

Smart Energy Management System for Office Environment

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Abstract: *The innovative smart grid concept is not only reshaping the electricity grid infrastructure, but also encouraging a shift towards more environmentally responsible energy consumption. "green" solutions for homes and businesses have been explored in an effort to accelerate the spread of renewable energy sources and lessen the impact of their energy consumption on the environment. However, the "Smart Building" paradigm proposes to integrate distributed generation plants, storage capabilities, and electrical loads to deal with the challenges posed by the unpredictability of the overall power availability brought on by renewables (such as solar and wind energy). Each Smart Building has its own control system and may work off the grid or in conjunction with the main power grid. The former scenario involves a Smart Building's ability to either draw electricity from or provide power to the grid. The latter entails the Smart Building's inability to draw power from the grid in the event of a shortage, or to inject power surpluses into the grid in the event of a surplus of production. Instead, the Smart Building must rely solely on local generation and storage to meet the power demand of the electrical loads.*

Keywords: Smart Office Building; Real-time Load Scheduling; Photovoltaic Generation; Battery Storage..

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