



WICHITA STATE
UNIVERSITY

UNIVERSITY LIBRARIES

Energy efficiency and infrastructure optimization (integration of battery storage and solar)

Item Type	Abstract
Authors	Oke, Kolade
Citation	Oke, Kolade. 2023. Energy efficiency and infrastructure optimization (integration of battery storage and solar). -- In Proceedings: 22nd Annual Undergraduate Research and Creative Activity Forum. Wichita, KS: Wichita State University, p. 24
Publisher	Wichita State University
Download date	2026-06-10 19:02:03
Link to Item	https://soar.wichita.edu/handle/10057/25239

ENERGY EFFICIENCY AND INFRASTRUCTURE OPTIMIZATION (INTEGRATION OF BATTERY STORAGE AND SOLAR)

Kolade Oke

*College of Engineering
Natural Sciences and Engineering Oral Presentation*

Abstract: This research analyses how we can integrate the solar power source backed up by a battery bank with the grid and the demand to make it effective, efficient, and resilient. Renewable energy sources such as solar panels are becoming more affordable, and more and more homes, industrial plants, and office buildings are installing renewable sources. With an increase in demand, i.e., the number of users installing solar panels, the price of this renewable electricity source is decreasing, which essentially should imply more solar adaptation. We can rely on renewables to help save our world from global warming caused by fossil fuels. However, one of its disadvantages is that there is no constant supply of electric power at every point in time using renewables such as solar or wind. For example, we do not get solar radiation at night when it is dark. We have more solar energy production when it is sunny, usually in the afternoon. To minimize the impact of unavailability of renewable energy, one can store the energy in batteries while when the renewable energy is available and discharge the energy from the batteries when there is no renewable power or when there is a disruption in power. In this paper, we will use investigate how size and operation of solar and battery system could be run and optimized under different scenarios and will present the results and lessons learned.

Faculty Mentor: *Dr Yildirim Mehmet*