

A nighttime photograph of a cityscape featuring a large, illuminated bridge over a river. The bridge's lights and the city skyline in the background are reflected in the water. The sky is a mix of dark blue and orange from the setting or rising sun. On the left, there are semi-transparent blue and green geometric shapes with tree branch silhouettes. On the right, there is a white graphic of a circuit board with several lines and circular nodes.

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Pathways for Progress in Public Lighting Standards

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BIO

- Director of management consultants - Strategic Lighting Partners Ltd
- Member of AS/NZS road lighting and AS/NZS luminaire standards committees
- NZ Head of IEC International Standards Committee on Lamps and Luminaires
- Founding Chairman, and current Executive Director, of Lighting Council NZ
- Consults to a wide range of AU and NZ councils and government agencies
- SLSC Programme Adviser & Council Member



- AS/NZS 1158 series standards have been the rule-book
- Are AS/NZS 1158 standards keeping pace?
- Analogue to digital – step-change is happening
- Public lighting is at a crossroads – what new directions?
- What subjects to include in fit-for-purpose local standards?

Need for a coherent and inclusive AU/NZ standards strategy – to properly reflect stakeholder needs



AU & NZ Public Lighting Standards at a crossroads



The basic questions need re-consideration:


- Why do we light?
- Where to light?
- How much light?
- When to light?

How to measure lighting performance?




Back to basics - Fundamental Questions



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- No longer restricted lightsource options
 - No longer restricted luminaire type options
 - No longer narrow colour temperature choices
 - No longer 100% light output for all night hours
 - No longer operation for 100% of night hours

So it's time to rethink the fundamentals



Now Many Options – But what choices?



Q - Why do we light our streets? A - Safety

- Road safety - For vehicles and occupants
- Pedestrian safety - For human hazard detection



Why do we light?

Q- Which areas do we light? A – Use a localised activity based lighting hierarchy

Councils and RCA's use a local activity based lighting hierarchy
Lighting tiers for - CBD, suburbs, parks, car parks, highways, etc

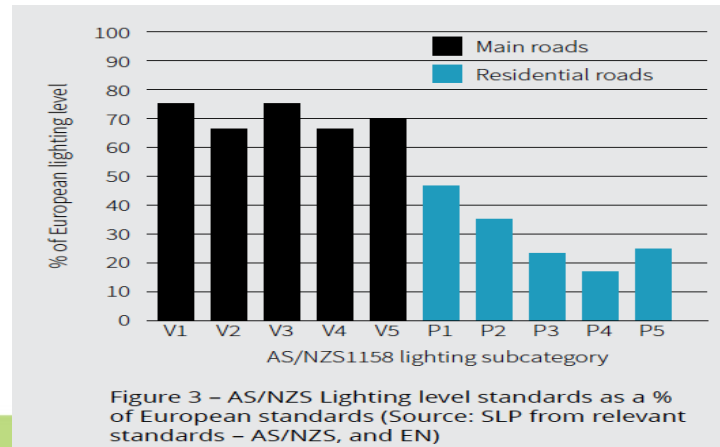
But no consideration of time-of-use (TOU) (hour of night, weekday, weekend, holiday)



Where to light?

Q - How much light? A – Use a localised activity based hierarchy

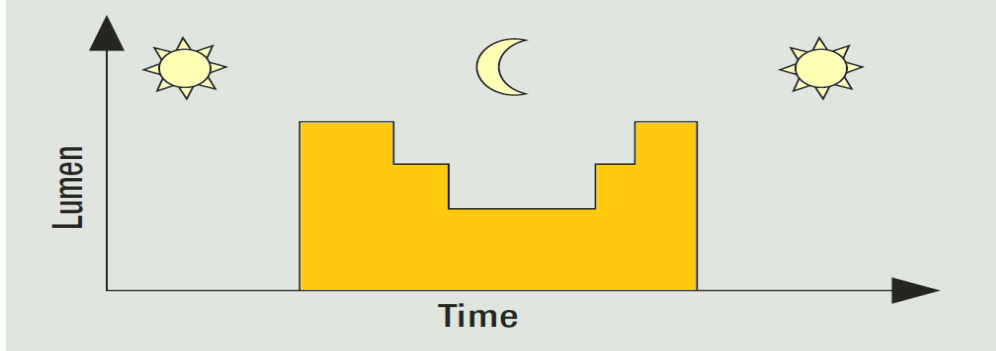
- Subcategory tiers - location based proportional to activity
- Are the LTP's still appropriate? eg P5?
- Are the LTP values evidence based?
- Council/RCA duty-of-care for community safety prevails
- Subcategory selection TOU and dimming/brightening guidance needed



How much light?

Q - Do we need to light 100% of night hours? A - Not any more

- Light levels related to location and traffic activity levels
- Lower traffic equals lower light
- Need subcategory selection TOU dimming/brightening guidance



When to light?

Q - How do we measure performance?

A – Currently we don't, and we can't.

No means of Measurement and Verification of performance:

- No M&V of safety outcomes
- No M&V of lighting outcomes
- No M&V of energy outcomes

Millions of \$\$\$ are invested with no M&V or auditing of actual results!

- Need standards based LTP's and KPI's for performance monitoring



How to measure performance?

Q – Who is responsible for public lighting? A – Councils and RCA's

- Council/RCA's have a duty of care – Financially, legally
- Councils/RCA's need to be very clear about expected performance requirements

But how do they do this the situation is currently very vague



Who is responsible for public lighting?



European Standard EN-13201 Road Lighting series:

- Part 1 – Guidelines on selection of road lighting classes
- Part 2 – Performance requirements
- Part 3 - Calculation of performance
- Part 4 – Methods of measuring lighting performance (not AS/NZS)
- Part 5 – Energy performance indicators (not AS/NZS)

Benchmarking – EN Lighting Standards

Energy performance

Needed to calculate systemic energy performance:

- Systemic performance = design + luminaires + controls + operation
- Includes methods for adaptive lighting with variable light levels
- Good news! - Already underway within LG-002 committee of AS/NZS 1158



New Standards – Suggestion 1

Site Measurements

Needed to determine actual lighting/energy/safety performance:

- to validate actual design + luminaire + controls + operation
- to validate procurement choices
- to enable and enforce product/service warranty claims
- to enable performance contracting business models - ESCO, EPC, PPP, LaaS, NaaS, etc
- to establish performance compliance over whole of asset life

New Standards – Suggestion 2

Lighting Systems


- Everyone is struggling with this, everywhere
- International IEC and ANSI standards developments underway

Possible scope of requirements:

- 1) Terms and definitions
- 2) Interoperability
- 3) Compatibility
- 4) Interchangeability
- 5) Cybersecurity
- 6) Reliability
- 7) Performance



New Standards – Suggestion 3

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- Generational LED/ICT infrastructure renewal - No time waste
 - Fit-for-purpose standards are needed for design and user guidance
 - Stakeholders need to collaborate on an inclusive standards strategy
 - Stakeholders need to agree rejuvenated needs/wants/outcomes
 - Stakeholders need to communicate with Standards Australia



A Collaborative Strategy



A call to stakeholders:

- IPWEA/ENA/IESANZ/LGA/LCA/LCNZ/RCA's/regulators etc
- We need a coherent and inclusive new-generation public lighting standards strategy
- Who will be the catalyst and provide the leadership?



Conclusion - A call to action!

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Thank You