ITEM NO. 6

Solar Technology for Street Lighting

Bureau of Street Lighting
Infrastructure Protection Division (IPD)

STPOC Meeting
Thursday, September 5, 2024

INTRODUCTION

With over 220,000 streetlights spanning a substantial portion of Los Angeles, the Bureau of Street Lighting (BSL) confronts ongoing maintenance challenges necessitating innovative solutions. As of the beginning of Fiscal Year 24/25, there are over 19,000 open street lighting incidents in our backlog, affecting approximately 15% of our street lights. To address these issues and ensure continuous illumination, alternative solutions are crucial. Among these solutions, solar-powered lighting emerges as a promising alternative to traditional repairs and as a deterrent to Copper Wire and Power Theft (CWPT).

BACKGROUND

BSL operates and maintains an extensive network of almost 220,000 streetlights spanning across two-thirds of Los Angeles. The infrastructure, powered by nearly 18,000 LADWP service points and connected by approximately 9,000 miles of conduit and 27,000 miles of copper wire, serves as a vital component of our City's landscape and the safety of Angelenos.

With Los Angeles ranking 3rd in California – and #18 in the US - among cities with the highest number of sunny days per year, using solar-powered street lighting is a great way to invest in renewable resources while protecting the City's infrastructure from theft and vandalism.

BSL's Solar-Powered Lighting Initiative was jump started in 2021 by the Innovation and Performance Commission, where BSL was granted $200k. From this initial funding, BSL was able to purchase and deploy 65 Cuesta Sol All-in-one Solar-Powered units throughout the city.

OVERVIEW

Since the launch of the Solar-Powered Lighting Initiation in FY 21/22, BSL has secured more than $3M in funding from the Capital and Technology Improvement Expenditure Program (CTIEP).

For FY 24/25, BSL has been granted an additional $1.6M through CTIEP to further expand our Solar Pilot Program. These new funds will not only allow us to purchase more solar-powered units but also enable BSL to explore and integrate new technologies into our initiative.

PROGRESS AND INSTALLATIONS

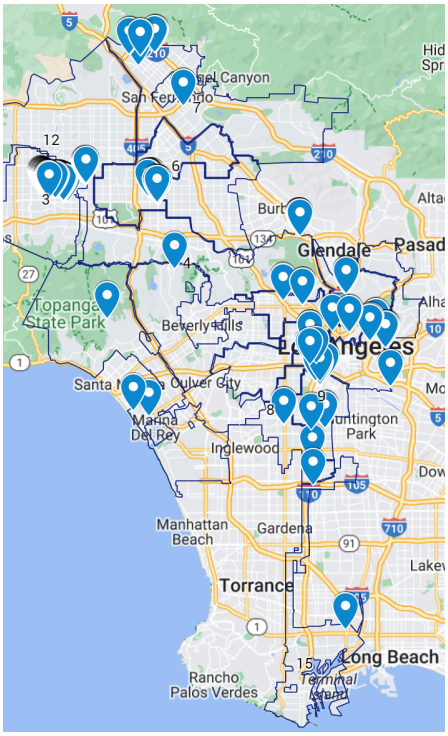
Year to Date, BSL has purchased more than 1,000 solar-powered fixtures, with 350 solar-powered fixtures already deployed throughout the city. (See the table and snippet below for additional details.) Additionally, BSL has purchased 180 poles and 5 remote monitoring antennas to further enhance and monitor the Solar Infrastructure.

The most recent deployments took place in Council District 6, within the Van Nuys Neighborhood, where BSL successfully installed 106 solar-powered lights, along with 57 new poles and 17 new foundations. While CD 6 was chosen as a pilot project to test

solar lights on an entire neighborhood, other scattered locations throughout the City were chosen based on specific criteria pertaining to solar lighting. Criteria for solar installations are relative to field conditions, these include areas with minimal obstructions such as overhead wires, nearby trees, and shadows from tall structures. Technical compatibility with high voltage attachments is another factor that BSL has to take into consideration. Attachments such as telecom equipment, EV chargers and flood lights rely on the grid for power and may limit the use of solar lighting. Street designation constitutes another obstruction for solar installations as the lighting levels required for Major streets are higher than what solar lighting can provide. BSL limits the use of solar lighting to local and collector streets. Some areas like the Valley are more compatible with solar lighting while other areas like Downtown are more likely to have obstructions.

A total of 350 solar lights have been installed during FY 22/23 and FY 23/24.

Solar Installation Breakdown by Council District	
CD	**Number of Solar-Powered Lights Installed**
1	13
2	2
3	131
4	9
6	112
7	12
8	10
9	19
11	3
13	12
14	26
15	1
Total	**350**



Solar Light Deployment Map

NEXT STEPS

BSL will return to the Van Nuys Neighborhood to install a remote monitoring antenna, enabling real-time monitoring and diagnostics for the 106 solar-powered lights installed last fiscal year. Additionally, BSL plans to expand its pilot program by deploying over 700 solar-powered lights, 129 poles, and 4 more remote monitoring antennas across the Valley in Council District 7 and the Central area in Council District 1. Lastly, with the allocated funding, BSL will procure approximately 400 additional solar-powered units.

CHALLENGES

Despite BSL's essential role in lighting roadways for all Angelenos, the Bureau faces significant financial and personnel challenges. Financially, BSL contends with unchanged assessment rates since 1996 and citywide budget cuts. These financial difficulties are compounded by the rising impact of theft and vandalism, which disrupts our services and strains our resources. Furthermore, budget cuts and the current hiring freeze complicates efforts to recruit more staff to tackle Theft and Vandalism, let alone a dedicated crew to deploy the planned solar-powered fixtures, poles, and antennas for this fiscal year.

While solar lighting is effective against Theft and Vandalism, the high cost of solar-powered lights in comparison to regular LED lights adds a financial burden to the numerous challenges already in place. Solar installations will always be limited as long as reliance on the Grid for other electrical applications is crucial for other community

needs.

CONCLUSION

BSL faces significant challenges in maintaining its extensive and growing street lighting network. Expanding the solar pilot program and seeking alternative funding sources are essential steps to thoroughly test and evaluate solar lighting solutions. By strategically addressing these challenges, BSL can move toward a more sustainable and resilient street lighting infrastructure, despite current resource limitations.

Despite the challenges, BSL is committed to fulfilling the objectives for FY 24/25. The Bureau will leverage its resources and expertise to ensure the planned work is executed effectively and efficiently.