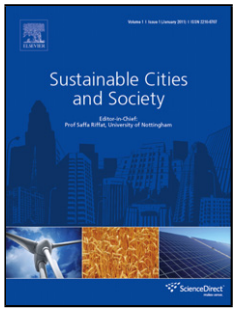

Title: Multiple Power-Based Building Energy Management System for Efficient Management of Building Energy

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Multiple Power-Based Building Energy Management System for Efficient Management of Building Energy

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Running title : Multiple Power-Based Building Energy Management System

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Research Highlights

- A multiple power-based building energy management system (MPBEMS) is proposed for effective energy management in building environments with different power systems.
- The proposed system uses the technology of a building energy high efficiency system that can control the power consumption equipment of the building by linking the grid power with new and renewable energy and the energy storage device.
- For the operation of the MPBES, we propose a power distribution method for multiple power source and a power consumption device control method based on consumption prediction.
- For the proposed method, we analyzed the characteristics of the building energy based on the energy usage of big data.
- . It also proposes an Adaptive Energy Consumption Prediction (AECP) algorithm to predict energy consumption and the performance of the algorithm is evaluated.
- Lastly, we calculate the cost function, applying the Korean Time of Use (TOU) rate and analyze the performance of the proposed system in a building in Seoul where the system is installed.
- The result of the efficiency analysis using the proposed system shows an annual electricity rate reduction efficiency of 5%.