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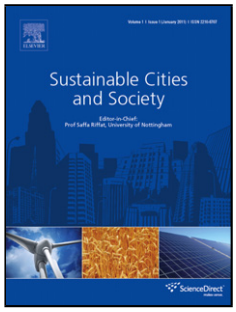

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A review of optimization approaches for hybrid distributed energy generation systems: off-grid and grid-connected systems

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Highlights:

1. Optimization approaches for hybrid distributed generation systems was reviewed.
2. AI techniques are dominating the techniques used for optimization of DEG systems.
3. The objective functions are maximum reliability and optimum operation schedule.
4. Developments are undertaken to improve the operational efficiency in implementation.

Abstract

Distributed generation is a collective term that covers the generation of energy at micro level, distributed in a location near the end user by using renewable and nonrenewable distributed energy generation (DEG) resources including among others, solar, wind, hydro, geothermal and diesel generators. This paper presents a review on the optimization approaches for hybrid DEG systems, considering both stand-alone and grid-connected systems. There are several optimization techniques used on DEG systems, comprising of analytical and artificial intelligent (AI) and hybrid techniques. This work encompasses the selected journal papers published especially in the last five

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