

## **Freshford Parish Council - Street Lights - Energy Saving Consultation**

Freshford Parish Council pays for the maintenance and electricity of 38 street lights in the village. The PC also pays for the maintenance of the street light in the school grounds but the school pays for the electricity used. Some lights in the village are the responsibility of BANES (5 lights on the footpath leaving the Galleries, adjacent to the stream) and CURO (10 lights on the footpath from the cemetery to the Galleries). The PC street lights are programmed to switch on from dusk to midnight and then switch back on from dawn to 5.30am.

The PC has upgraded lamps to LED but the remaining 30 are less energy efficient bulbs. The PC has been planning to change the rest of the lights to LED and with the current energy crisis the need to do this is now urgent to reduce costs to the parish and the risk of having to increase the parish precept. The Local Government Association has warned that councils are facing massive increases in costs due to spiralling inflation and the increase in energy costs. Luckily, the electricity contract for our street lights is currently on a fixed rate and does not change until July 2023. If the contract was due for renewal today, our electricity supplier has said that the new rate would be 4 times higher.

Other considerations, besides costs, to take into account are light pollution and reducing our carbon footprint, in line with our declaration of climate and ecological emergency.

Satellite data indicates that light pollution increased by 20% in Somerset between 1993 and 2000. The impacts of light pollution in addition to wasting energy include:

- Harming people's quality of life. For example, sleep disturbance when the light shines into homes
- Interference with our view of the night sky
- Impacts on the ecology and wildlife of an area, affecting the behavioural patterns of plants and animals

Other ways to reduce energy consumption would be to use solar powered lights or motion sensors. Both of these options have been investigated, but are not being followed up for the following reasons:

Solar panels: would need to be attached to every lantern. An estimate for this from one contractor was £1000/lantern. Also, because of the extra wind load produced by the solar panels every existing bracket and pole would have to be assessed for its strength and possibly replaced. Another aspect to these is that the solar panel, battery and its electronic control panel would have a life span and would need maintenance and replacing at some time. Some of our street lights are shaded from the sun and would not be suitable for solar power.

Motion sensors: Currently the electricity supply to the street lights is unmetered and an annual electricity use is calculated by an estimate of the number of hours the lights will be on. Motion sensor lights need a metered supply so that the actual time that a light is on can be metered and the bill charged accordingly. To have a motion sensor means that each light must have a metered supply. One contractor has estimated that this would cost £280/light and a one off cost of £5,000 for the ground works. This would be an additional cost to changing the bulb to LED. There are also issues in getting the sensor distance set correctly for pedestrians and how long the light remains on.

Four possible scenarios:

1. Do nothing
2. Upgrading the remaining 30 non LED lights to LED
3. Upgrading some of the lights to LED and switching off the rest - see attached maps
4. Switch off all the lights. There is a cost involved in switching off the lights

The figures below show the costs involved in upgrading to LED and also where applicable the cost to remove street lanterns if the light is switched off. Row a) shows the costs using the current rate for electricity and row b) shows the costs using the rate that would be applicable if the contract was renewed today. Of course by next July the rates could be even higher.

| OPTIONS:  | annual costs     |             | one off costs  |                            | savings        |   |                |               |
|---|------------------|-------------|----------------|----------------------------|----------------|---|----------------|---------------|
|   | £                | £           | £              | £                          | %              | Kg  | £              | years         |
|   | electricity bill | maintenance | upgrade to LED | lighting furniture removal | carbon savings | Kg CO2 saved at conversion rate 0.233/kWh | annual savings | pay back time |
| <b>1)do nothing</b>                               |                  |             |                |                            |                |   |                |               |
| a)at current billed rate/unit                     | 1261.00          | 1134.00     | 0.00           | 0.00                       | 0.00%          | 0   | 0              | 0             |
| b)at new contract rate                            | 5044.00          | 1134.00     | 0.00           | 0.00                       | 0.00%          | 0   | 0              | 0             |
| <b>2)upgrade 30 lights to LED</b>                 |                  |             |                |                            |                |   |                |               |
| a)at current billed rate/unit                     | 447.82           | 1140.00     | 15,323.50      | 0.00                       | 64.50%         | 1020.26                                   | 807.18         | 19            |
| b)at new contract rate                            | 1791.28          | 1140.00     | 15,323.50      | 0.00                       | 64.50%         | 1020.26                                   | 3246.72        | 5             |
| <b>3)upgrade 22 lights to LED - switch off 16</b> |                  |             |                |                            |                |   |                |               |
| a)at current billed rate/unit                     | 193.65           | 480.00      | 7446.60        | 1934.56                    | 84.66%         | 1338.62                                   | 1721.35        | 5             |
| b)at new contract rate                            | 774.58           | 480.00      | 7446.60        | 1934.56                    | 0.00%          |   | 4923.42        | 2             |
| <b>4)switch off all lights</b>                    |                  |             |                |                            |                |   |                |               |
| a)at current billed rate/unit                     | 0                | 0           | 0              | 4594.58                    | 100%           | 1581.11                                   | 2395.00        | 2             |
| b)at new contract rate                            | 0                | 0           | 0              | 4594.58                    | 100%           | 1581.11                                   | 6178.00        | 1             |

[Energy Saving Trust](#)

[The Carbon Trust](#)

[International Dark Sky Association](#)

[British Astronomical Association](#)

[Bats and Lighting Research Project](#)

[Butterfly Conservation](#)

[The Royal Commission on Environmental Pollution – Artificial Light in the Environment](#)

[Campaign for the Protection of Rural England Dark Skies](#)