

Modernising our street lighting

Many of Edinburgh's street lights are no longer made and can no longer be maintained. So, we are upgrading them to more energy efficient ones which are better for the environment and are cheaper to run. They also give off a clearer light and can improve safety.

We started in June 2018 and will finish in May 2021. It should take around 15 minutes to replace each lantern and since we aren't generally replacing the street lighting column we don't expect to cause any disruption to people.

We are also carrying out routine safety and electrical checks on street lighting at the same time and so we may need to do a small amount of extra work in some streets.

We are putting in a new street lighting control system at the same time which means we will be able to identify faulty lights quicker and without people needing to report them.

What changes will people see?

The light will look different. It is whiter and clearer than the more orange light people are used to, but is not a blue light. Based on our trials, we have chosen a neutral white light, like other Councils, which people compare to moonlight. We have limited the output, based on our trials and will make sure they are fitted correctly to reduce any glare.

There is also less light spill, meaning it lights up roads and pavements better, rather than escaping upwards or shining into people's homes or gardens.

The new LED lighting will not disrupt sleep patterns (circadian rhythm) as the level of street lighting is too low.

We will use other types of lights in heritage areas to fit in with the surroundings.

What are the benefits?

A safer light

The new lanterns can make our streets safer at night

- there is less glare and dazzle and light up a street more evenly
- it is easier to see colours, making it safer for people driving, walking and cycling
- the clearer light improves the quality of CCTV images.

Better for the environment

The new lanterns are much better for the environment as they

- typically use 60% less energy and so reduce the Council's carbon footprint
- light up immediately
- reduce light pollution and the orange sky glow will almost disappear
- create less light spillage and it is better directed onto roads and pavements, creating a better environment for birds and wildlife
- don't use ultraviolet light reducing the attraction of night time insects
- are nearly 100% recyclable
- don't contain any harmful substances like in the existing lamps
- are ideal for Scotland's climate as LEDs work better in cooler temperatures.

Cheaper to run

The new lanterns are cheaper to run and maintain

- they last up to five times longer than existing lanterns
- they shine for over 100,000 hours, 25 years
- we will avoid £54m of energy, maintenance and disposal costs over 20 years
- we currently spend over £3m every year on the street lighting energy bill.

Timetable

We are working in one ward at a time and we expect it to take between four and ten weeks in each ward, depending on the size of each ward and the number of lanterns to be replaced. Please be aware that dates may change.

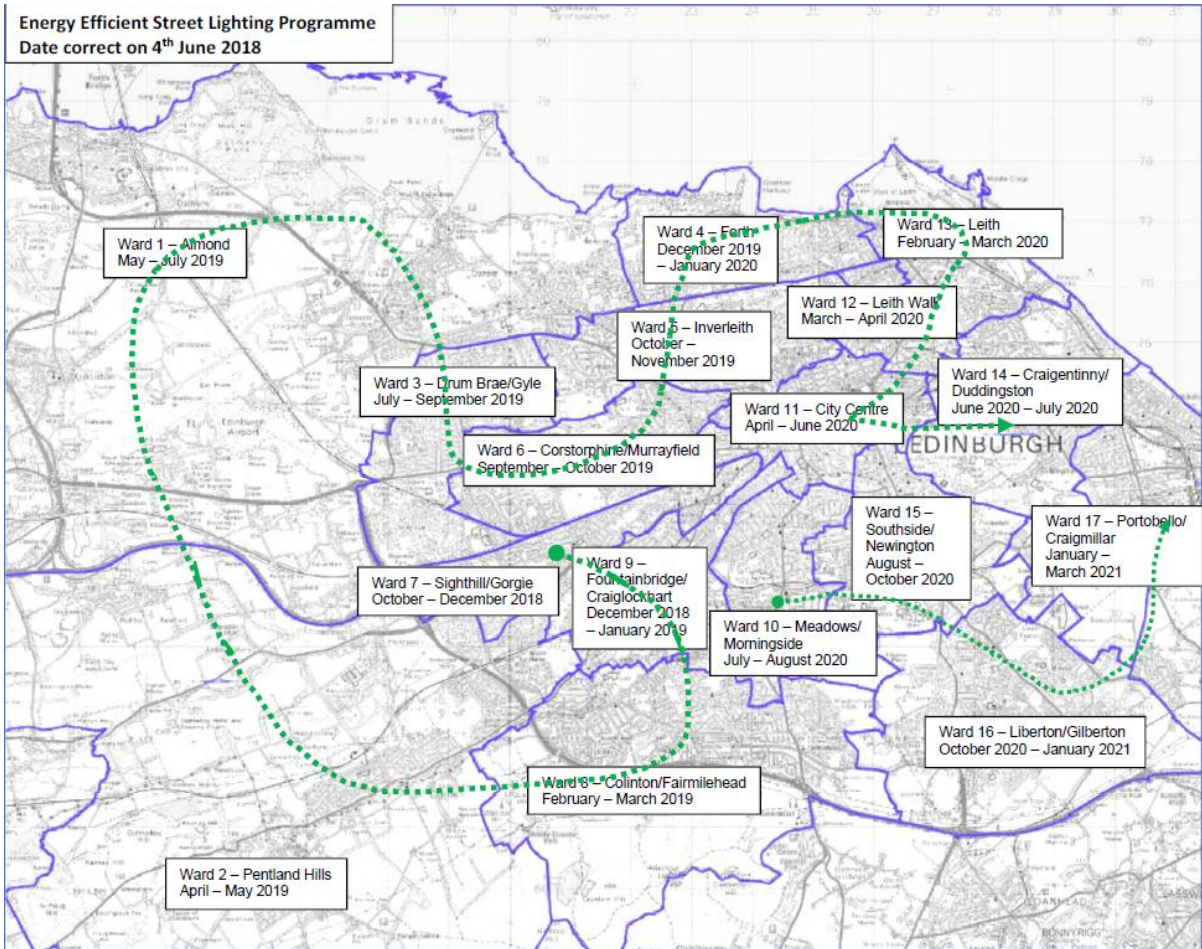
| Area | Start | Finish |
|---|----------------|----------------|
| Adding telecells to LEDs already fitted during pilot (Gilmerton and Saughton) and wider replacement programme | June 2018 | Oct 2018 |
| Sighthill/Gorgie | October 2018 | December 2018 |
| Fountainbridge/Craiglockhart | December 2018 | January 2019 |
| Colinton/Fairmilehead | February 2019 | March 2019 |
| Pentland Hills | April 2019 | May 2019 |
| Almond | May 2019 | July 2019 |
| Drum Brae/Gyle | July 2019 | September 2019 |
| Corstorphine/Murrayfield | September 2019 | October 2019 |
| Inverleith | October 2019 | November 2019 |
| Forth | December 2019 | January 2020 |
| Leith | February 2020 | March 2020 |
| Leith Walk | March 2020 | April 2020 |
| City Centre | April 2020 | June 2020 |
| Craigtinny/Duddingston | June 2020 | July 2020 |
| Meadows/Morningside | July 2020 | August 2020 |
| Southside/Newington | August 2020 | October 2020 |
| Liberton/Gilmerton | October 2020 | January 2021 |
| Portobello/Craigmillar | January 2021 | March 2021 |
| City-wide (streets which had restrictions or we couldn't access) | March 2021 | May 2021 |

EESLP – Contractor’s Programme for On-street Works

| ID | Energy Efficient Street Lighting Programme – On-street Works | Duration | 2018 | | | 2019 | | | | | | | | | | | | 2020 | | | | | 2021 | | | | | | | | | | |
|----|--|----------|--|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | | |
| 1 | Retrofit CMS Nodes – City-wide | 86d | [Blue bar spanning Jan 2018 to May 2021] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Ward 7 – Sighthill / Gorgie | 30d | [Blue bar: Oct 2018 - Nov 2018] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Ward 9 – Fountainbridge / Craiglockhart (1) | 33d | [Blue bar: Dec 2018 - Feb 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Embargo Areas – Wards 7 & 9 | 6d | [Blue bar: Jan 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Ward 8 – Colinton / Fairmilehead | 39d | [Blue bar: Feb 2019 - Apr 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Ward 2 – Pentland Hills | 30d | [Blue bar: Apr 2019 - May 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Ward 1 – Almond | 47d | [Blue bar: May 2019 - Jul 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Ward 3 – Drum Brae / Gyle | 36d | [Blue bar: Jun 2019 - Aug 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Ward 6 – Corstorphine / Murrayfield | 37d | [Blue bar: Sep 2019 - Nov 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Ward 5 – Inverleith | 25d | [Blue bar: Oct 2019 - Nov 2019] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Ward 4 – Forth (2) | 42d | [Blue bar: Dec 2019 - Feb 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Embargo Areas – Wards 8, 2, 1, 3, 6 & 5 | 10d | [Blue bar: Feb 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Ward 13 – Leith | 23d | [Blue bar: Mar 2020 - Apr 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Ward 12 – Leith Walk | 23d | [Blue bar: Apr 2020 - May 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Ward 11 – City Centre (Nights) | 42d | [Blue bar: May 2020 - Jul 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Ward 14 – Craigtinny / Duddingston | 32d | [Blue bar: Jun 2020 - Aug 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Ward 10 – Meadows / Morningside | 25d | [Blue bar: Jul 2020 - Aug 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Ward 15 – Southside / Newington | 31d | [Blue bar: Aug 2020 - Oct 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Embargo Areas – Wards 4, 13, 12, 14, 10 & 15 | 10d | [Blue bar: Oct 2020] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Ward 16 – Liberton / Gilmerton (3) | 64d | [Blue bar: Nov 2020 - Feb 2021] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Ward 17 – Portobello / Craigmillar | 30d | [Blue bar: Jan 2021 - Feb 2021] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Embargo Areas – Wards 16 & 17 | 5d | [Blue bar: Feb 2021] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | Retrofit CMS Nodes – City-wide | 42d | [Blue bar: Mar 2021 - May 2021] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

- (1) – Duration for Ward 9 includes 10 days holiday period.
- (2) – Duration for Ward 4 includes 10 days holiday period.
- (3) – Duration for Ward 16 includes 10 days holiday period.



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

1. New luminaires will be close to 100% recyclable and won't contain the hazardous substances (Sodium and Mercury) that existing lamps do.
2. Light output will be more controlled, and concentrated on the roads and footways.
3. The orange sky glow that is seen on cloudy nights will almost disappear. (Some private lighting may remain).
4. Surrounding areas, away from direct light will be returned to its natural state benefiting nocturnal animals.
5. 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.
6. The resultant carbon reduction will contribute to the City's and the Country's targets.
7. Fewer consumable items resulting in less waste.
8. The chance to see more stars from your gardens.
9. The 'white' light will make CCTV more usable.
10. The new lights and CMS will enhance the night environment for Edinburgh.
11. 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.
12. 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

The two most popular lamps used in street lighting are low and high-pressure sodium lamps.

| | Low Pressure Sodium (SOX) | High-Pressure Sodium (SON) | White LED |
|--|--|--|---|
| 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 efficient but the controls are not. The lights take 15 minutes to warm up, A 35 watt lantern uses 58-65 watts. | The lamps are less efficient than the SOX, but the controls are more efficient. A 70 watt 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. |

Existing lights

63,765 street lights in Edinburgh

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

Energy Consumption

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

Carbon Emission Factor

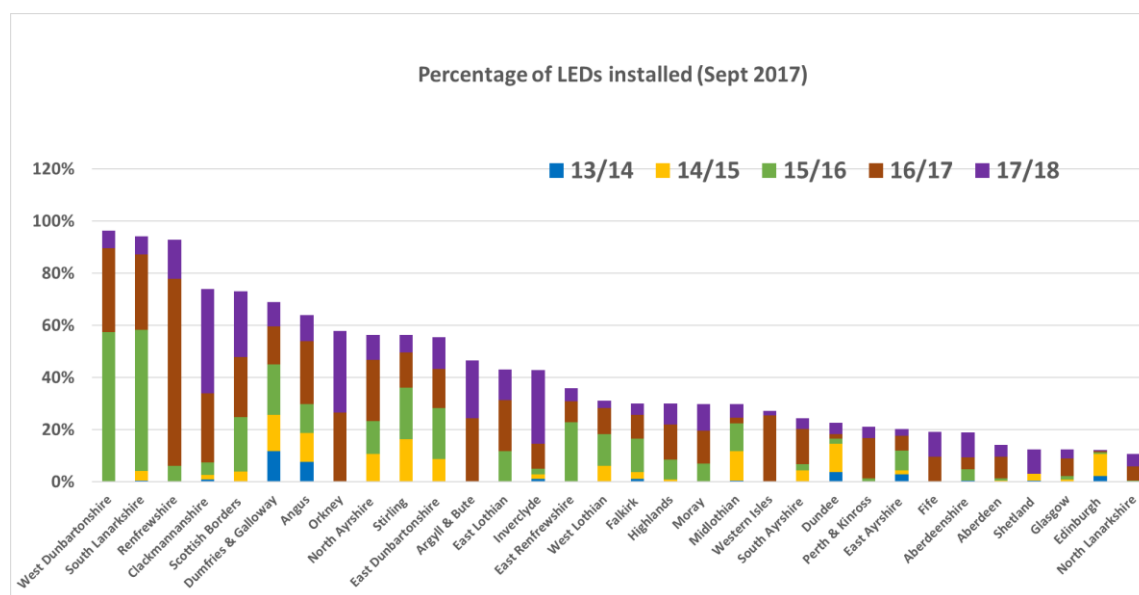
- 2012/13 = 0.54100 kg/kWh
 - 2016/17 = 0.44662 Kg/kWh
- Reduction of 21% in 4 years (Factors outside control of City of Edinburgh Council)

Carbon Consumption

- 2012/13 = 16,704 Tonnes CO²
 - 2016/17 = 12,194 Tonnes CO²
- Reduction of 37% in 4 years (Factors outside control of City of Edinburgh Council)

What are other Councils doing?

We have less energy efficient street lights than almost every other Council in Scotland, but this will change over the next three years.



Source: Scottish Futures Trust & SCOTS Group

- West Dunbartonshire Council have completed the conversion of their lanterns.
- Renfrewshire Council finished installing their energy efficient street Lighting in November 2017 and achieving energy saving over 60%.
- South Lanarkshire Council are close to completing their lantern conversions.
- Glasgow City Council are currently trialling new systems and lighting.
- Leicestershire County Council have already put in place the same Central Management System we will have in Edinburgh and are replacing their street lights with energy efficient ones.
- City of Cardiff Council use a different Central Management System but are also replacing their lights to energy efficient ones.