

Improving the Lighting Project Executions with Light-Emitting Diodes in Trinidad and Tobago: A Value Engineering Approach

Melissa Ramrose ^{a,Ψ}, and Kit Fai Pun^b

Faculty of Engineering, The University of the West Indies, St. Augustine, Trinidad and Tobago, West Indies;

^aEmail: Melissa_Ramrose@hotmail.com;

^bEmail: KitFai.Pun@sta.uwi.edu

^Ψ Corresponding Author

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Abstract: Light emitting diodes (LED) are being used increasingly to provide lighting solutions for domestic and commercial lighting. This paper reports the findings on a recent study on the current issues and challenges faced with adopting LED lighting in projects and provides a value-based solution in Trinidad and Tobago (T&T). It identifies the factors affecting LED adoption in lighting projects. It then relates the challenges of LED adoption and the improvement of lighting efficiency in projects by acquiring empirical data via the conduct of interviews and a survey with industry practitioners in T&T. Compared to traditional lighting, LED lighting has superior qualities in various ways such as being energy efficient; has a long lifespan, durable, and is environmentally friendly. As evidenced from the empirical findings, 60% of practitioners agreed that they lacked the knowledge of adopting LED lighting. There have been needs to eliminate the cost barriers and to educate the public on the potential use of LED lighting in T&T. The collation of findings was used to develop 2-phase LED adoption approach incorporating the principles and tools of value engineering (VE). Phase 1 is concerned with lighting solutions analysis with DIALux in the planning phase of a project, whereas Phase 2 is an integrated VE policy for transitioning efficient lighting solutions in projects. These two phases are constituted to overcome the barriers and challenges currently being faced in lighting projects. A post-evaluation survey was undertaken with those who had participated in the previous stage of data acquisition. The post evaluation focused on acquiring practitioners' views on the applicability of the proposed approach in lighting project executions in T&T. Subject to further verification of empirical and case evidence, future work would include testing of the VE-LED approach on a wider scale using lighting projects in the public- and private-sectors separately and collectively in T&T to decrease the current issues and challenges faced with adopting LED lighting across the country.

Keywords: Light emitting diodes (LED), lighting projects, Value Engineering, Trinidad and Tobago