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Human Factors in Deployment of Renewable Energy in Iran: the Case of Dairy Farmers

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Abstract

An increasing global energy demand, concerns about energy security such as availability of fossil-fuel resources and dependency on them, anthropogenic emissions of greenhouse gases and environmental degradation caused by energy generation from fossil fuels stimulated debates about future efficacy of fossil fuel. In this situation, renewable energies sources (RES) can be one of the options to satisfy energy demand with low carbon energy generation. The government of Iran is recognising the potentials of RES and announced the plan to deploy 2 GW of RES capacity between the years 2010 — 2015. However, scientific evidence shows that public acceptance is an important issue for deployment of such policy. The aim of this study is to provide much-needed empirical data about dairy farmers' attitude and willingness to use renewable energy instead of fossil fuel energy at their farms. This will provide a knowledge base for the development of public policy measures that ultimately aim to increase growing renewable energy production among Iranian dairy farmers. For this purpose we apply a well-established social-psychological model, the Theory of Planned Behaviour, to identify the psychosocial factors that influence attitudes of dairy farmers towards renewable energy. The empirical data collection part includes a cross-sectional survey among dairy farmers in the Khuzestan and Chaharmahal and Bakhtiari Province in the Southern Iran. The data were collected with the help of personal interviews, which were based on the questionnaire specially designed for this survey. The reliability and validity of the instruments were examined and approved.

Structural equation modelling showed that moral norms, attitudes and perceived behavioural control are significant factors influencing willingness to use of renewable energy, while subjective norms and self-identity do not play a significant role. These variables can predict nearly 57% variance in dairy farmers' willingness. The findings yield public policy implications for renewable energy use among dairy farmers.

Keywords: Dairy farmers, Iran, psychological factor, renewable energy