

# Abuja office building energy storage renovation plan





## Overview

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Can existing office buildings be converted into life-cycle net-zero energy use?

The most distinguishing innovation of this study is to explore the feasibility of converting existing office buildings into life-cycle net-zero energy use and greenhouse gas emissions. A novel retrofitting design approach is proposed to identify the optimal retrofitting solution to achieve LCNZE or LCNZC with maximum lifetime payback cost.

How does retrofitting affect operational energy of a building?

The impacts of retrofitting measures on operational energy of the building is assessed through fundamental thermodynamic and first principle equations. Energy transfer through thermal transmission, ventilation, infiltration and solar radiation is calculated using the governing equations of heat conduction (Luo et al., 2019).

How to achieve life-cycle net-zero buildings?

Retrofitting design approach for strict life-cycle net-zero buildings is still quite rare. The innovation of this study is to propose an integrated design process to determine optimal retrofitting solutions and achieve life-cycle net-zero.

Can retrofitting optimisation transform existing buildings into life-cycle net-zero energy?

The scope of this study is to propose a retrofitting optimisation approach for transforming the existing buildings into life-cycle net-zero energy or life-cycle net-zero carbon.



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### Retrofitting existing office buildings towards life-cycle net ...

Therefore, the innovation of this paper is to propose an integrated design process to transform existing office buildings into life-cycle net-zero energy consumption or greenhouse ...



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