

Research proposal for Ph.D. in Mechanical Engineering -KARE

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Area of Research: - “Soft computing techniques in Energy conservation of buildings in India”

Overview: - Conservation of energy in buildings has drawn attention worldwide and is the prime concern in many countries including India. Because buildings are the major consumers of generated energy. If conservation of energy in buildings is achieved, it would be impacting a major changes in savings in energy.

The Research problem: - There is a increasing demand in energy on a daily basis. The consumption of energy is also being a challenge faced by many regions. Most of the energy generated is being wasted due to improper decisions and mismanagement of energy. The decision making bodies are not systematic and scientific, most of energy managers and administration take decisions consensus based on personal experience which has no scientific background.

The solution to the Research Problem: -

Decisions in energy sector if are taken in a systemic manner based on proven scientific evidences are more substantial and would save energy. Multiple Criteria Decision Making(MCDM) is one such proven techniques in to take decisions scientifically and systematically. This research intends to use

Literature review: - The area of decision making using MCDM in the field on energy is scare. Therefore, this research proposed to use MCDM techniques in the field of conservation of buildings.

Research Questions: -

1. What are the MCDM methods used in Energy Decision making techniques?
2. What are the factors responsible for energy conservation of buildings?
3. How are the factors prioritised and what is the criteria of prioritising?

Objectives of the research: -

- a) To find out the factors responsible for energy conservation of buildings particularly in India.
- b) To prioritise the Factors based on the ranks obtained in MCDM Techniques.

Design of the research: -

The Research would be accomplished by gathering inputs from Industry experts. It would also conduct field surveys and online surveys. All these inputs will go into MCDM visual modelling to provide energy conservation factors and would be ranked for taking better decisions in energy management.