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COPE-SMARTER - A decision support system for analysing the challenges, opportunities and policy initiatives: A case study of electric commercial vehicles market diffusion in Denmark - DTU Orbit (08/11/2017)

COPE-SMARTER - A decision support system for analysing the challenges, opportunities and policy initiatives: A case study of electric commercial vehicles market diffusion in Denmark

Stakeholder's strategies in encouraging wide-scale market penetration depend on their perceptions. This study focuses on perceptions of Danish practitioners in policy-making organizations regarding the perceived challenges, opportunities and policy initiatives for the majority-market adoption of electric commercial vehicles (ECVs) in commercial sector in Denmark. We propose a new four-step expert-based technique, named COPE-SMARTER, for evaluating the market diffusion of environmental friendly technologies by combining SWOT analysis and multi-criteria decision analysis (MCDA) techniques. We focus on the perceptions regarding: (i) the potential promotional strength of motivators for ECV market penetration, (ii) the severity of the technological, financial, physical and operational challenges, (iii) the efficiency of policy initiatives in encouraging the market diffusion of ECVs, (iv) the expected market penetration rates for ECVs by target year. The results show the strength of the COPE-SMARTER approach in generating a clear, coherent, and tractable evaluation. Severe challenges are financial, operational and technological, with high purchase prices being by far the most severe. The opportunities are financial and environmental, with overall savings in the long-term as the opportunity with the highest promotional strength. Effective policy initiatives are low registration fee for ECVs, state subsidies for the purchase or use of ECVs, and emission-based taxes.

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