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MICROGRID BSS SCHEDULING USING TEACHING LEARNING BASED OPTIMIZATION ALGORITHM

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ABSTRACT

Energy storage serves as a crucial hub for the entire grid, supplementing resources such as wind, solar, and hydropower, as well as nuclear and fossil fuels, demand side resources, and system efficiency assets. It can function as a generation, transmission, or distribution asset — all in one unit. Storage is, in the end, an enabling technology. It has the potential to save consumers money while also improving reliability and resilience, integrating power sources, and reducing environmental impacts.

Battery storage system design is now important for microgrids to prepare a day-ahead schedule for steady operation. This article discusses the scheduling of BSS, which helps to reduce the average cost imposed on microgrid consumers in the context of dynamic pricing. For minimizing, a cost function is created and subjected to optimization based on the restrictions. The search space magnification is 50(D_C– D_D + 1), where D_C and D_D are the maximum charge and discharge depths in an hour in percentage for a specific BSS, respectively. The programming is done by combining daily load, generated energy, and grid price forecasts with a microgrid size as specified in the article and implementing Teaching Learning Based Optimization (TLBO) for achieving an average cost reduction when compared to Net Power Based Algorithm and Particle Swarm Optimization for a planned BSS.*

KEYWORDS: *Important for Microgrids, Implementing Teaching Learning Based Optimization (TLBO)*

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