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Optimal green energy source selection: An eclectic decision

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Abstract:
Various researchers have suggested many qualitative and quantitative criteria for green energy management, which are mostly operational in nature and specific to a particular application. The main aim of this investigation is to develop an innovative integrated analytical framework as a benchmark for selecting the optimal green energy source under various sustainable dimensions. Nine major areas likely; energy management, source selection, environmental dimension, social dimension, economic dimension, technical dimension, institutional dimension, sustainability and importance measurement have been considered for this study. The proposed framework for green energy source selection is relatively innovative as the various key factors are integrated for sustainability level of constructs (environmental, social, economic, technical and institutional) with expert judgment levels (both strategic and tactic). The framework helps to identify the optimum green energy source (solar energy) for cleaner future using analytical hierarchy process. The research can potentially help energy managers, policy makers as well as decision makers to measure and improve the utilization of green energy sources for sustainable future.

Keywords:
Energy management, source selection, analytical hierarchy process, multi-criteria decision making

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