equipment that has long term economic benefit. Designs should use a "white" light source (Colour Rendering Index >60) for all new schemes. LED solutions should be considered if appropriate.***

5. ***All streets and areas, with the exception of the limited number of streets agreed as part of the Public Realm scheme, will be provided with standard functional lighting equipment. The street lighting in the Public Realm identified pilot streets will be maintained at the current standard (no further deterioration or improvement). In conservation areas street lighting columns will be painted in the appropriate local colour.***

7. ***Street lighting shall be provided and operate in accordance with strategy below:***

Street lighting will be provided to operate as appropriate and will be installed in accordance with local requirements. In certain areas existing all-night street lighting installations may be subject to the following changes:

1. **Part-night Street Lighting** - Lights turned off from midnight to 0530 hrs in residential streets.

2. **Partial Street Lighting** – Alternate street lights left switched on between midnight and 0530 hrs on specific distributor routes/estate feeder roads.

3. **Dimmed –** Light output reduced on traffic routes when traffic flows are lighter.

4. **Permanently Switched Off** - A small number of lights in rural areas may be switched off.

Part-night street lighting

After carrying out a site assessment we will be installing part-night lighting controls in streets in residential areas (switching lights off between midnight and 5.30 am).

Once the changes in street lighting are introduced we will be monitoring all the sites in conjunction with the emergency services and parish/town councils. This is to ensure that the introduction of part night lighting does not have any unanticipated adverse impacts. This process will identify if any further changes need to be made to the lighting.

Partial Street Lighting

After carrying out site assessments on some of the more important local distributor roads or estate feeder roads we may decide that instead of converting all units to part-night lighting we will leave specific units switched on all night. These units will generally be located at conflict points such as junctions or crossings or if the current street lights are already widely spaced along the street.

Dimming of street lights

After carrying out a site assessment we will be dimming most of our brightest (higher wattage) lights on main traffic routes. It has been decided that dimming to 50% light output between 0000hrs and 0600hrs is generally the most appropriate although this may vary at some locations.

Dimming will only be carried out when traffic flows are low, when a lower level of lighting will have the least affect on road safety. Lights will generally not be dimmed in areas with above-average crime rates, at busy junctions or in town centres.

Street lighting switch-off

After carrying out a risk assessment, we may be switching off some lights completely in rural areas or in other locations where there are no houses fronting onto the roads. Only a small number of lights (about 1 - 2% of all the lights in the County) are expected to be affected. Once switched off, the lights will be kept in place for approximately 3 years whilst monitoring is carried out to ensure there are no adverse impacts as a result of the changes.

Appendix 3 Summary of Cost, Predicted and Achieved Electricity/Carbon Savings from Street Lighting Invest to Save Project

Area	No of ESCC Lighting Units	Estimated Cost (£)	Actual Cost (£)	Estimated Savings (£)	Achieved Financial Savings at 2012 supply rate(£)	Achieved Carbon Reduction (tonnes)
Heathfield	720	33168	35358.02	6034.81	7953.2418	48.85
Uckfield	1162	62969.5	84850.38	11124.19	11903.916	80.08
Crowborough	1468	75800.34	97288.92	13896.73	20385.89	125.22
Seaford	2381	122943.2	125100.11	22539.59	21787.16	138.43
Lewes	1882	97177.28	99754.64	17815.83	13072.49	84.59
Peacehaven & Telscombe	1977	102082.62	63922.46	18715.15	17891.91	109.93
Newhaven	1140	58864.03	66482.1	10791.74	8221.58	84.59
Hailsham	1378	71153.18	57169.48	13044.75	10337.65	63.51
Rye	422	21790.02	28016.92	3994.84	4095.18	25.16
Lewes Area	136	7022.38	0	1287.44	-276.18	-1.70
Rother Area	261	13476.76	4233.2	2470.74	280.92	1.73
Wealden Area	1090	56282.27	50647.04	10318.42	5004.16	30.75
Polegate	334	17246.13	14452.43	3161.79	4106.52	25.23
Willingdon	324	16729.78	15074.83	3067.13	2618.09	16.09
Bexhill	4265	220223.75	238883.9	40374.35	63174.11	395.81
Totals	**18940**	**976,929.24**	**981,234.43**	**178,637.51**	**190,556.63**	**1228.2704**

Appendix 4 - Eastbourne LED Lantern Replacement Project

	Predicted kW/hr unit rate at year 10	£0.14	Saving Year 1	£147,093.22
	Assumes 5% increase each year		Average annual electricity Saving (Year 10)	£239,599.36
LED Lighting Project - Summary			Total No of fittings in Eastbourne	9222
Assumes white light LED fittings throughout the town		Retained Fittings	140/90/60/45W Cosmo	1614
50% dimming of fitting between 2200 and 0500hrs in some roads			subway	27
50% dimming between 0000hrs and 0500hrs in some roads			LED	24
			Total Lanterns to change	7557
		Replacement Cost for remaining units	**Average cost £280**	**2,115,960.00**
		5% Contingency		**105,798.00**
			Payback Energy only (current)	15.10
			Payback Energy only (average)	9.27
		Lamp change	Assume 4 year frequency with 5 changes @ £20 - Annual Cost	37,785.00
		Maintenance Reduction	1 x Operative @£27k/year	27,000.00
		Night Patrol Reduction	0.5 x operative @ £27k/year	13,500.00
		"Carbon Tax" Reduction	Revised to "0"	0.00
		Payback energy/lamps (year 1 electricity rates)		12.02
		Payback energy/lamps/maintenance/carbon tax (year 1 electricity rates)		**9.86**
ESCC CO2 (2012 total)	8200 tonnes	Annual CO2 reduction	tonnes	902.81

11.01 % of current total

20 Year Prediction	**Existing**	**LED Proposal**
Total Cost of Lantern Replacements @£280 (assumes all will require replacement within 20 year period) with 5% contingency	£2,711,268.00	£2,711,268.00
Total Energy cost over 20 years (year 10 unit rate @ 5% annual increase)	£7,187,601.66	£4,791,987.15
Maintenance & Scouting over 20 years (year 10 costs @2% annual increase)	£987,385.48	£0.00
Lamp Changing over 20 years (year 10 costs @5% annual increase)	£2,631,144.23	£0.00
Carbon Tax Cost (assumed £0 tonne)	£0.00	£0.00
Total Cost over 20 years	£13,517,399.36	£7,503,255.15
	Saving	**£6,014,144.22**

Appendix 4b - Hastings LED Lantern Replacement Project

	Predicted unit cost at year 10	0.14	Saving Year 1	129,434.82
	Assumes 5% increase each year		Average annual electricity Saving (Year 10)	210,835.69
LED Lighting Project - Summary			Total No of fittings in Hastings	7845
Assumes white light LED fittings throughout the town		Retained Fittings	140/90/60/45 Cosmo	1246
50% dimming of fitting between 2200 and 0500hrs in some roads			subway	39
50% dimming between 0000hrs and 0500hrs in some roads			LED	43
			Total Lanterns to change	6517
		Replacement Cost for remaining units	**Average cost £280**	**1,824,760.00**
		5% Contingency		**91,238.00**
			Payback Energy only (current)	14.80
			Payback Energy only (average)	9.09
		Lamp change	Assume 4 year frequency with 5 changes @ £20 - Annual Cost	32,585.00
		Maintenance Reduction	1 x Operative @£27k/year	27,000.00
		Night Patrol Reduction	0.5 x operative @ £27k/year	13,500.00
		"Carbon Tax" Reduction	Revised to zero	0.00
		Payback energy/lamps (year 1 electricity rates)		11.83
		Payback energy/lamps/maintenance/carbon tax (year 1 electricity rates)		**9.46**
ESCC CO2 (2012 total)	8200 tonnes	Annual CO2 reduction	tonnes	794.43

9.69 % of current total

20 Year Prediction	**Existing**	**LED Proposal**
Total Cost of Lantern Replacements @£280 (assumes all will require replacement within 20 year period) with 5% contingency	2,306,430.00	2,306,430.00
Total Energy cost over 20 years (year 10 unit rate @ 5% annual increase)	6,132,052.38	4,216,713.78
Maintenance & Scouting(year 10 costs @2% annual increase)	987,385.48	0.00
Lamp Changing (year 10 costs @5% annual increase)	1,277,867.83	0.00
Carbon Tax Cost (assumed £0 tonne)	0	0.00
Total Cost over 20 years	10,703,735.69	6,523,143.78
	Saving	**4,180,591.92**

Appendix 5 Street Lighting Equality Impact Assessment Summary

Strategy or policy, project or service, that was impact assessed:

Street Lighting Policy Amendments in East Sussex

Date of assessment: Original assessment May 2011, updated May 2012

Manager(s) name: Simon Hall

Role: Team Manager, Street Lighting & Traffic Signals

Summary of findings:

The proposal is to amend the Street Lighting Policy, in order to reduce energy consumption and carbon emissions, and to make financial savings. This will be achieved by a combination of approaches; part-night lighting, partial street lighting, dimming and permanently switching off.

We considered the following impacts on groups with protected characteristics:

Characteristic	Impact
Age	Young people – road safety, community safety Older people – community safety, accessibility, falls
Disability	Community safety and accessibility
Ethnicity	Community safety
Gender/transgender	Community safety
Marital status/civil partnership	Characteristic not relevant to the proposal
Pregnancy/maternity	Characteristic not relevant to the proposal
Religion/belief	Community safety
Sexual orientation	Community safety
Other	Rurality – community safety, road safety, accessibility. Literacy/numeracy, part time workers and carers – characteristics not relevant to the proposal

Community safety concerns affect a number of groups. It is difficult to determine how the proposal directly affects the occurrence of crime, but may increase fear of crime depending on the local circumstances. Known crime hotspots are excluded from the programme and we are maintaining a dialogue with the Police, Community Safety Teams and local partners to monitor this issue.

There is potentially a negative impact on road safety but this can be mitigated by implementing the changes in a way sensitive to the local road network. Site assessments on some of the more important local distributor roads, estate feeder roads, busy junctions and crossings will manage the risk and inform which option of street lighting to apply.

Impacts on accessibility are likely to be minimal as the majority of changes will affect street lighting after 0030 hours when fewer people are around, although young people returning from pubs may be affected.

Impacts will be monitored through dialogue with the local community and stakeholders, monitoring of crime and road accident trends and complaints from the public.

The Equality Impact Assessment concludes that the proposals are reasonable, but accepts that local factors may influence the impacts in specific areas when rolled out across the county. Public consultation and further consideration of the specific area's characteristics and scheme design will take place to manage these issues at a local level. This will enable the county-wide policy to be tailored to each location. Reports detailing local considerations can be found in the Appendices accompanying this report.