

Smart Procurement and Innovative Business Models for LED Road Lighting

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Road Lighting Technology is Changing !

A lighting revolution

fundamental shifts in technology, design, application, operation and maintenance

- From **analogue** luminaires to **digital** electronic
- From **unconnected** luminaires to **internet networks**
- From **static** operation to **dynamic**
- From **product based** performance assessment to **systems based**

Traditional narrow methods of **product** based assessment procurement are **failing** to accommodate this diversity and to **measure** true performance over time

Business Models are Changing

- No longer only a capex decision
- Many new players are emerging that can offer complete solutions including finance and risk management - PPPs, PFIs, EPCs, ESCOs etc
- But how do we evaluate the contenders ?

Procurement manual

for activities funded through the
National Land Transport Programme



New Zealand Government

NZTA Procurement Manual 2009

A progressive international perspective

- Moving from Competitive Price (CP) to Best Value (BV)
- Life Cycle Approach
- Multiple bottom lines
- Explore Innovation

Procurement Methodologies – NZTA changes 2009

Old Model - *Competitive Price (CP)* –

- Assesses *initial cost* impacts only
- Specification based
- Has *prescribed* technology – focused on *inputs*

New Model - *Best Value (BV)* –

- Assesses a wide *range* of impacts over whole of life
- Performance based
- Has *open* technology – focused on *outputs*

How do we determine BV for road lighting ?

- That is the problem !
- No guidance from NZTA Manual
- Where to look ?

- There are now methodologies to achieve this

The Challenge

To procure public lighting systems on the basis of the lowest ***Life Cycle Cost*** and to determine Best Value by –

Quantitatively rating and ranking the parameters -

- Lighting Service levels
- Energy Performance
- Environmental Performance

ISO Performance Assessment Framework

ISO 14000 Series

Environmental Performance Communications -

- **Type III - Environmental Product Declaration (EPD) ISO 14025 – Certified**
- For buildings and infrastructure, inc lighting, **Type III EPD** conforming Life Cycle Assessments are emerging internationally as a structure for E&E performance.

Environmental Product Declarations (EPDs)

- An EPD describes a product in a life cycle context – all relevant information **from cradle to grave**
- EPDs are **independently verified** and **guarantee reliability** of manufacturers' information
- **Product category Rules** - EN 15804 - the core rules

Quantification of Life Cycle Performance

LCA = Life Cycle Assessment- ISO14040 - Life Cycle Performance

PCR = Product Category Rules- **Luminaires & Related Equipment**, EN15804
Specific rules for quantification of Lighting System E & E performance

EPD = Environmental Product Declarations- ISO14025 Independently Certified

LCA + PCR = EPD

Quantitative procurement decisionmaking

E&E “Green” Products - Now Quantified

EPD based stages of E&E marketing –

ASSESS, MEASURE, COMPARE, CERTIFY

- International manfs are now using EPDs to credibly promote leadership
- Assertive numbers driven E&E marketing campaigns are now here
- Validated integrity product information and performance claims

CMS Datalogging for Measurement & Reporting

- Flexible operation can now be documented



Australasian EPD – Construction Industry

- An Australasian EPD scheme will be launched in mid 2014
- Based on international Standards
- Harmonised with other relevant national programs
- NZ regionally relevant materials and process databases

**THE GREEN
STANDARD**



Institut Bauen
und Umwelt e.V.

Benefits of an EPD

Buyers and consultants are increasingly demanding credible E&E information about products.

EPDs can support a company or organisation as a -

- ***management tool*** - monitor product E&E data to improve performance
- ***communication tool*** - Independently verified E&E product information
- ***assessment tool*** - benchmarking E&E performance and selection
- ***procurement tool*** – attain government or corporate E&E objectives

Who is leading the movement ?

THORN
LIGHTING PEOPLE



ZUMTOBEL

TRIDONIC

we-ef

PHILIPS

Expected Outcomes?

There are now NZ relevant frameworks and methods to –

- Accommodate ***complex systems***
- Evaluate holistic business models and ***innovative performance contracts***
- Handle rapid ***change***
- Identify ***Best value*** outcomes

These methods provide a –

- Standardised
- Rigorous
- Transparent
- Auditable

basis for complex and high value lighting infrastructure procurement decisions

Thank You

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