



association for public service excellence

Trend Analysis 2021/22

Street Lighting



Briefing 23/06

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Trend Analysis 2021/22

Local authority street lighting services

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About APSE

The Association for Public Service Excellence (APSE) is a not-for-profit local government body working with over 300 councils throughout the UK.

Promoting excellence in public services, APSE is the foremost specialist in local authority frontline services and operates one of the UK's largest research programmes in local government policy and frontline service delivery matters.

Results at a glance

Cost

The total yearly energy cost to maintain a street light/illuminated sign **£30.23**

The average cost for maintaining a single street light **£61.60**

Productivity

Percentage of lamps restored to working condition within 7 working days **76.95%**

Average number of days taken to restore a lamp to working order **10.93 days**

LED Rollout

Percentage of street lights that are LED **82.28%**

Kg of CO2 per head of population from streetlighting **6.45 Kg**

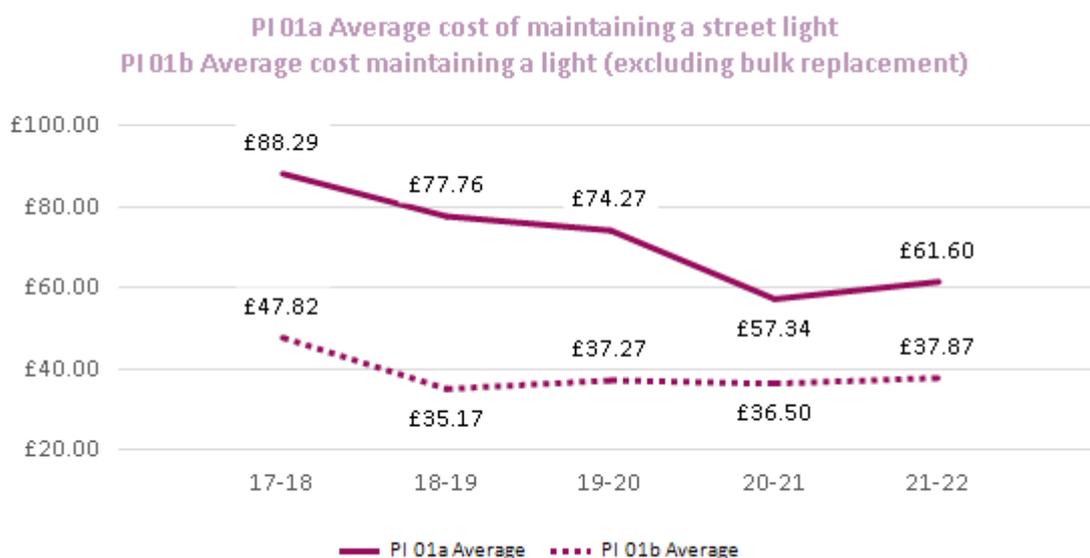
Average annual electricity consumption per light **194.44 Kwh**

1 Overview

The APSE performance networks performance indicators for street lighting cover the cost, productivity and quality elements of the service. This analysis aims to provide participating authorities with an overview of service trends, what this infers and what further activity and analysis individual authorities and the APSE roads/highways, winter maintenance and street lighting benchmarking group could consider. The analysis in this summary is based on averages across all family groups. Data is collected at year end (21/22) to provide a reflective analysis, and relies upon data submitted by local authorities to the service. The data is then triangulated through discussion groups at the APSE Performance Networks seminar held in December each year.

2 Cost Measures

In 2021/22, the average cost for maintaining a single street light (PI 01a) was £61.60. The average figure for investment in street lighting infrastructure was £58.21 per light. We have witnessed a 30% reduction on average maintenance cost since a high in 2017-18 and similar in investment. The long-term benefits of investing in LED lighting infrastructure with its vastly improved reliability are clearly showing in what is a continuing downward trend on maintenance costs.



PI01c Total investment in infrastructure per street light (using capital and revenue spend)



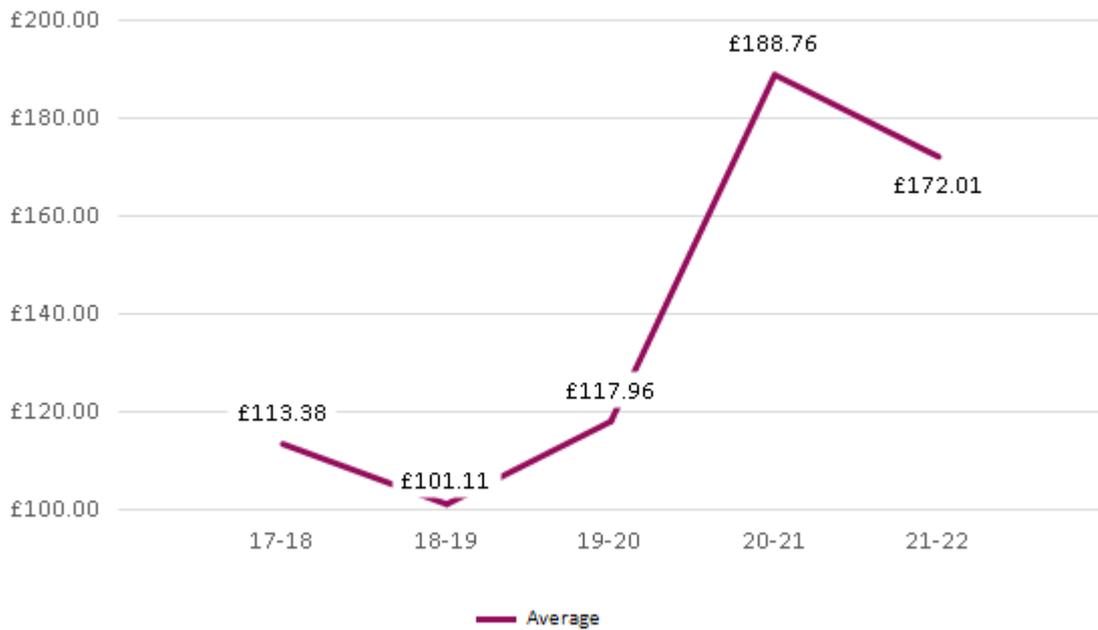
The total energy cost (PI 06b) was £30.23 to maintain a street light/illuminated sign. This is a trend decline and 12% lower over the 5-year period. However, it also highlights that the change to LED lighting has seen electricity supply prices rise and this decrease should have been substantially higher. Many report that although usage has decreased electricity companies increased their utility costs elements on billing to recover their revenue.

The average cost per routine repair (PI 33) was £172.01 This 52% rise over 5 years would normally flag a warning, however it's purely the vastly reduced number of repairs whilst the service has to maintain a base level of technicians etc.

PI 06b Energy cost per street lamp and illuminated sign



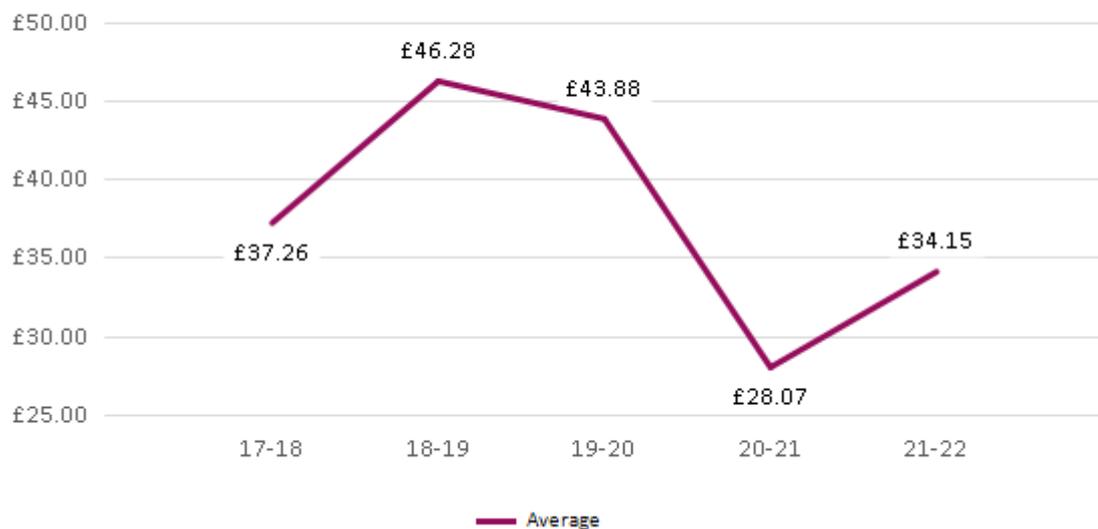
PI 33 Average cost per routine fault repair



3 Investment

The total investment in infrastructure per street light can be broken down into an average investment of £34.15 in capital expenditure (PI 43) and £26.75 in revenue expenditure (PI 42). The average investment in capital allocation is exhibiting a significant downward trend having fallen 26% over the past 3 years whilst the revenue investment has increased by 15% over the same period. This reflects the investment in LED lighting coming to an end as the older lighting stock is near 100% replaced and the concentration on revenue for future maintenance.

PI 43 Capital allocation per street light - replacement



PI 42 Revenue allocation per street light excluding electricity costs



4 Costs of inspection

With the advent of Central Management Systems (CMS), significantly fewer authorities use night inspections as they can monitor lights centrally. For those who continue, there has been a continued reduction to the annual cost, although there is a move upward in 2020-21 which may be related to Covid. The annual cost of night inspecting a street light (PI 34a), has fallen by 26% over the last 5-year period down to £0.50.

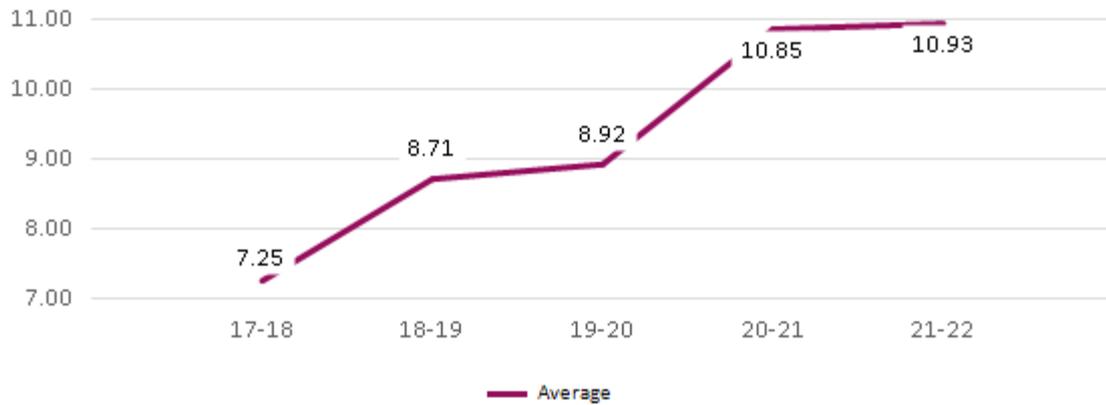
PI 34a Annual cost of night inspecting a street light



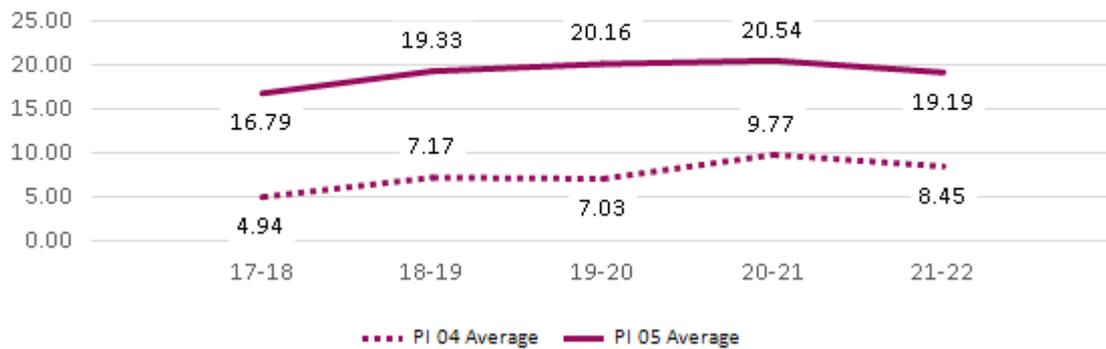
5 Productivity

This year, we have seen a further increase in the average number of days taken to restore a lamp to working order to 10.93 days. The first graph (PI 20) gives an overall picture of the data submitted this year and the second (PI 04 & PI 05) shows how this measure differed for those repaired by authorities and those repaired by electricity suppliers. After several years of deterioration, both measures have now stabilised although at a higher level than 5 years ago. This should be seen in the context of significantly fewer repairs but remains an area of concern.

PI 20 Average time to restore lamps to working order

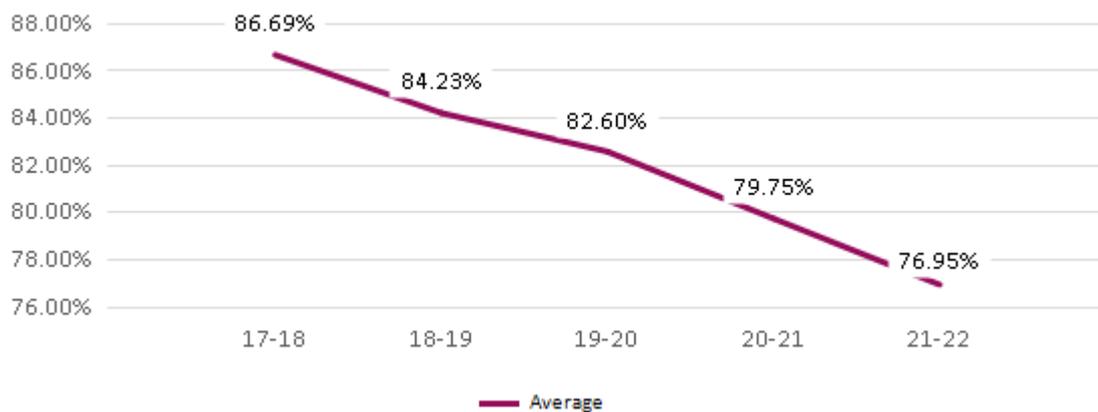


Average time to repair street lamps (days)
PI 04 - authority only
PI 05 - electricity supplier

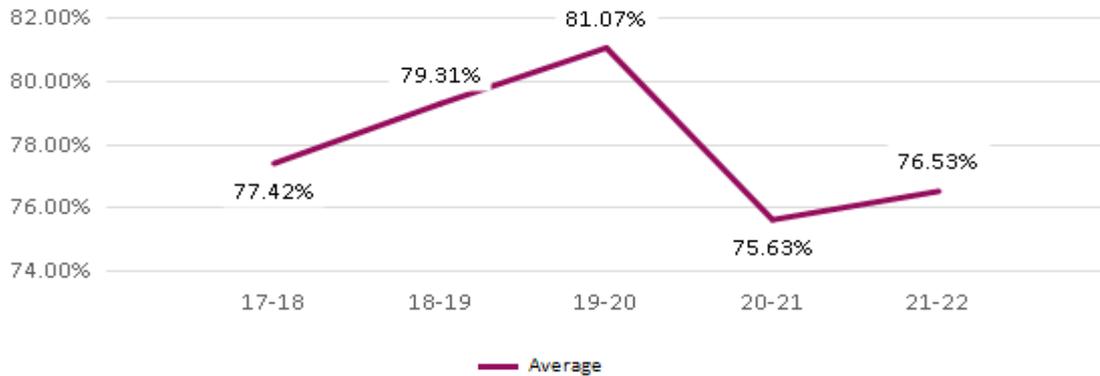


Alongside this, we have seen a reduced percentage of lamps restored to working condition within 7 working days and the percentage of faults repaired by the regional electricity supplier within the SLA/agreed timescale has marginally increased to 76.53% (PI 22).

PI 03 Percentage of lamps restored to working condition within 7 days



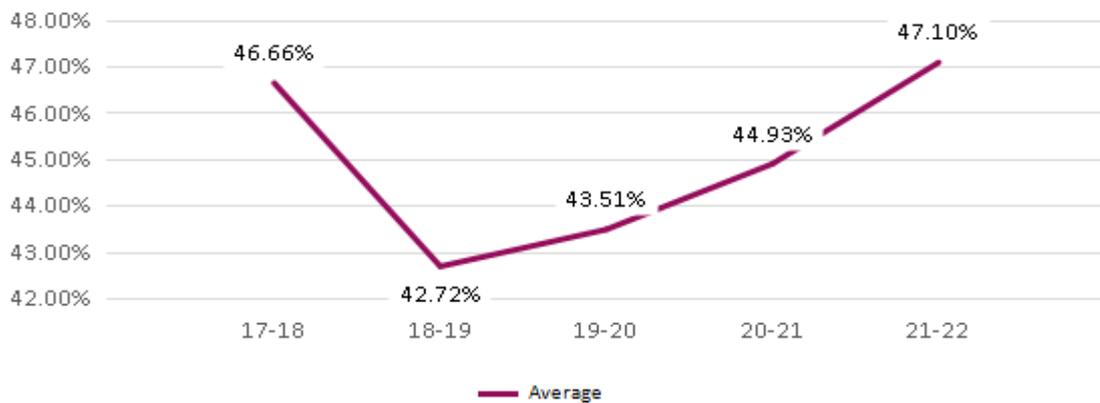
PI 22 Percentage of faults repaired by regional electricity supplier within SLA/agreed timescale



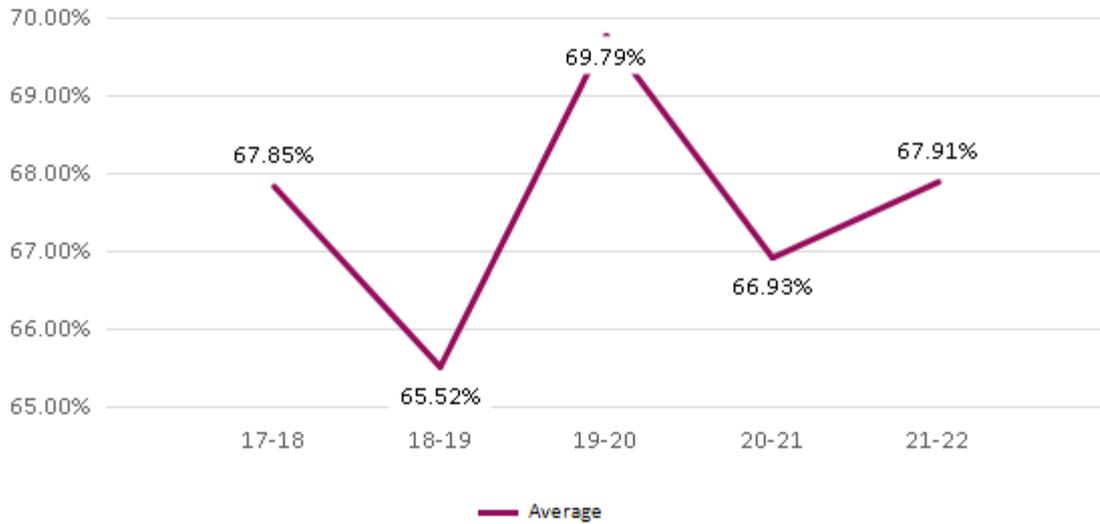
6 Quality

PI 39 “Percentage of columns with a valid structural test certificate” has again improved this year to 47.10 %. In parallel, PI 40 “Percentage of columns with a valid electrical test certificate” has also improved to 67.91%. Over the last 4 years there has been a slight improvement but both indicators are only at the same level as 5 years ago.

PI 39 Percentage of columns with a valid structural test certificate



PI 40 Percentage of street lights with a valid electrical test certificate

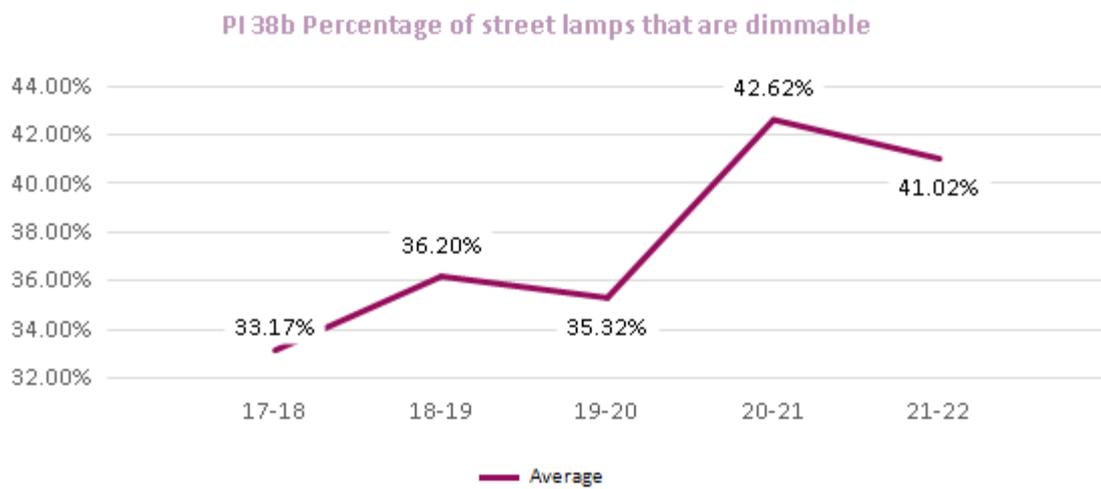
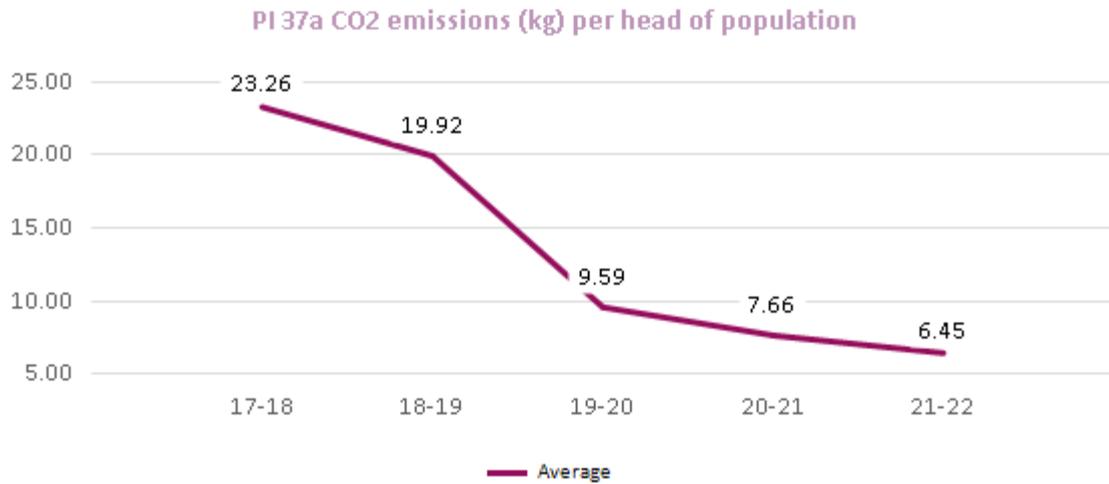


7 Environmental

Most Councils have adopted a target of net zero by 2030 or in some cases sooner. The indicators show that Councils have made a good start with street lighting. Whilst energy cost per street lamp (PI 06a) has flatlined at £32.48, CO2 emissions per head (PI37a) have fallen by 71% to 6.45kg. Had electricity remained around the same price, one would have expected a similar fall in cost. Price rises in 2022-23 are likely to be vast due to global energy cost increases.

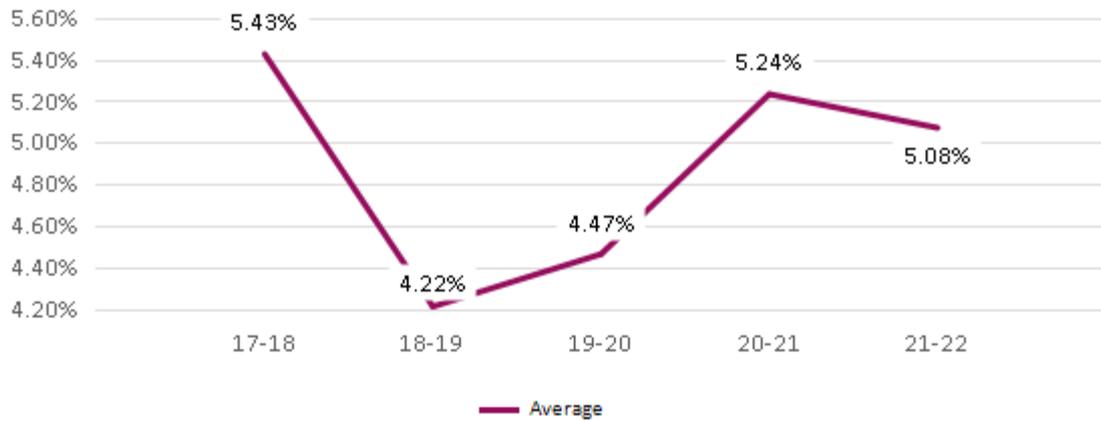
PI 06a Energy cost per street lamp only



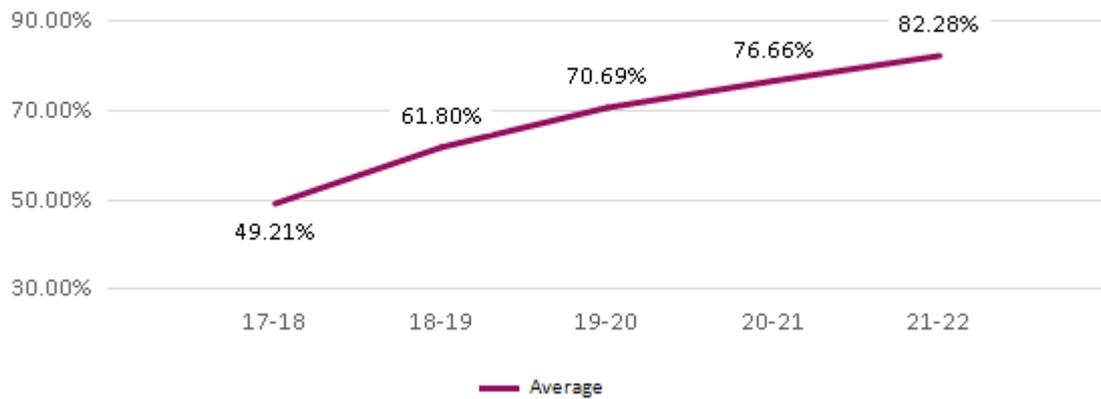


LED lights allow for significantly more control and 82.28% of street lights are now LED (PI 44) allowing 41.02% (PI 38b), to be dimmable. This allows to reduce energy consumption even further during the early morning. Similarly, 5.08% are part lit (PI 38c), often off between midnight and 5am.

PI 38c Percentage of street lamps that are part night lighting

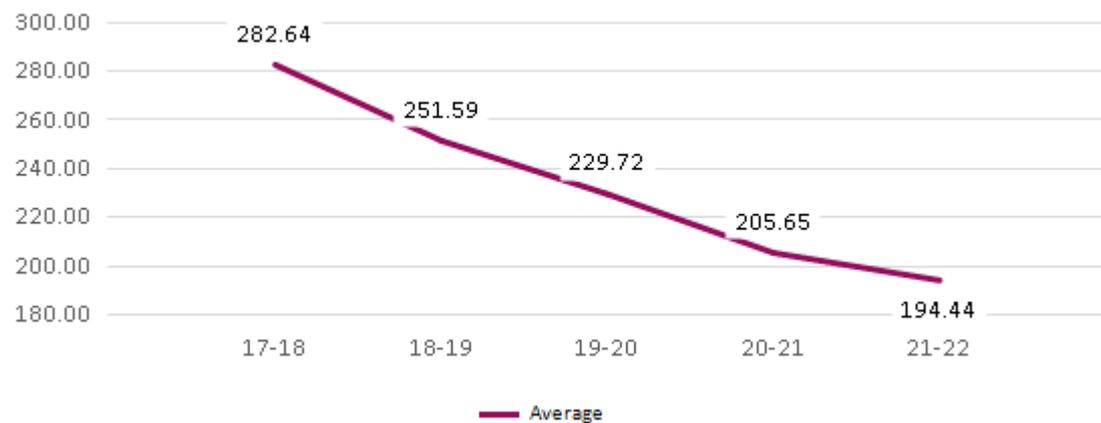


PI 44 Percentage of street lamps that are LED



The steady replacement of traditional lights by LED has continued with the average annual electricity consumption per light (PI 18b) falling by 32% over the last 5 years to 194.44 KWh. One might expect this to level off in future years but currently the trend remains downward.

PI 18b Average annual electricity consumption per light (KWH)



8 APSE Comment

This briefing paper details the performance of Street Lighting for the year ending March 2022, though data is submitted at intermittent points throughout the year and tested with the Highways and Street Lighting group at the APSE Performance Networks working seminar in December each year. It predates the war in Ukraine and the global surge in energy prices. After what had been a relatively stable environment as councils switched to the more efficient and longer lasting LED lighting, 2022-23 is likely to be financially appalling. Initial support under the Government energy support scheme is scheduled to end for street lighting services in April 2023. This will further exacerbate the financial challenges for the sector.

Most authorities took the reduction in maintenance for LED as an opportunity to reduce the numbers of staff. The basic graphs suggest a deterioration in the response times to lamp failures, but this has to be seen in the context of substantially fewer failures

LED lighting is here to stay and future changes will likely emphasise increased control including smarter dimming regimes and roll out of CMS systems.

Rob Bailey
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www.apse.org.uk

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