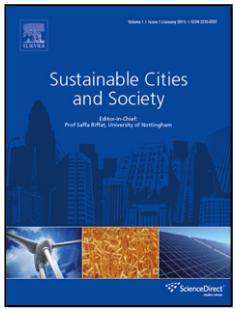

Title: Meeting the Brazilian Energy Efficiency Law: A flexible and interactive multicriteria proposal to replace non-efficient motors

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PII: S2210-6707(17)31442-7
DOI: https://doi.org/10.1016/j.scs.2018.06.020
Reference: SCS 1154

To appear in:

Received date: 27-10-2017
Revised date: 15-6-2018
Accepted date: 16-6-2018

Please cite this article as: de Macedo PP, de Miranda Mota CM, Sola AVH, Meeting the Brazilian Energy Efficiency Law: A flexible and interactive multicriteria proposal to replace non-efficient motors, *Sustainable Cities and Society* (2018), https://doi.org/10.1016/j.scs.2018.06.020

Meeting the Brazilian Energy Efficiency Law: A flexible and interactive multicriteria proposal to replace non-efficient motors

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Highlights

- Brazilian Energy Efficiency Law: minimum energy performance standards established.
- The research focuses on a multicriteria model for motor replacement.
- The multicriteria model uses a flexible and interactive tradeoff elicitation procedure.
- Interactive model, less cognitive effort, less time spent.
- Replacement plan analysis.

Abstract

In Brazil, industries consume approximately 40% of all national electrical power, and the complexity of the industrial energy system demands an appropriate energy management. Moreover, industries need suitable tools to support their strategies to meet energy efficiency regulations and promote energy gains. Through a case study, this paper proposes a multicriteria model based on the FITradeoff procedure to support a motor replacement problem in a chemical industry, in order to build a replacement plan to meet the minimum energy performance standards established by the Brazilian Energy Efficiency Law. This interactive model requires less cognitive effort from the decision-maker in comparison to the traditional tradeoff procedure, avoiding a tedious and long decision process. In addition, this model deals with the data inaccuracy through a sensitivity analysis thereby providing more robust results. After building the replacement plan,