

## ABSTRACT

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**Topic: Assessment of The Energy Efficiency Programmes Within The Internal Operations of Nairobi City County Government ,a Case Study of CBD Region.**

This study carried out an assessment of the Energy Efficiency programs within the internal operations of Nairobi City County Government (NCCG) .In carrying out this determination, this research conducted an energy audit of the specified internal operations, identified the Energy Efficiency programs that are in place within the operations of the NCCG, assessed the success rate of these Energy Efficiency programs, and finally developed an implementation model for Energy Efficiency programs for the internal operations of Nairobi County Government . These facets constituted the objectives of the study. This research was informed by the need for improved energy sustainability within the public sector as envisioned in the national government's energy policy that seeks to optimize energy use and explore alternative energy sources that are sustainable. To achieve the research objectives, this study adopted a mixed-method research design in which qualitative and quantitative data analysis was employed. A case study approach was used to focus this research on street lighting, traffic lighting, and building facility services within the Nairobi CBD region. The results of this study indicated that there have been EEPs that that have been instituted by NCCG and that these measures have led to a 32% decrease in energy consumption in city hall complex between the years of 2016 and 2018 with the EEPs including replacement of luminaires with more energy efficient options. For the streetlighting, 184 lamps have been replaced with LED options translating to 4% conversion rate with some not operational due to faults and vandalism. Finally traffic lighting has a 65% LED conversion rate with incandescent lamps being 14,833 in 2016 and down to 9,754. The economic analysis shows that the EEPs implemented are able to derive economic value to the NCCG within a medium term plan. Various Barriers to implementation has also been highlighted which should be put into consideration during EEPs planning in order to mitigate future bottlenecks .The business model developed allows departments to follow a standardised process in setting energy targets, implementing energy efficiency measures and tracking financial, environmental and energy savings.

**Keywords: Assessement, Energy Efficiency, Sustainability, Energy Audit , Programmes, Internal Operations, Nairobi City County Government.**