

How can we tackle legacy systems and improve designs in street lighting programs?

Shining a light – why we need standards

Lighting is an essential element in an urban setting, accounting for 15 percent of the world's electricity demands. It is a vital component of a city's urban development strategy, offering improved visibility and aesthetic appeal, and providing an increased sense of safety and security. New lighting technologies are shaping the future of the lighting industry – there has been a noted increase in demand for smart lighting solutions across the world. According to a report by Global Industry Analysts, the global smart lighting market is projected to exceed US\$47 billion by 2020. The transition to LED lighting and energy efficient technologies has paved the way for the rapid adoption of smart lighting solutions.

It is estimated that councils in Australia spend about \$400 million each year on street lighting and switching to LED-based lighting can possibly reduce that cost by 25 percent. (Ref: www.lightingconference.com.au/news-detail:6b9b9e61-cae1-0ebf-c4f1-58ad2ec29a44.html). Joe Hancock, principal streetlight engineer, Florida Power and Light Company (FPL), developer of FPL's Smart Lighting program and FPL's new LED Tariff, believes government funding is needed to help defer risk and encourage early adoption and innovation. Further to this, he says, "However, it is also very important that the government actively supports the creation of standards. It is imperative that innovators have a roadmap to follow and users of the products need to have confidence in the future compatibility of investments made."

FPL is currently building the largest streetlight control network in North America.



Hancock says, "Legacy systems and legacy thinking are the two largest impediments to a successful system; they are the biggest challenge facing energy utility companies when implementing smart lighting programs. The tendency is to think of smart lights as an incremental change when it is truly a transformational one. Decision-makers have to look around at the emergent technology and look forward in order to judge holistically what is possible in an interconnected landscape and what the foundation needs to look like."

Efficient consumption of energy is the need of the hour with cities across the globe embracing an energy-saving model. Streetlight infrastructure plays a crucial role in today's smart cities. Bob Parks, executive director

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at Smart Outdoor Lighting Alliance (SOLA), Washington DC, US, says cities need to consider the client, the public, to conduct pilot tests and public outreach to ensure that the lighting being installed improves the quality of life for residents. In the US, there are several examples of cities that have chosen to embrace community friendly lighting goals. Davis, California, was the first city to use 2700K CCT LED after widespread protests from the community regarding a retrofit using 4100K CCT. Complaints were mainly about the new fixtures being too bright, producing too much glare and light trespass, increasing sky glow and lighting pollution with potential negative impact on human health and wildlife.

Implementing community friendly lighting designs using LED technology considerably reduces carbon emissions, promotes cost savings and enhances sustainability. According

to Bob Parks, "Using controls to adjust lighting levels to meet changing requirements throughout the night can save enormous amounts of energy and carbon dioxide, while ensuring that neighbourhoods are not over lit. Community friendly lighting design focuses on improving visibility and lighting quality. Too often, city lighting departments make decisions solely to meet lighting standards with little regard for the impact on the community. This can result in light trespass, glare and lighting that degrade visibility and safety. The other important component is to design lighting that enhances the quality of life and preserves the character of neighbourhoods."

LED-based lighting solutions are becoming the preferred option by cities. Improving the lighting infrastructure and deploying intelligent lighting solutions allows remote management and data transmission in

real-time that can benefit the community. Councils are aiming at revamping the city lighting network by integrating smart lighting technology with other smart city solutions to offer residents an enhanced quality of life.

For Australia, "Melbourne has already taken steps to retain its position as the most liveable city by creating the citywide network foundation that is needed to build upon. For sustainability, the city must commit to growing and enhancing the network, as technology evolves as the use of the network increases," says FPL's Joe Hancock.

Both Hancock and Parks, along with other industry experts, will lead the discussions on the challenges and benefits in retrofit lighting programs at the 5th Annual Australian Smart Lighting Summit being held on 13 and 14 September 2017 at Melbourne Convention and Exhibition Centre. ●

