

Utilizing AHP in Design Choices for Products Undergoing Regulatory Changes

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Abstract

In this paper, we utilize AHP to find the optimal design for appliances undergoing governmental regulation. For example, manufacturers producing home appliances are continuously challenged with new rules and minimum energy efficiency requirements (MEES). Features of such products are typically two types: regulated and non-regulated (by the government). Features are prioritized using AHP. Regulated features are constrained in the model. The problem also considers different designs based on degree of modularity. Findings of this research will enable manufacturers to choose optimal, sustainable & environmentally friendly designs such by complying with regulatory requirements, and simultaneously providing maximum benefit to other stakeholders (i.e. customers, shareholders and society).