Completion Report

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The world relies heavily on fossil fuels for energy generation, thereby leading to global warming and regional climate change. Renewable energy (RE) is one of the realisable solutions to tackle the drastically increasing energy demand. As the global push for RE culminates within the coming years, energy policies will be the key driver in promoting RE deployment. Japan as a developed country aims to achieve a 36–38% share of RE in the energy mix by 2030, whilst Malaysia being a developing country has set a goal of achieving 31% RE mix by 2025. This research project performed a comparative study on renewable energy policies between Japan and Malaysia. There project mainly involve two stages.

In the first stage of the project, a comparative study of RE policies between Japan and Malaysia was conducted, with the RE policies of both countries being analysed and presented chronologically. It is observed that both countries have been actively implementing a series of RE policies since the 21st century, especially Japan after the Fukushima nuclear disaster in 2011. Japan has shown an outstanding achievement where it achieved 20.8% of RE mix in 2020 while Malaysia is still far behind its target at approximately 2% in the same year. Hence, the Malaysian government should follow Japan's footsteps in adopting and enforcing RE policies, and at the same time increase civil awareness regarding RE and stimulate participation from various stakeholders.

In the second stage, a quantitative research has been carried out where a survey has been conducted to study the intention to use renewable energy technology in Malaysia. Despite the increase in the usage of renewable energy in Malaysia, the proportion of renewable energy (RE) within the energy mix lags far behind satisfactory levels. The public acceptance towards renewable energy is one of the many obstacles that hinders the proliferation of RE in Malaysia. It is therefore imperative to determine the key factors which shape an individual's intention to utilize RE. Three models are compared and assessed in terms of their efficacy in predicting such behavioural intention, namely the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and an extended model that combines the characteristics of the two prior theories. Partial-Least-Squares Structural Equation Modelling was performed on the collected survey dataset with 524 responses. Analyses revealed that attitude and perceived behavioural control are important factors of intention to adopt renewable energy technology, with perceived ease of use and perceived usefulness in turn being significant antecedents of attitude, whereas subjective norm did not influence intention. Among the three models, the extended model triumphs in terms of path significance and explanatory power, followed by TPB and then TAM. Results show that costs, ease of use and accessibility of RE remain limiting factors towards RE adoption in Malaysia, hence the need of appropriate policies/programmes, such as targeted incentive campaigns, to alleviate this issue. Also, the survey revealed that most of the respondents aware of various forms of RE technology where solar and wind energy are the top two. About 77.6% of the respondents aware of at least one national renewable energy policy.

Publication of the Results of Research Project:

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Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.) Y.H. Tang, A. Choo,T.C. Lau, W.T.Chong, **K.H.Wong**, A comparative study on renewable energy policies between Japan and Malaysia, IOP Conference Series: Earth and Environment Science 1074 (1)(2022),012010 G.Z. Wong, **K.H. Wong**, T.C. Lau, J.H. Lee, Y.H. Kok, Study of intention to use renewable energy technology in Malaysia using TAM and TPB.- Submitted to Renewable Energy on 6th Nov 2022 (status: under review)
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