

## Energy efficient street lighting

### Fact and figures

Street lighting typically makes up 12% to 15% of a Local Authority's energy budget, and lighting accounts for 15% of global electricity consumption.

#### Simple Facts

- New luminaires will be close to 100% recyclable and won't contain the hazardous substances (Sodium and Mercury) that existing lamps do.
- Light output will be more controlled, and concentrated on the roads and footways.
- The orange sky glow that is seen on cloudy nights will almost disappear. (Some private lighting may remain).
- Surrounding areas, away from direct light will be returned to its natural state benefiting nocturnal animals.
- Energy use will reduce significantly (around 60%) with a resultant saving in revenue costs. The energy bill for Edinburgh's Street Lighting alone is currently over £3m.
- The resultant carbon reduction will contribute to the city's and the country's targets.
- Fewer consumable items resulting in less waste.
- The chance to see more stars from your gardens.
- The 'white' light will make CCTV more usable.
- The new lights and central management system (CMS) will enhance the night environment for Edinburgh.
- Due to the long life of the LED luminaire, it's possible that a new born will leave home having never seen the Council work on the light.
- LED street lights don't like high temperatures, making Scotland the ideal country to use them. (The cooler the temperature the better the light works).

#### Comparing our existing lights with the new ones

	<b>Low Pressure Sodium (SOX)</b>	<b>High-Pressure Sodium (SON)</b>	<b>White LED</b>
Materials	Sodium which needs careful handling.	Sodium and may contain mercury and xenon.	100% recyclable
Number of lights in use	10,000	33,000	9,000
When developed/used	1930s and 1970s	1960s and 1990s	2010
Type of light	Orange glow	White light, but hard to see colours.	We have chosen a neutral white light based on trials.
Light spill	Hard to direct due to a large lamp, 30% light is lost.	Easier to direct with a smaller lamp, 10% light is lost.	Easy to control due to LED chip, no light spill.
Energy efficiency	The lamps are more efficient but the controls are not. The lights take 15 minutes to warm up, A 35watt lantern uses 58-65 watts.	The lamps are less efficient than the SOX, but the controls are more efficient. A 70watt lantern uses 90 watts.	Significantly more efficient using 60% less energy.
Strength of light of most commonly used lantern in residential areas	35watt emits 4,600 lumens.	70watt emits 6,600 lumens.	27watts emits 4,200 lumens.

Lamp lifespan	16,000 hours/four years.	20,000 hours/five years.	100,000 hours/25 years.
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### *Lights being used now*

There are 63,765 street lights in Edinburgh

- 9,725 are already energy efficient
- 1,104 are heritage lights
- 3,379 are in conservation areas

### *Replacement lantern styles*

- Side entry – 42,881 (includes post mount)
- Top entry – 343
- Post top – 6,398
- Heritage – 1,104
- Wall mounted – 3,314

### *Energy Consumption*

- 2012/13 = 30,876,149 kWh
  - 2016/17 = 27,302,580 kWh
- Reduction of 12% in 4 years

### *Carbon Emission Factor*

- 2012/13 = 0.54100 kg/kWh
  - 2016/17 = 0.44662 Kg/kWh
- Reduction of 21% in 4 years (includes factors outside control of City of Edinburgh Council)

### *Carbon Consumption*

- 2012/13 = 16,704 Tonnes CO<sup>2</sup>
  - 2016/17 = 12,194 Tonnes CO<sup>2</sup>
- Reduction of 37% in 4 years (includes factors outside control of City of Edinburgh Council)

