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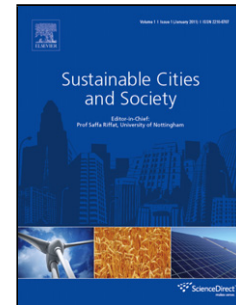
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## Community load leveling for energy configuration optimization: methodology and a case study

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### Highlights

- A method to evaluate the performance of load leveling is proposed.
- Simulation and scenario analysis are combined for load prediction.
- Optimization of energy configuration is conducted to demonstrate the benefits of load leveling.

### Abstract:

Load patterns have a significant effect on the configuration of an energy system. With a smoother load profile, the initial investment cost and operation and maintenance costs can be reduced. Adjustments in the area ratio of different types of buildings during early planning stage can be useful in leveling the loads. However, there are few studies till date on the guidelines for making such adjustments. This paper proposes a method to evaluate the performance of load leveling. Before evaluation, the load profile is obtained using a method that combines simulation and scenario analysis. Optimization of energy configuration for a typical case is conducted before and after load leveling adjustment to demonstrate the benefits of load leveling.

#### *Abbreviation*

<i>ANN</i>	<i>Artificial neural network</i>
<i>SVM</i>	<i>Support vector machine</i>
<i>FFA</i>	<i>Firefly algorithm</i>

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