CONSULTATION REPORT

Western Power: Public Lighting Strategy Local Government Consultation

PROJECT: Public Lighting Strategy

CLIENT: Western Power

DATE: June 2024

VERSION: 2.0

When will you have your next Aha moment?

Aha! CONSULTING

Contents

1 Introduction

Western Power operates and maintains around 280,000 streetlights on behalf of 112 Local Government Authorities (LGAs) across the South West Interconnected System which stretches from Kalbarri to Kalgoorlie and south to Albany. The Public Lighting Strategy (PLS) outlines how these public lighting assets are managed.

Western Power is required to review the strategy annually, which includes consulting with local governments, to ensure the PLS is fit-for-purpose and aligned to local government objectives. The next iteration of the PLS is due to be completed by end June 2024; as such, Western Power engaged with the impacted local governments to inform the strategy from March to May 2024.

Consultation was undertaken in two parts:

1. Online survey
2. Workshops and 1:1 interviews

The survey was conducted from 19 March to 5 April 2024. Overall, 47 LGAs provided responses.

Following the survey, three workshops (attended by 15 individuals) and 11 interviews were conducted between 20 and 31 May 2024, with LGAs who opted-in for more in-depth engagement.

This report provides the aggregated outcomes of all consultation methods.

The full reports on the survey, workshops and interviews are provided at Appendix 1 and Appendix 2. A full list of participating local governments is provided at Appendix 3.

2 Engagement Methodology

In order to provide the opportunity for all LGAs within the South West Interconnected System (SWIS) to take part, the consultation was primarily conducted online, with the option of an in-person workshop. This was conducted in two phases:

1. Online Survey
2. Workshops and 1:1 interviews

Local Government CEOs were contacted by Western Power in mid-March to inform them of the review of the Public Lighting Strategy and promoting the opportunity to get involved. Following this, an invitation to complete the survey was sent to CEOs via email on 19 March.

To encourage participation, on 2 April a further email was sent to CEOs of local governments who had not yet responded.

Within the survey, respondents were asked if they would like to participate in further consultation, either via workshop or a one-on-one interview (conducted online via Zoom). The resulting workshops and interviews were conducted in May:

- In-person workshop – Monday 20 May, 9am
- Online workshop – Monday 20 May, 1.30pm
- Interviews – Tuesday 21 – Thursday 30 May (various times)
- Additional workshop – Friday 31 May, 12.30pm (This was an additional online session, scheduled to accommodate some participants who had missed the opportunity to attend the earlier sessions).[1]

Purpose

The purpose of the survey was two-fold – to understand local governments' strategic objectives for their public lighting; and to understand the level of support for the proposed proactive transition to LED luminaires across the SWIS.

The second phase of consultation provided an opportunity for Western Power to gain deeper insight from local governments in relation to three key elements of the strategy and the proposed transition to LED:

- Options for addressing reactive fault management (and potential to change from business as usual, to LED replacements),
- Feedback on the proposed prioritisation and roll out of the proactive transition to LED luminaires across the SWIS,
- Feedback and understanding of priorities for other lighting considerations, such as smart lighting, dark sky/astro tourism, and how to address glare and glare shields.

[1] Two additional submissions were provided by email and over the phone, following two participants' inability to attend the additional workshop session. This feedback was included in the workshop data.

2.1 Participation

A total of 52 local governments participated in the consultation. Most local governments participated in the survey and a workshop or interview; 5 local governments contributed to the second phase of engagement only, without completing the survey.

Engagement method – Phase 1	Participation (# local governments)
Survey	47
Engagement method – Phase 2	
In-person workshop	3
Online workshops	11
One-on-One interviews	11
Email/phone submissions	2

- Of the participants, 25 (48%) were metropolitan and 27 (52%) were regional local governments.
- Participants represented 87% of Western Power's streetlight fleet in the SWIS. The complete list of participating local governments is available in Appendix 3.

3 Consultation findings

The sections below detail the outcomes from all consultation methods. The feedback has been considered collectively, where appropriate, and reported under key themes. Data collected from the individual consultation methods are included in Appendix 1 (Online Survey Results) and Appendix 2 (Workshop and Interview Input).

3.1 Local Government Objectives

Overall, the local governments who participated in the consultation process expressed a positive sentiment towards the Public Lighting Strategy. Several key themes emerged when exploring local governments' strategic objectives for their public lighting, with many noting the transition to LED technology is a key priority for their area. Participants expressed that this transition would benefit the community and support the local governments' strategic objectives by:

- Reducing costs - through having lights that are more efficient, more reliable and have greater longevity,
- Improving sustainability - through reducing energy consumption and carbon emissions,
- Improving safety – through more reliable lighting, with improved light quality and visibility on roads and public spaces.

Upgrading the technology will also support some local governments' objectives by enabling the streetlight network to become smart lighting compatible and being more conducive to supporting dark-sky initiatives and being more wildlife friendly, by reducing light spill.

In the survey, participants identified several barriers to meeting their public lighting objectives, including the significant costs associated with their light consumption, the cost of transitioning to LED technology and challenges when dealing with Western Power, namely poor transparency and communication around costs and the tariff system, timeframes for works, and delays experienced with projects being undertaken.

Many local governments suggested these could be addressed by improving engagement with local government stakeholders and improving communication, transparency and customer service to the sector. Cost barriers could be addressed by providing financial support, reducing costs, and improving maintenance of lighting assets.

A small number of participants indicated a desire to transfer ownership of their streetlight assets – either to the local government, or vice versa.

3.2 Proactive transition to LED luminaires

There was strong support for the proposed approach to transition the streetlight fleet to LED technology (94% of survey respondents), with many local governments having started planning or already commenced the transition themselves, focusing on streetlights that are local government owned.

While survey participants expressed strong support for the proactive transition to LED luminaires, they also expressed the need for more information regarding the costs, timelines, sequencing and the need for further consultation with local government stakeholders during the rollout.

The second phase of consultation provided stakeholders with more of the information they were seeking, and sought their feedback on the proposed approach, and possible mechanisms to improve transition timelines for local governments. Western Power outlined the proposed approach, determined following the assessment of various options. The key features and assumptions of this approach include:

- 10-year transition to full LED luminaires (this option provides the lowest lifecycle cost)
- Assumes standard LED luminaire replacement
- Prioritisation done on suburb-by-suburb basis based on oldest average age of the streetlights in each suburb
    - Western Power ignores suburbs being listed for undergrounding in the prioritisation process.
- Assessment of requirement would need to be made for locations where there are projects programmed for underground power or network projects and where the streetlights are proposed to be replaced
- No lighting redesign or pole replacement/ movement.
- Western Power is attempting to ensure there is no cost of the transition to the local governments

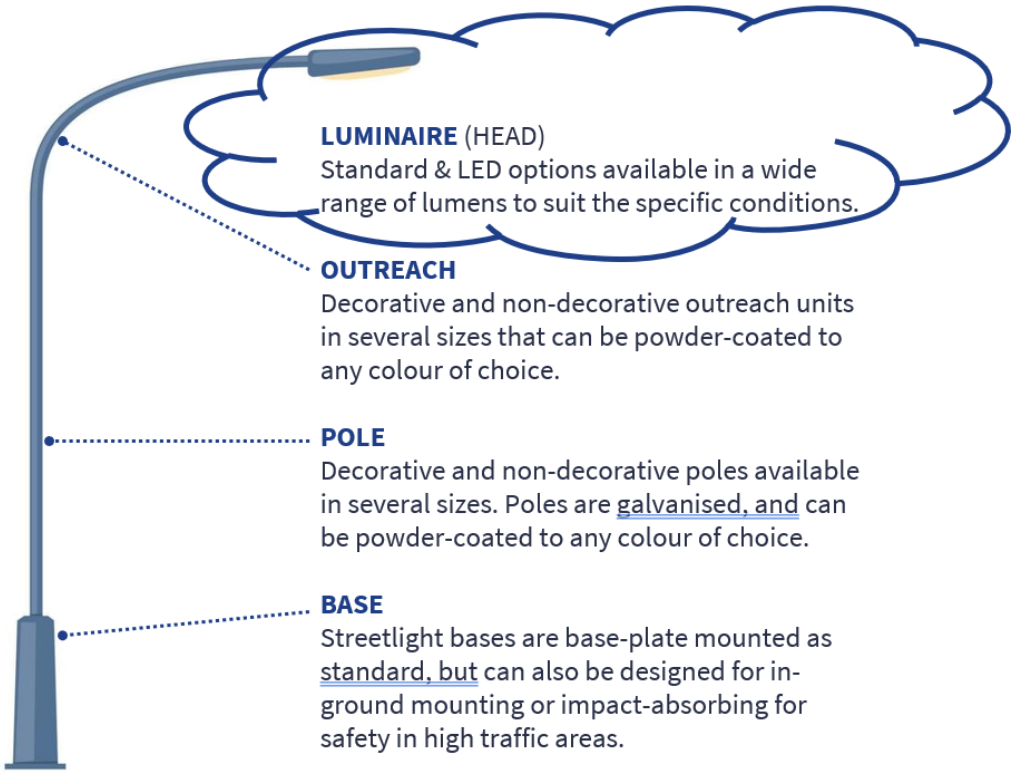


Image: diagram of a standard light pole anatomy, highlighting the luminaire that is the focus of the proposed proactive replacement program.

The consensus from local governments is that the proposed approach is sensible, with support for a street-by-street roll out to ensure consistency. The 3000K colour temperature lights were also supported by many of the participants, due to the warmer lights being beneficial for dark sky initiatives and to reduce the impact on local wildlife.

The principles of fairness and equity in the prioritisation and timing of the transition were supported, although some local governments expressed a willingness to pay to move 'up the queue'; most suggested that this however should increase the contractors' capacity to deliver sooner, rather than disadvantaging other local governments by moving them down the schedule. The reasons for paying to bring the works forward included:

- Moving faster to LED made local government business cases stand up due to the proposed cost savings (tariffs)
- This was compounded by concern at Western Power's capacity to upgrade the proposed number of lights per year

Some questions were raised about the transition bringing streetlights up to the current Australian Standard, however it was recognised that redesign and increasing the number of light poles is not within the scope of this project. Some local governments expressed an interest in undertaking this work themselves, if Western Power would then add the LED luminaires to these poles as part of the roll out. This would require transparency and communication with local governments so that they understand where they sit on the proposed schedule.

Participants also suggested a suitable communications campaign to inform local residents of the transition, to educate about the benefits of the LED lights and mitigate the risk of complaints due to the perception of 'suddenly lighter' streets.

3.3 Reactive fault management

When considering the transition to LED technology, it is important to consider how reactive faults are managed across the network, with the option to maintain business as usual (replacing globes and luminaires with like-for-like products) or replacing faulty lights with LED luminaires. The following options were presented to participants for feedback:

Fault type	Current approach	Options	Impacts
Globes	• 125W mercury vapour and 70W metal halide globes get LED screw in globes • Other mercury vapour and metal halide wattages get LED luminaire • Like-for-like replacement for everything else	1. Keep doing what we're doing	• HPS and CFL globes likely to be phased out soon too • Limited energy savings
		2. Replace everything with LED screw in globes	• NATA-compliant except 18W globe in round luminaire • Mismatch between tariff and asset life cycle cost • Greater energy savings
		3. Full LED luminaire replacement	• Takes longer to do putting 5/9-day SSB at risk or fund extra crews • Greater energy savings • Tariff reductions clearly identified, pending Synergy
Standard Luminaires	• Like-for-like replacement, except mercury and metal halide globes which get LED luminaires	1. Keep doing what we're doing	• HPS and CFL globes likely to be phased out soon too • Limited energy savings
		2. Full LED luminaire replacement	• Takes longer to do putting 5/9-day SSB at risk or fund extra crews • Greater energy savings • Tariff reductions clearly identified, pending Synergy
Decorative Luminaires	• Like for like replacement	1. Keep doing what we're doing	• Longer procurement times • Increased cost in Tariff
		2. Decorative luminaires replaced by standard LED luminaires	• Faster procurement • Improved cost benefits • Brightness/lumens could vary from current decorative LED luminaires

While the trade-off may be a reduced response time, the majority of local governments indicated a preference for the full LED luminaire replacement, for both globes and standard luminaires. This was due to the recognition that it was a better overall product that produced better results from a light quality and light spill point of view and had better environmental and cost outcomes. It was noted however that this may not apply in areas where there is a safety risk when lights are out, for example on high traffic roads. In this case it may be suitable to install a temporary globe to maintain safety.

There were differences of opinion regarding the management of faulty decorative luminaires. Some expressed a preference for like-for-like replacement, to avoid a mismatch in areas where decorative poles are used, to maintain the look and aesthetics of streets. Some participants also suggested that significant areas of decorative lighting (such as those with heritage value), may warrant a case-by-case approach, in consultation with the local government.

Some participants didn't have any decorative luminaires or had too few for it to be an issue, while others suggested that in older areas, replacing with standard LED luminaires would be desirable as they may actually present better.

3.4 Smart lighting

There was general agreement that it will be beneficial for the LED luminaires to be smart lighting compatible and that smart lights would have a variety of benefits such as the ability for rapid fault detection, more accurate power usage metering and better ability to optimise power usage (auto dimming etc).

However, most local governments indicated that they are not interested in pursuing smart lighting at this point in time, mainly due to the fact that Western Power would maintain control of the lights. The effort required by local governments to access the lights and make any changes to the system to gain the optimal benefit from smart lights, was seen as a barrier.

Others saw smart lighting as a key feature of the transition to LED and something that would deliver social, economic and environmental benefits. A group of local governments that have been proactively pursuing the transition to LED and smart lighting for some time, expressed a strong desire for consultation on this matter with Western Power to continue, to ensure there are not lost opportunities in this iteration of the strategy.

3.5 Dark sky

Minimising the impact of lighting on wildlife, or the ability to support Dark sky initiatives such as Astro Tourism, was identified as a strategic consideration for several local governments, across all consultation methods (14 participants in total). This was particularly the case for regional local governments, but also some in the metropolitan area that have significant bushland areas or are interested in Astro Tourism.

While there is not currently a Dark Sky product available, the LED luminaires are a warmer lumen (3000K) and produce less light spill – local governments were generally supportive of this, as they are more suitable for dark sky applications and more wildlife friendly. Some participants spoke to the benefits that smart lighting would also provide, such as the ability to dim lights during certain times.

3.6 Glare shields

Overall, the application of glare shields wasn't seen as a priority by participants. There were however some differing views as to how they are managed. While some participants expressed concern with Western Power leaving the management of customer complaints to local governments, others raised concerns about Western Power applying glare shields without consultation, which can create further complaints from other customers.

Some suggested that the local government receive the resident's complaint, undertakes an assessment, and pass on to Western Power to rectify if necessary. While others simply want Western Power to manage the complaints through their faults line. Regardless, it was suggested by most that it requires a more consultative approach.

When implementing the roll out of LED technology, local governments suggest good communication with local residents to inform them of the initiative. This will potentially mitigate the risk that residents will lodge complaints if their once 'dark street' suddenly becomes a 'light street', and any resulting requests for glare shields.

4 Conclusion

Overall, there was a good level of participation from local governments contributing to the Public Lighting Strategy consultation, with 52 responding to the survey and/or participating in a follow up workshop or interview. The participants represented 87% of Western Power's streetlight fleet in the South West Interconnected System.

Strong support was expressed for the transition to LED technology, for both reactive fault management and for the proposed proactive rollout of LED luminaires. There is some willingness to pay to bring forward works in some local government areas, however most expressed a desire for this to increase capacity for the delivery of the initiative, rather than be to the detriment of other local government areas.

Some differences of opinion were conveyed with regards to elements such as decorative lighting and the use of glare shields, however a shared desire for a more consultative approach underpinned these views, so that local governments can have a say on how issues are responded to at a local level.

Several local governments expressed an interest in dark sky initiatives, to support astro tourism and to minimise the impact of lighting on local wildlife.

While there is general support for lights to be compatible with smart lighting features for possible future roll out, most participants did not express an interest in pursuing smart lighting yet. There is a small group of local governments that have been exploring this for some time and are keen to continue with this.

Participants wish to be kept informed about the progression of the Public Lighting Strategy and particularly the roll out of the LED luminaires and continue to be consulted on future iterations of the strategy.

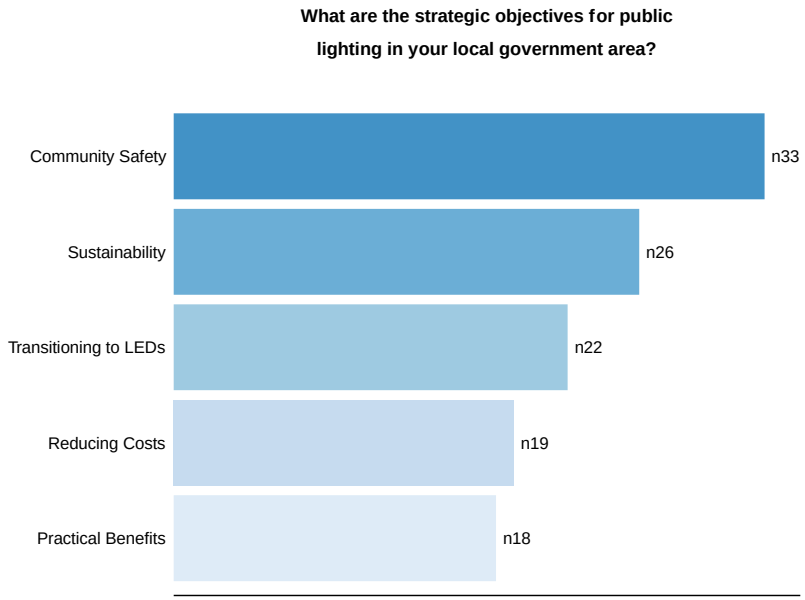
Appendix 1 - Online Survey Results

Lighting Objectives, Priorities & Barriers

Strategic Objectives

The LGAs were asked to provide an overview of their strategic objectives for public lighting. The responses were reviewed and then tagged with key themes (note. individual responses could be tagged with multiple themes). The definitions of the themes are provided below, including some examples of responses reflecting each theme. The frequency of the themes is shown below.

Overall, four key themes emerged; local government objectives for public lighting were to improve community safety, improve sustainability, reduce costs, and practical benefits such as lighting quality. These objectives were often alongside the objective to transition to LED technology.



Community Safety (n33): These comments emphasise the importance of fostering community safety by focusing on improving light quality on roads and public spaces, ensuring safe access to pathways and intersections, and reducing crime through better visibility.

> *1.To enable normal functioning of lives in community - night amenity in public spaces; 2. To improve safety - pedestrian and vehicles at night; 3. To reduce crime - at public space by active surveillance*

> *Conversion of lighting to LED, addressing lighting deficiencies that are resulting in safety issues within the road network.*

To ensure adequate lighting is in place to meet the various community needs (pedestrian and road safety, recreation) whilst keeping environmental impacts and cost impacts to a minimum.

Sustainability (n26): These comments emphasised the objective of improving lighting energy efficiency, reducing emissions, and minimising the impact on wildlife.

To lower costs and to reduce CO2 emissions (consistent with the Corporate Greenhouse Action Plan).

Reduce carbon emissions related to electricity consumed by, and the maintenance of, street lighting equipment.

Long term sustainability – Reduce energy consumption and operating costs through the use of LED lighting and other technology.

Adopting LED technology (n22): These comments highlighted LGA's preferences to transition to LEDs to achieve other strategic objectives.

To improve the overall quality of street lighting to the community by upgrading to LED Luminaires from older technology.

Explore the opportunities and benefits of introducing Smart technology, in a Smart City context and in alignment with the City's Digital Strategy

Maximise the environmental, financial and operational benefits of smart-metered LED streetlights throughout the City.

Reducing Costs (n19): These comments identified that a current objective is to reduce the costs associated with lighting, typically by transitioning to LEDs.

To provide a streetlighting network … that maintains public safety and amenity in the most cost effective and least carbon intensive way possible.

To lower street lighting cost and to reduce CO2 emissions (consistent with the City's Corporate Power Plan)

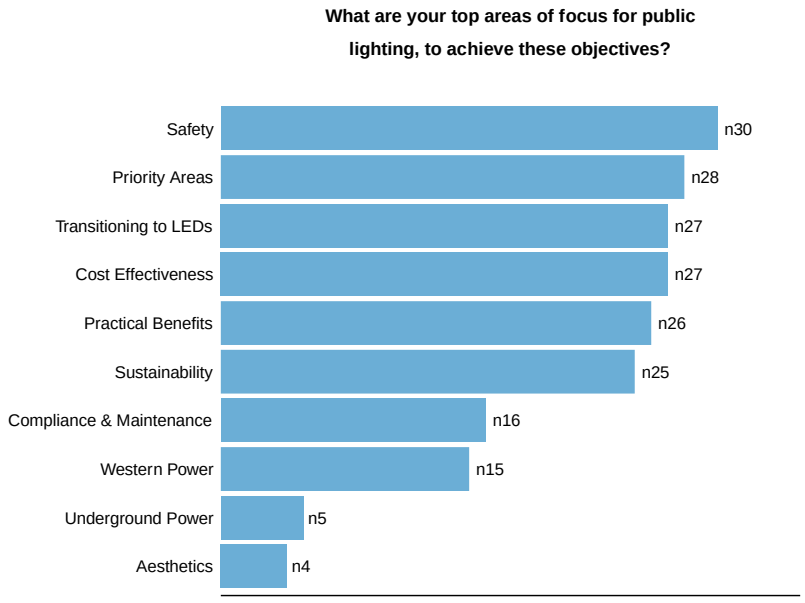
Practical Benefits (n18): These comments highlighted the need for adequate lighting that is reliable, aesthetically pleasing and minimizes light spill.

Provide the community with efficient, environmentally friendly, high quality and reliable LED lighting that improves the amenity and safety of the area.

The City's goal is to have a fit for purpose, modern and cost-effective street light network which the City has greater influence on in terms of the quality of the lighting, the materials and the ability to adjust servicing such as light spill and maintenance

Lighting Priorities

The LGAs were asked to elaborate on their top areas of focus to achieve their lighting objectives. Overall, there were 10 areas of focus, with the most common being a focus on safety, listing priority areas that require lighting improvements, the transitioning to LED technology, and focusing on sustainability.



Safety (n30): LGAs are focusing on improving the quality and coverage of lighting to foster a sense of safety and security on the road and across night time amenities.

Priority Areas (n28): These responses focused on specific areas of focus for improved lighting. The most common areas included footpaths, public areas, carparks, and intersections.

Transitioning to LEDs (n27): The LGAs are focusing on transitioning to LEDs to achieve their objectives of improved safety, meeting sustainability targets, and reduced costs.

Cost Effectiveness (n27): The LGAs are looking to reduce costs by transitioning to LEDs and having more certainty and transparency around the costs associated to upgraded lighting.

Practical Benefits (n26): There is a focus on meeting the community's expectations of having sufficient lighting that minimises light spill and promotes usage.

Sustainability (n25): There is a focus on minimising environmental impact by transitioning to more efficient LED lighting that is also practical and effective.

Compliance and Maintenance (n16): These comments included a focus on ensuring that lighting is compliant, doing regular audits and ensuring the proper maintenance of lights.

Western Power (n15): These comments mentioned liaising with Western Power to meet their lighting objectives and to expedite the upgrade to LED technology.

Underground Power (n6): Some LGAs are focusing on converting to underground power to facilitate improved lighting.

Aesthetics (n4): Some LGAs mentioned prioritising the aesthetics of existing lighting.

Barriers

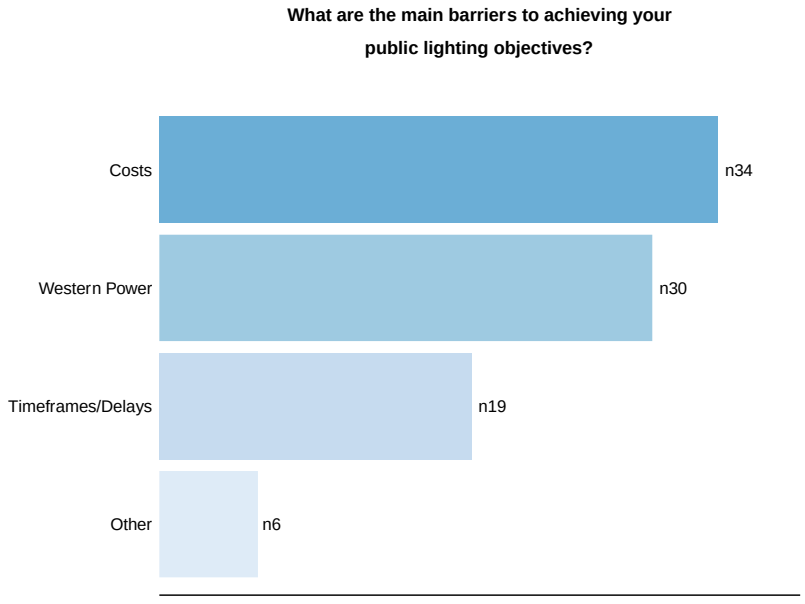
The LGAs were asked what the main barriers are in achieving their public lighting objectives. The three key barriers identified by respondents were costs, Western Power's transparency, and timeframes/delays.

The barriers associated with **Costs** (n34) included the significant costs in lighting consumption, the high costs in transitioning to LEDs being a significant portion of their budget, and concerns about having sufficient financial resources to meet the local government's lighting demands and objectives.

Another key barrier included **Western Power's** (n30) transparency and communication with LGAs, including a lack of transparency around costing and tariff systems, and LGAs experiencing significant 'red tape' when liaising with Western Power, and reported that it was often unclear who the point of contact should be.

There were also barriers related to **Timeframes and Delays** (n19). These comments mentioned facing significant delays in transitioning to LEDs, including delays in designs, significant lead times, uncertainty around timeframes and being unable to meet project deadlines. These barriers were often in relation to Western Power being unable to meet timeline expectations.

The **Other** (n4) barriers included the use of old lighting technology, environmental impacts of existing options for lighting upgrades, and not having control of existing streetlights.



The LGAs were subsequently asked how Western Power can support the LGAs to address these barriers. Overall, there were four common suggestions to address the barriers to achieving public lighting objectives: Improved transparency, funding support, maintenance and features, and timeframes.

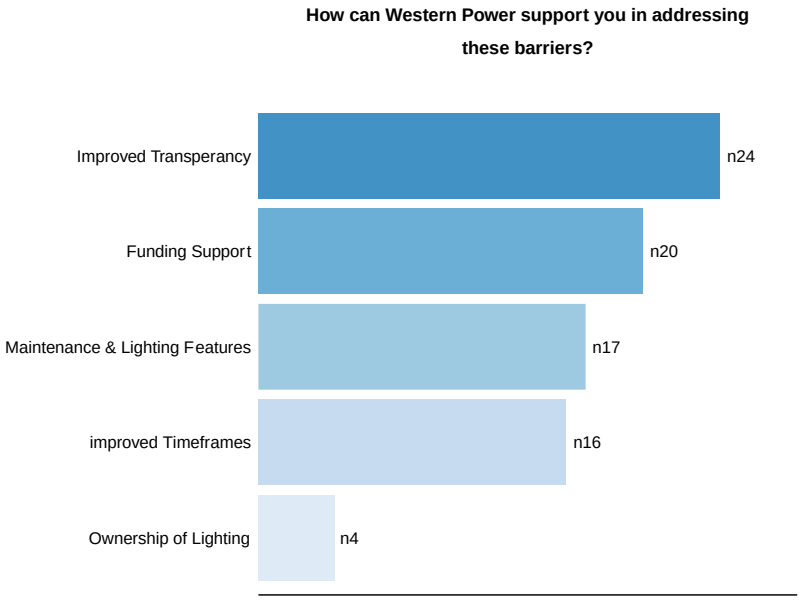
The most common way to address barriers is **improved transparency** by Western Power (n24). Some LGAs said that this could be achieved by having dedicated personnel to work closely with them to provide a personalised approach. Others wanted Western Power to provide a clear and detailed guide of the processes, costs and timelines for transitioning to LEDs so that LGAs could have a clear business case and have a shared understanding. Some also mentioned the need for timely responses from Western Power.

LGAs wanted to explore Western Power providing **funding support** (n20) and subsidies, or reducing the costs to transition to LEDs. Some LGAs wanted the upgrade to LEDs to be at no cost to LGAs.

Some respondents said that the barriers could be addressed by improving **maintenance and lighting features** (n17). This included more timely responses to lighting faults by increasing resources dedicated to maintenance, audits, and compliance. Some wanted a broader range of services and product options, such as options that minimize environmental impacts and improve visual appeal.

Improved timeframes (n16) would address some barriers, including more timely services and faster responses to communication and service requests. Some suggested that having more streamlined responses to LGA's requests would be beneficial.

Four respondents said the transfer of ownership is an effective way of addressing the barriers, where n2 LGAs said that that having **city owned lights** would be the most effective way of addressing barriers, and n2 LGA wanted to transfer lighting assets to Western Power to own and manage.



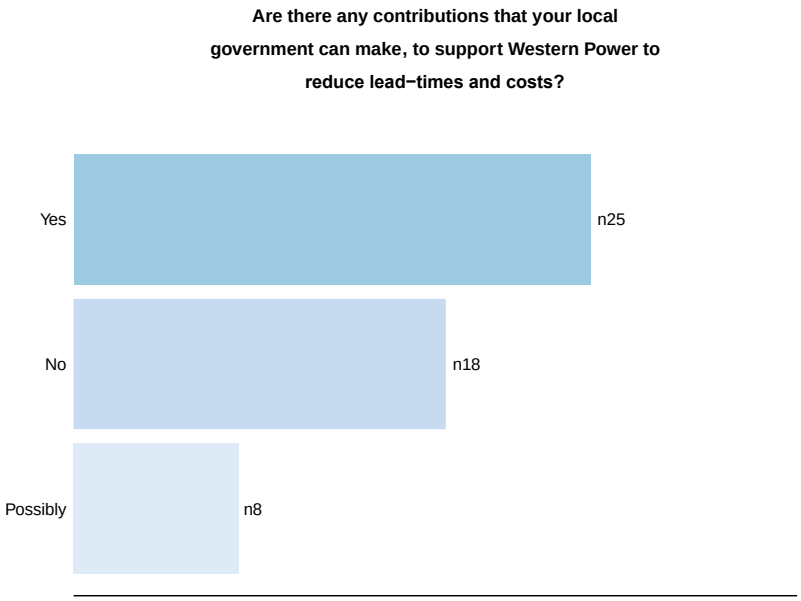
Contributions

The LGAs were further asked if there are any contributions they can make to support Western Power, to reduce lead-times and costs. The open-ended responses were first tagged as responding 'yes', 'no', or 'possibly'. The key themes associated to each response were then derived.

About half of the respondents (n25) said that they could provide resources, and n18 LGAs said that they cannot provide any resources. Some LGAs (n8) said that they could possibly contribute.

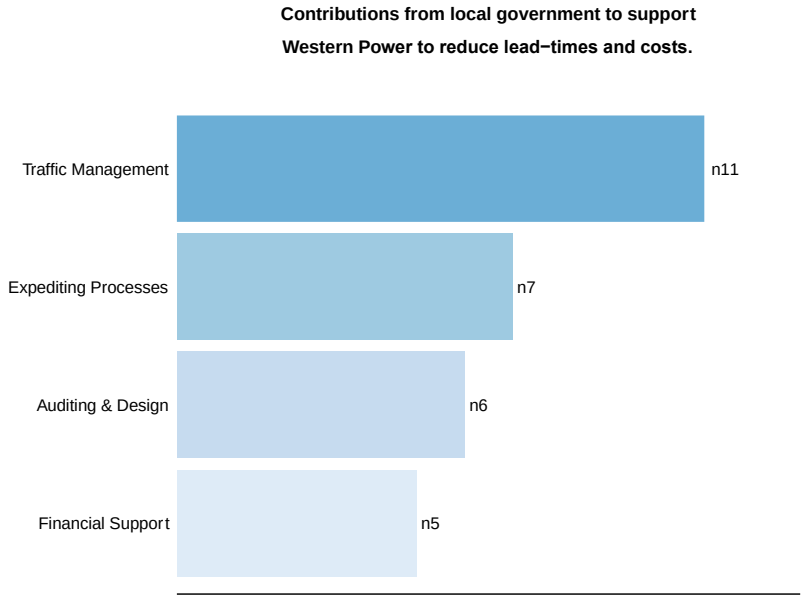
The LGAs who said that they cannot provide any resources mentioned that they would prefer to allow the City to take ownership of lighting, that they already provide sufficient resources, or that the lighting costs are already too high and should be paid by Western Power.

Of the LGAs who responded that they could 'possibly' contribute, four mentioned that they would invest in transitioning to LEDs if there were a demonstratable return to the community, which must be made evident through tariff arrangements. One representative mentioned that the lack of communication from Western Power is a barrier to finding potential ways to contribute. Other LGAs said that they could contribute, depending on what is required and provided there are no added costs.



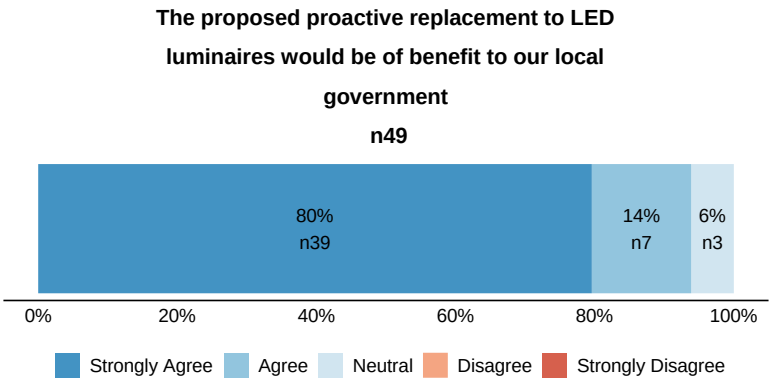
There were four general contributions that LGAs were willing to provide. The most common included providing additional traffic management.

- **Traffic Management (n11):** including traffic management costs, expediting traffic management plans, and communicating traffic changes to the community.
- **Expediting Processes (n7):** including reduced lead times, rapid approvals, expediting other administrative processes, and liaising with third party contractors to speed up works.
- **Auditing and Design (n6):** including audits for failed streetlights and assuring compliance, LGAs to undertake designs that can be assessed by Western Power and managing electrical designs.
- **Financial Support (n5):** including providing additional funding for transitioning to LEDs. One council said that there is an Opportunity to reimburse design fees for early lodgement of projects.



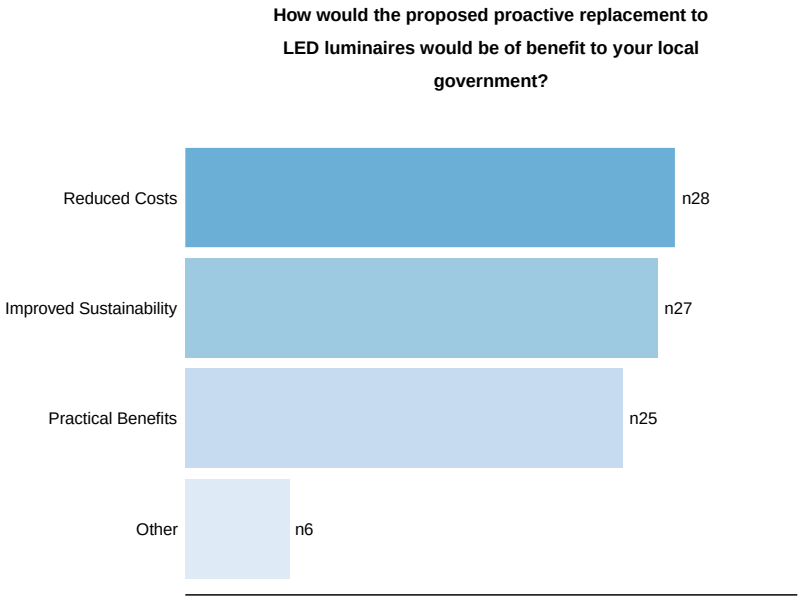
Proactive Replacement to LED technology

The majority of respondents agreed that the proactive replacement to LED luminaires would benefit their local government, where 80% (n41) of LGAs strongly agreed. Some LGAs were neutral about the benefits of the transition (6%, n3).

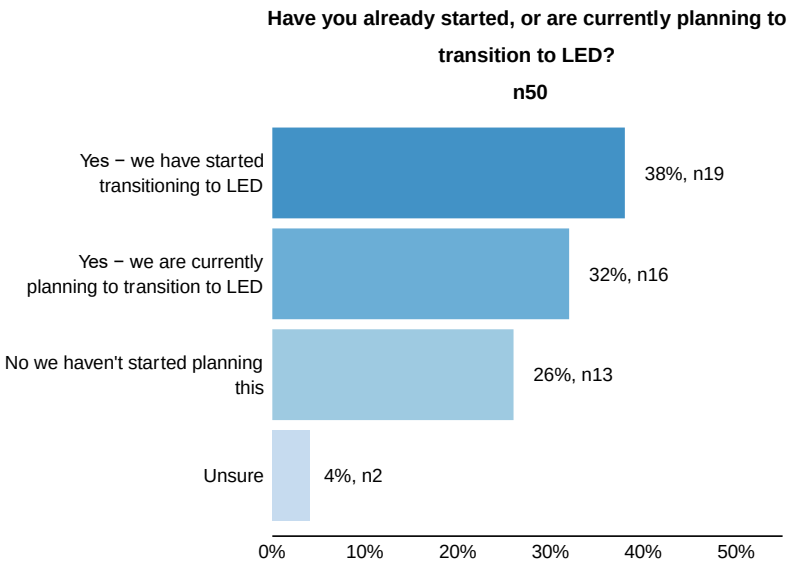


Four key themes emerged when LGAs were asked to detail how the transition to LED technology would be of benefit to local government. The most common benefits were reduced costs and improved sustainability.

- The improved efficiency of LEDs was a benefit in **reducing costs** (n28) for council and ratepayers. Other ways of reducing costs come from the reliability and longevity of the LEDs.
- The LEDs also **improve sustainability** (n27) by reducing carbon emission and improved efficiency. The LEDs would contribute towards government's energy targets and are more environmentally and wildlife friendly.
- The **practical benefits** (n25) include upgraded lighting that improves community safety and road visibility and provides greater reliability while also reducing light spill.
- The **other responses** (n6) include LGAs taking the opportunity to comment on the high costs, mention uncertainty around the transition to LEDs, and some mentioned that the benefits are hard to define. Nonetheless, all but one of these responses strongly agreed that the LEDs are beneficial.



Most respondents have begun transitioning to LEDs (n19, 39%) or are currently planning to transition to LEDs (n16, 31%). In contrast, 25% of the LGAs (n13) have not begun planning the transition and 4% (n2) were unsure.



LGAs who indicated they have commenced or are planning to transition to LED technology, were asked what information they need to support their intended plans and activity.

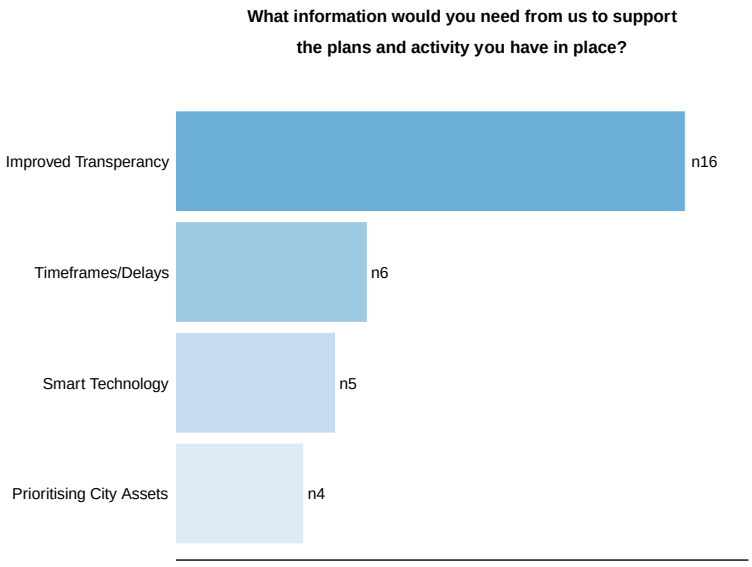
Improved Transparency (n15): The most common response is that LGAs require more transparency from Western Power. This relates to information such as proposed costs and timelines, planning of upgrade sequences, and additional engagement with LGAs to review any proposed plans.

Timeframes & Delays (n6): LGAs require further information regarding Western Power decision to proceed with bulk LED streetlight changeovers at an accelerated rate and ensuring improved communication so that timelines are on track.

Smart Technology (n5): These LGAs requested more information about options for smart lighting and wanted more information about Western Power's commitment to providing smart technology.

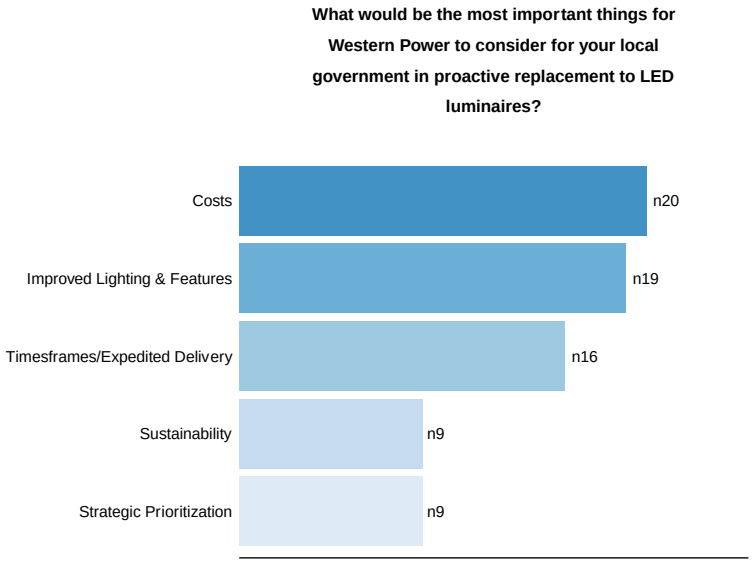
Prioritise City Assets (n4): These LGAs commented that they are initially prioritising in transitioning city-owned lights to LEDs.

One LGA requested a **lighting audit** and another LGA **requested maintenance** of some failed light fittings. Two LGAs commented that they are initially focusing on LGA-owned lighting assets.



LGAs were asked to consider what the most important things are for Western Power to consider during the transition to LED technology. The main considerations identified were costs, improving lighting, and meeting timeframes.

- It is important for Western Power to consider how to **reduce costs** (n19) for LGAs and offering financial support to LGAs.
- LGAs want Western Power to consider ways of **improving lighting and features** (n19), including the options for smart controls, design elements, visibility, and reducing light spill.
- **Timeframes and expedited deliveries** (n16) are an important consideration, with LGAs wanting the transition to be timed as soon as possible or in line with their timeframes. LGAs also wanted more transparency and awareness of Western Power's proposed timelines.
- Western power should consider the **strategic prioritization** (n9) of transitioning to LEDs in suburbs and areas that lack sufficient visibility, or areas of high light consumption.
- It is important for Western Power to consider how they help LGAs achieve their **sustainability** targets (n8).



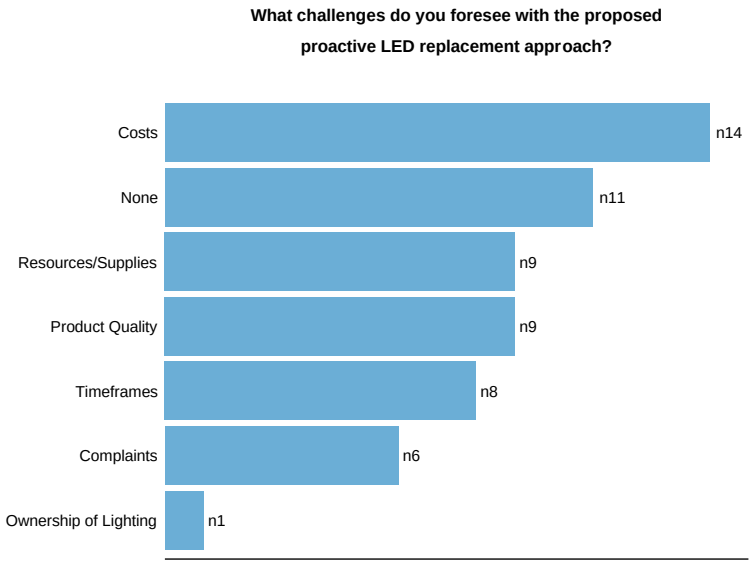
Challenges & Opportunities

LGAs were asked about their perceived challenges and opportunities with the approach proposed by Western Power, to transition to LED street lighting. The most common challenges identified by respondents were the **costs** associated with implementing the proposal and having sufficient understanding of the costs involved (n14). However, there were a similar number of LGAs who said that there were **no challenges** (n11) associated to the proposed approach.

Some respondents were concerned about having **sufficient resources and supplies** available to meet demands (n9) and some suggested the strategic allocation of resources. Similarly, there are challenges associated with meeting the desired **timeframes** and challenges with delays (n8).

There are challenges with the **quality of the products** used and meeting the requirements of LGAs and their communities (n9), and similarly the **number of complaints** made by the community due to the quality or intensity of the lighting (n6).

One LGA suggested that there are challenges in the ability for the city to take over the existing Western Power network.



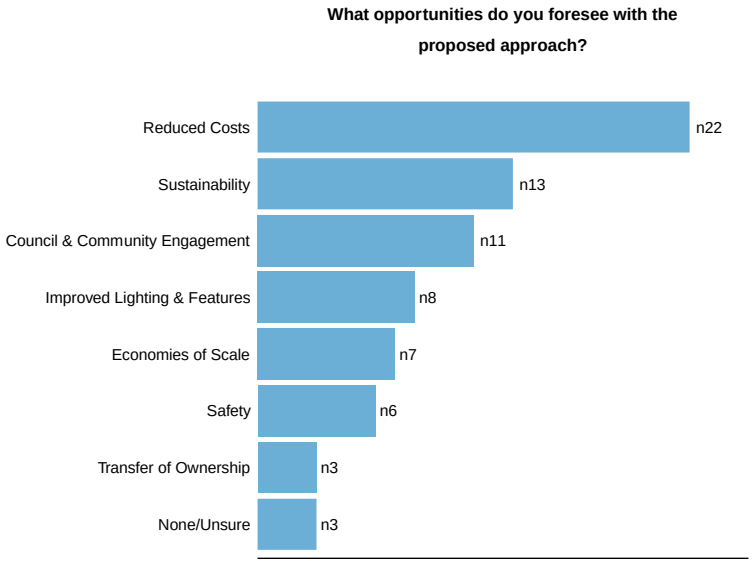
The most common opportunities seen by LGAs include **reducing costs** via improved efficiency and reliability of LEDs (n22). Similarly, another opportunity is to **improve sustainability** by providing a greener future and reducing carbon emissions (n13).

Some LGAs said that there are opportunities for Western Power to improve its **engagement with LGAs and the community**, including promoting the benefits of the works (n11).

There are also opportunities to improve the **lighting and smart features** to achieve the LGAs' lighting objectives (n8). Additionally, there are opportunities to reduce costs due to **economy of scales** (n7).

Improved **community safety** is another opportunity via improved lighting of nighttime amenities and roads (n6).

Finally, a few LGAs believe that there are opportunities to transfer the **ownership and management of lighting** to back to LGAs (n3).



Appendix 2 - Workshop and Interview Input

The interviews and workshops followed a similar format, focusing on three main areas, while also addressing specific questions from participants. The three focus areas were:

1. Approach to fault management.
2. Proposed transition to LED.
3. Street light variations., (Smart Lighting, Glare Shields and Dark Sky)

Approach to fault management

The following potential approach to fault management was presented to participants for feedback:

Fault type	Current approach	Options	Impacts
Globes	• 125W mercury vapour and 70W metal halide globes get LED screw in globes • Other mercury vapour and metal halide wattages get LED luminaire • Like-for-like replacement for everything else	1. Keep doing what we're doing	• HPS and CFL globes likely to be phased out soon too • Limited energy savings
		2. Replace everything with LED screw in globes	• NATA-compliant except 18W globe in round luminaire • Mismatch between tariff and asset life cycle cost • Greater energy savings
		3. Full LED luminaire replacement	• Takes longer to do putting 5/9-day SSB at risk or fund extra crews • Greater energy savings • Tariff reductions clearly identified, pending Synergy
Standard Luminaires	• Like-for-like replacement, except mercury and metal halide globes which get LED luminaires	1. Keep doing what we're doing	• HPS and CFL globes likely to be phased out soon too • Limited energy savings
		2. Full LED luminaire replacement	• Takes longer to do putting 5/9-day SSB at risk or fund extra crews • Greater energy savings • Tariff reductions clearly identified, pending Synergy
Decorative Luminaires	• Like for like replacement	1. Keep doing what we're doing	• Longer procurement times • Increased cost in Tariff
		2. Decorative luminaires replaced by standard LED luminaires	• Faster procurement • Improved cost benefits • Brightness/lumens could vary from current decorative LED luminaires

Globe and Standard Luminaires replacement

When looking at the replacement of faulty globes with either like-for-like, LED globes or a full LED luminaire, most participants had a preference for the full LED luminaire replacement (9 out of 11 interviewed, and the majority of workshop attendees). This was mostly due to the recognition that it was a better overall product and produced better results from a light quality and light spill point of view and had better environmental and cost outcomes. As such, the potential for a slight impact on the replacement timeline was an acceptable trade-off.

However, there was some uncertainty as to the accuracy of the standard service benchmark (SSB) levels stated, as these only counted single fault repairs and did not include faults that occurred as a string of street lights.

Those that were unsure about moving to the full LED luminaire for faults, also had a preference for the full LED luminaire replacement but were concerned about the impact on the replacement timelines, especially in areas where safety and or car speed were a concern.

The suggestion was that the local government could be involved in the decision-making and specify the areas that required rapid replacement, where globes could be used in this instance.

Usage of shields may be desirable if the change in lights causes complaints, and many noted the preferable installation of smart lighting features in the near future.

The same levels of support were in place for the replacement of standard luminaires with LED luminaires, when standard luminaires are faulty.

Decorative luminaires

There was a more varied response for the reactive replacement of faulty decorative luminaires. Five interviewees would prefer to wait the longer lead times while three preferred to replace decorative luminaires with standard luminaires. Some participants also suggested that significant areas of decorative lighting (such as those with heritage value), may warrant a case-by-case approach, in consultation with the local government.

Workshop attendees also provided differing viewpoints, with some preferring a like-for-like replacement, to avoid a mismatch in areas where decorative poles are used, to maintain the look and aesthetics of streets.

Others didn't have any decorative luminaires, had too few to worry about or did not comment on the subject.

The importance of consistency was again raised. Some interviewees expressed their desire to close the gap between standard and decorative lighting and others disregarded decorative lighting as a significant issue because of how few of them they have. Some participants suggested that in older areas, replacing with LED luminaires would be desirable as they may actually present better.

Questions raised around this topic included:

- If the replacement is like for like, will tariffs be lower?
- Could local governments define areas for different approaches?
- Who should report faults to Western Power?

Proposed LED transition approach

The proposed approach to LED transition was presented to participants by Western Power. The key features of this approach included:

- 10-year transition to full LED luminaires (this option provides the lowest lifecycle cost)
- Assumes standard LED luminaire replacement
- Prioritisation done on suburb-by-suburb basis based on oldest average age of the streetlights in each suburb
    - Western Power ignores suburbs being listed for undergrounding in the prioritisation process.
- Assessment of requirement would need to be made for locations where there are projects programmed for underground power or network projects and where the streetlights are proposed to be replaced
- No lighting redesign or pole replacement/ movement.
- WP is attempting to ensure there is no cost of the transition to the LGAs

There was general support for the proposed transition process.

- Most local governments were accepting of the approach, recognising the size of the project and need to deliver a fair and equitable transition process for all local governments. Some expressed concerns that local governments with few resources, shouldn't be left to last. There was agreement that replacement on a street-by-street basis is best.
- There were others who were concerned with the timelines resulting in the technology being obsolete by the time the roll out was completed and some expressed a willingness to contribute to the cost of the roll out, to provide Western Power with the necessary capacity to speed up the transition, without disadvantaging other local governments that have older lights but may not have the resources to bring the works forward. Others suggested that Western Power should consider a mechanism for how some could be 'bumped up' without ratepayers having to pay for this.
    - Moving faster to LED made local government business cases stand up due to the proposed cost savings (tariffs)
    - This was compounded by concern at Western Power's capacity to upgrade the proposed number of lights per year

It was seen that bulk installations would reduce the traffic management and make more financial sense. This was particularly relevant in regional areas where access to contractors is particularly constrained.

The importance of consultation with local governments was noted to prevent re-doing work, such as the suggestion that some local governments might wish to bring some of their lighting up to current Australian Standards, adding poles into areas that are to be upgraded. While no redesign is included in the proposed roll out, it was suggested that if local governments undertook this work, Western Power could top these with the LED luminaires as the roll out progresses.

Several local governments queried the standard lux of the LED lights and were generally supportive of the proposed 3000K lights due to the warmer colour, particularly in supporting dark sky initiatives or reducing the impact on local wildlife.

Overall, participants are seeking transparency of the proposed schedule and where their local government falls in the timeline, with ongoing communication and engagement as the roll out is implemented. Many local governments also queried the impact that the transition would have on tariffs; this is ultimately set by Synergy.

Smart Lighting

While all the proposed LED luminaires will be smart lighting compatible, the current transition plan does not propose to include implementation of smart lighting at this stage. This was mostly due to Western Power not having the capacity and infrastructure to manage smart lights, and the need to provide an approach that was financially feasible. It was also queried who carries the liability if there are changes made to the brightness of lights.

While there were a range of benefits/usages from smart lights, most mentioned the ability for rapid fault detection, more accurate power usage metering and better ability to optimise power usage (auto dimming etc).

There was a mixed response from participants with the majority liking the idea of smart lighting but did not see its practical application until more was known about how and who would manage the technology. Eg: Smart lighting managed by Western Power would be less desirable due to the effort required to make the changes to the system that each local government would want to make to gain the optimal benefit from smart lights.

Others saw smart lighting as a key feature of the transition to LED and something that delivered social, economic and environmental benefits. The Local Government Consortium group notes that they had presented a plan to Western Power where all the required smart light technology would go to Western Power for the whole South West network, to support all local governments gain the benefits of smart lights.

Glare shields

There were a number of differing opinions raised about the management of glare shields.

- Some expressed concern with Western Power leaving local governments to manage customer complaints
    - Some suggested that the local government receive the resident's complaint, undertakes an assessment, and pass on to Western Power to rectify if necessary
    - While others simply want Western Power to manage the complaints through their faults line
- Others voiced concerns with Western Power simply adding the shield, causing complaints by other customers to the local government
    - For most, the resulting outcome was a desire to have a more consultative approach
- Some identified issues with the pole design causing light spill that is not mitigated by glareshields
    - Poles that have a less acute angle (ie: are more upright), results in the luminaire throwing light further across the street and most glare shields focus on light spill to the back of the light.
    - One respondent had complaints that new lights will have less spill and no longer cover private property like front doors or gates.

Overall, most participants didn't prioritise the issue of glare shields.

Dark Sky

Many regional local governments were very keen to ensure the transition to LED, due to the reduced light spill and improved dark sky for both astro tourism and to reduce the impact on local fauna. Some metropolitan local governments that have significant bushland areas held similar desires for reduced light spill and better dark sky outcomes, due to the benefit for local fauna.

There was general agreement that this can be managed through a standard approach and through consultation at the local government level.

Other comments

Some other comments were provided by some individuals in this process:

- Discussion of transition of ownership was mentioned by some interviewees
- There was a request for local governments to comment on the draft strategy
- A desire for a dedicated workshop with Consortium members
- Prioritise decluttering streets
- Replacements to meet current standards
- Transparency to the public

Appendix 3 – Local Government Participation

Overall

Across the consultation period, 52 local governments from within the South West Interconnected System (SWIS) participated. The majority completed the survey and attended either a workshop or 1:1 interview, with four local governments participating in a workshop or interview only.

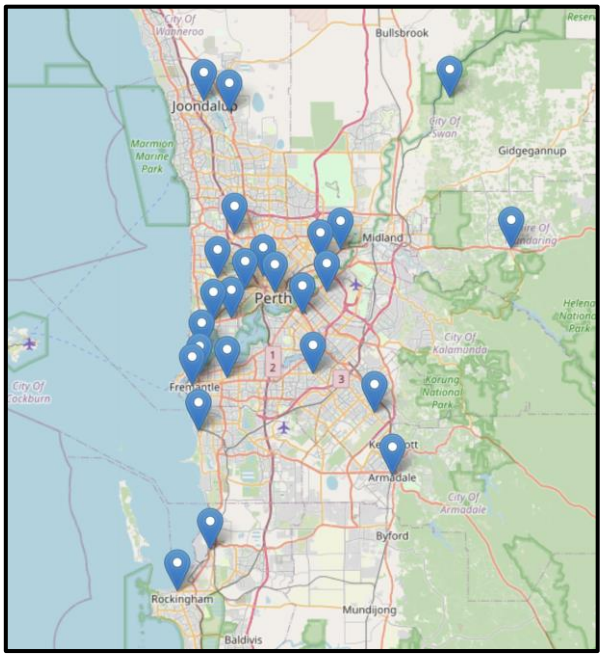
Participants represented 87% of Western Power's streetlight fleet in the SWIS, as listed below.

Local Government	Number of Streetlights	Local Government	Number of Streetlights
Albany	3,886	Manjimup	946
Armadale	12,270	Mingenew	114
Augusta-Margaret River	1,714	Melville	9,281
Bassendean	1,593	Merredin	814
Bayswater	5,880	Morawa	210
Belmont	3,886	Mosman Park	622
Boddington	211	Muckinbudin	99
Busselton	5,378	Mundaring	3,587
Cambridge	3,521	Narrogin	696
Canning	8,979	Nedlands	2,377
Carnamah	212	Perth	1,727
Claremont	1,063	Pingelly	198
Cockburn	15,130	Rockingham	16,060
Cranbrook	120	Serpentine/Jarrahdale	4,319
Cuballing	43	Stirling	19,637
Dardanup	1,670	Subiaco	862
Donnybrook Balingup	490	Swan	20,521
East Fremantle	599	Trayning	111
Fremantle	3,270	Victoria Plains	84
Gosnells	12,868	Vincent	3,009
Greater Geraldton	5,286	Victoria Park	3,262
Harvey	3,136	Wanneroo	30,547
Joondalup	15,368	Waroona	509
Kalgoorlie-Boulder	5,276	West Arthur	90
Kwinana	6,796	Williams	141
Mandurah	10,986	Wyalkatchem	133

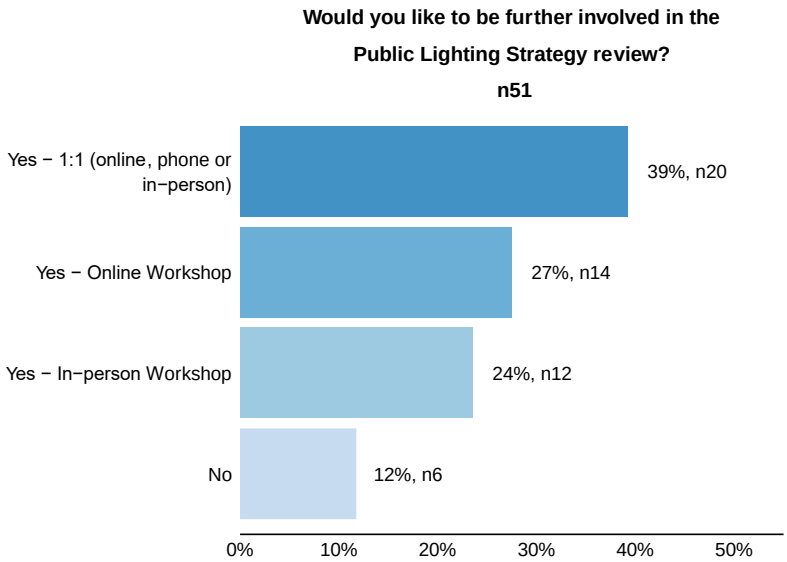
Survey participation

Overall, a total of n54 responses were received from n47 Local Government Authorities (LGAs). The group included n25 metro LGAs and n22 regional LGAs. The locations of all LGAs are shown in the left panel, and the right panel shows a zoomed-in map of the n25 metro LGAs.

Note. n1 respondent did not provide the name of their LGA. Also, n6 LGAs provided more than one response. In such cases, open-ended responses were collated as a single response, and quantitative responses that were duplicates were removed.



The majority of LGAs wanted to be further involved in the Public Lighting Strategy review, with a preference for 1:1 meeting format. Some LGAs did not want to be involved (n6, 10%).



Workshop and Interview Participation

Workshops

Three workshops (two online and one in-room) were conducted by either Joel Levin or Janelle Easthope from Aha! Consulting, with the support from Chris Burke, or Ashley Groeneweg from Western Power.

Local Government Authority
City of Bayswater
City of Belmont
City of Canning
City of Cockburn
City of Fremantle
City of Mandurah
Shire of Manjimup
Shire of Morawa
Town of Mosman Park
City of Nedlands
City of Rockingham
Shire of Serpentine-Jarrahdale
City of Swan
Shire of West Arthur

In addition, the Shires of Carnamah and Mingenew provided comments via phone or email.

Interviews

The interviews were conducted by either Joel Levin or Janelle Easthope from Aha! Consulting, with the support from Chris Burke, Aparna Ashwin or Ashley Groeneweg from Western Power.

Local Government Authority
City of Albany
City of Armadale
Shire of Augusta-Margaret River
Town of Bassendean
Town of Cambridge
City of Gosnells
City of Joondalup
City of Kalgoorlie-Boulder
City of Melville
Shire of Mukinbudin
City of Perth

– END –

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