

Extended Literature Review on Sustainable Energy by Using Multi-Criteria Decision Making Techniques

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Abstract : Increased global issues such as depletion of sources, environmental problems and social inequality triggered public awareness towards finding sustainable solutions in order to ensure the well-being of the current as well as future generations. Since energy plays a significant role in improved social and economic well-being and is imperative on both industrial and commercial wealth creation, it is a must to develop a standardized set of metrics which makes it possible to indicate the present condition relative to conditions in the past and to develop any perspective which is required to frame actions for the future. This is not an easy task by considering the complexity of the issue which requires integrating economic, environmental and social aspects of sustainable energy. Multi-criteria decision making (MCDM) can be considered as a form of integrated sustainability evaluation and a decision support approach that can be used to solve complex problems featuring; conflicting objectives, different forms of data and information, multi-interests and perspectives. On that matter, MCDM methods are useful for providing solutions to complex energy management problems. The aim of this study is to review MCDM approaches that can be used for examining sustainable energy management. This study presents an insight into MCDM techniques and methods that can be useful for engineers, researchers and policy makers working in the energy sector.

Keywords : sustainable energy, sustainability criteria, multi-criteria decision making, sustainability dimensions

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