INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 13, Issue 12, (2023) E-ISSN: 2222-6990

Conceptualizing Factors Influencing Local Behavioural Intention Towards Renewable Energy Utilization: A Case Study of Malaysia

Farah Roslan[1], Nur Izzati Ab Ghani[1], Hawa Husna Ab Ghani[1], Norhilmi Muhammad[1], Zanariah Mohd Nor[2]

[1]Faculty of General Studies & Advance Education, Universiti Sultan Zainal Abidin, 21300 Kuala Terengganu, Terengganu, Malaysia, [2]Faculty of Bioresources and Food Industry, Universiti Sultan Zainal Abidin, Besut Campus, 22200 Besut, Terengganu, Malaysia

Corresponding Author Email: farahroslan@unisza.edu.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v13-i12/19988 DOI:10.6007/IJARBSS/v13-i12/19988

Published Date: 09 December 2023

Abstract

The transition to renewable energy is a complex process influenced by various factors. As the world emphasizes the shift toward sustainable energy, it is crucial to boost the acceptance and use of renewable resources for addressing environmental challenges, promoting economic development, ensuring energy security. At present, Malaysia is confronted with the imperative to significantly enhance its energy efficiency and transition towards a greater reliance on renewable energy sources. This imperative is essential for addressing future energy security challenges and fostering sustainable growth in the nation. The intention of the local community holds a central significance in the development and acceptance of renewable energy sources. A positive intention within the community fosters support, engagement, and collaboration, thereby influencing the successful integration and adoption of renewable energy technologies. Thus, the study introduces a new conceptual model to researchers and practitioners to better understand the concept of attitude, financial costs, perceived behavioural control and socio-demographic factors on behavioural intention for clean energy utilisation. Therefore, comprehending and addressing the intentions of individuals emerge as crucial factors in promoting the sustainable and widespread utilization of renewable energy sources, particularly in the case of Malaysia.

Keywords: Renewable Energy, Theory of Planned Behaviour, Behavioural Intention, Pro-Environmental Behaviour, Malaysia

Introduction

The recognition of the negative impacts of fossil fuel consumption has garnered widespread attention from scholars and policymakers globally. The seventh and thirteenth Sustainable

Development Goals (SDGs) underscore the significance of achieving 'affordable, reliable, sustainable power generation for all' and addressing climate change mitigation (United Nations, 2015). In response to these challenges, governments worldwide are urged to work collaboratively towards a more sustainable world by 2030, with a particular focus on renewable energy deployment. Renewable energy presents a viable solution for advancing the SDGs due to its minimal carbon dioxide (CO2) emissions, contributing positively to climate change mitigation. Furthermore, compared to traditional energy sources like coal and biomass, clean energy has a lesser impact on human health, potentially reducing illnesses related to local air pollution (Rhodes et al., 2014). Additionally, the adoption of green energy holds promise for enhancing education and promoting gender equality (Daka & Ballet, 2011). Despite the collaborative efforts of governmental bodies, utility providers, energy corporations, and scientific communities to facilitate the adoption of renewable energy sources, the predominant share of electricity generation in Malaysia continues to be attributed to fossil fuels. As of 2018, fossil fuels accounted for a substantial 78% and 83% of the country's electricity production, as illustrated in Figures 1 and 2. This pressing scenario, integral to Malaysia's developmental and industrial progress, has resulted in heightened air pollution, posing significant public health risks, and contributing to increased CO2 emissions from the energy sector. In response to this challenge, the Ministry of Energy, Science, Technology, and the Environment (MESTECC) has initiated a strategic focus on clean energy, with the aim of renewables supply 40% of the total energy supply by 2035 (New Straits Times, 2022). Nevertheless, despite these proactive measures, persistent technical and technological disparities between the current energy market and the integration of clean energy persist. Figures 1 and 2 underscore the limited contribution of the renewable sector to both electricity capacity and generation. Moving forward, Malaysia is confronted with the imperative to substantially enhance its energy efficiency and pivot towards a more significant reliance on renewable energy sources, addressing future energy security challenges and fostering sustainable growth in the nation.

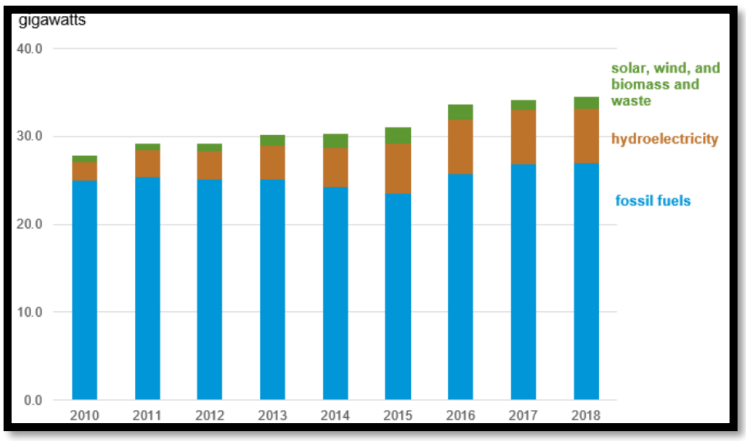

Figure 1: Primary electricity capacity in Malaysia, 2010-2018
Source: BP Statistical Review of World Energy, 2019

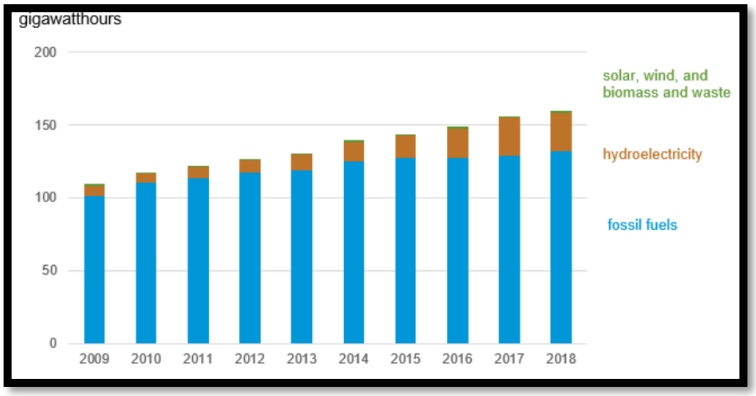

Figure 2: Primary electricity generation in Malaysia, 2009-2018
Source: BP Statistical Review of World Energy, 2019

Clean energy enables communities to meet their growing energy demands in a sustainable manner (Irfan et al., 2019). The development of renewable energy could be broadened by understanding consumer behaviour towards the resources. Many studies have addressed the intention of consumers to use renewable energy, particularly in developed countries. Their findings revealed a high level of public acceptance of clean energy resources (Hamilton et al., 2018). Some scholars have focused their attention on the underlying structural capacity behind the general acceptance of renewable energy because the key determinants are efficient policy support and economic motivation (Musall & Kuik, 2011; Paravantis et al., 2018). Other studies have focused on psychologically oriented consumer behaviour; nevertheless, they used quantitative assessments and adopted qualitative approaches in the process (Kaufmann et al., 2012).

The local community's intention regarding renewable energy plays a pivotal role in the development and acceptance of renewable energy sources. Local communities are instrumental in facilitating decentralized renewable energy due to the economic and financial benefits, community autonomy, and sustainability they offer (Yamamoto, 2016). Community energy plans at the local level emphasize energy efficiency and conservation, with the focus on renewable energy sources varying based on community size and remoteness (Denis & Parker, 2009).

In the exploration of local intentions and the adoption of renewable energy, the Theory of Planned Behaviour (TPB) has been applied in various studies. This model considers factors like attitude, subjective norms, and perceived behavioural control to predict intention toward renewable energy investments or adoption (Daiyabu et al., 2023; Vu et al., 2023; Liobikiene et al., 2021). Notably, these studies have identified attitude and subjective norms as significant predictors of investment intention or adoption (Conradie et al., 2021). Furthermore, perceived behavioural control and the evaluation of the regulatory framework emerge as crucial determinants of intention toward renewable energy investments. The findings contribute to understanding sustainable consumption behaviour and offer insights for policymakers and technology providers aiming to promote investments in renewable energy.

Limited attention has been given to the analysis of individuals' intentions to use renewable energy in Malaysia. Recent studies indicate that consumers' willingness to pay more for renewable energy is positively linked to their concerns and knowledge about it (Ilham et al., 2022). Another study involving individual investors reveals that the intention to invest in

renewable energy is influenced by attitude, subjective norm, perceived behavioural control, and evaluation of the regulatory framework (Ariffin et al., 2022). Additionally, a study on individual energy consumption behaviour identifies key factors such as education, institutions, social values, norms, social structure, and lifestyle as significant influencers in Malaysia (Sobri et al., 2022). These findings provide valuable insights for policymakers to design effective strategies promoting renewable energy use in the country.

In this regard, Malaysia is a developing country where its renewable energy is still in its infancy in terms of deployment. Therefore, understanding the factors shaping the local acceptance towards renewable energy is crucial for ensuring the technology will play a more significant role in electricity generation in the future. Hence, the main objective of the present study is to propose a conceptual model comprising of attitude, financial cost, perceived behavioural control, subjective norm and socio-demographic factors on local intention to adopt renewable energy by applying the Theory of Planned Behaviour (TPB).

Literature Review

Various theories, including social cognitive theory, self-efficacy theory, the theory of reasoned action, and the Theory of Planned Behavior (TPB) Ajzen (1985, 1991); Fishbein & Ajzen (1975), have been employed to comprehend consumer behavior. TPB, specifically, has emerged as a key determinant of individual acceptance of renewable energy utilization. Numerous studies indicate that individuals' intentions to adopt renewable energy are influenced by attitudes towards it, subjective norms, and perceived behavioral control (Mashari et al., 2021; Liobikienė et al., 2021; Gamel et al., 2022). Positive attitudes towards renewable energy, encompassing beliefs about its benefits and environmental concerns, significantly impact individuals' willingness to embrace it. Subjective norms, which include aspects of social acceptance and perceived behavioral control, also contribute to shaping individuals' intentions to use renewable energy. Furthermore, the assessment of regulatory frameworks and financial capacities has been identified as factors influencing individuals' intentions to adopt renewable energy. These findings underscore the importance of considering individuals' attitudes, social norms, and perceived control when promoting the acceptance and utilization of renewable energy.

Research demonstrates that the use of any technology is heavily dependent on various multidimensional factors such as economic, social, and regulatory factors (Leucht et al., 2010). The implementation of RETs is more complicated due to the high cost of the technology, the long payback time, and the environmental and social effects it would have. Researchers have used the TPB framework to examine factors that influence sustainable energy technology adoption behaviour. Therefore, in this research, we will extend this model by combining two contextual factors, namely, financial cost and socio-demographic characteristics, recognising the suitability and robustness of TPB for examining the local purpose on clean energy adoption in Malaysia. Financial cost reflects the overall price the consumer pays for renewable energy, and socio-demographic is the degree to which consumers income, education and building ownership influence clean energy utilisation. Combining contextual factors enabled us to make the framework comprehensive enough to investigate factors that may influence renewable energy use among locals in Malaysia.

Attitude

Attitudes refer to the assessment of any behaviour by a person, and how favourable or unfavourable it is (Ajzen, 1985). Attitude is the individuals' favourable or unfavourable

opinion concerning using RETs. The cause of these positive or negative feelings may be based on the effects and benefits that may be environmental, economic, or social, anticipated from their use. Existing literature indicates that behaviours are positively connected to the intention of customers to use green energy. Individuals agree that green energy protects the environment, reduces their reliance on conventional energy, and results in cleaner air (Hartmann & Apaolaza-Ibáñez, 2012). Tan et al (2017) found that attitude toward renewable energy is positively correlated with household energy usage. Attitude has also been shown to be a good indicator of consumers' ecological habits, such as recycling and conservation of fuel (Kaiser & Gutscher, 2003). Greaves et al (2013) discovered a close association between the attitude of workers towards the workplace and their actions to conserve electricity. According to Tan et al (2017), attitude is highly and positively associated with customers' intentions to buy energy-efficient appliances. Attitude can be measured by environmental concern. The degree to which people are conscious and involved in addressing environmental problems is referred to as environmental concern (Ndebele, 2020). Globally, individuals are aware of their daily consumption practices and the degree to which their consumption practices influence the environment (Yue et al., 2020). Individuals who display such actions often display a constructive attitude to RETs and are engaged in environmental conservation (Kalkbrenner & Roosen, 2016). Researchers have recently received growing attention from environmental concern and its effect on consumers' preference to purchase green goods (solar water heaters, solar lamps, solar cookers, solar tube wells, biomass stoves, and biomass boilers). Thus, the higher degree of environmental concern may affect individuals decision to utilise renewables. Thus, we expect that attitude will positively influence behavioural intentions for renewable energy and develop the following hypothesis:

H1: Attitude is positively related on the intention to use renewable energy

Financial Costs

Next, consumers use prices to determine the significant monetary sacrifices they must make in their purchases (Dodds et al., 1991). Costs are seen by many as one of the main barriers to purchasing a clean energy (Ghosh & Ghosh, 2018). Over the years, the total cost of renewable energy has declined Chu et al (2016); however, it has yet to hit the level at which it can compete with current solutions (Shakeel et al., 2016). It is assumed that RETs are costly and require high initial installation costs (Claudy et al., 2013). Several studies have found a negative association between costs and renewable energy adoption (Park & Ohm, 2014; Yaqoot et al., 2016). Zografakis and et al (2010) found that customers are unwilling to pay extra costs for RETs. Hansen et al (2008) found that consumers' willingness to pay declines as energy prices rise. Accordingly, there is a probability that the higher financial costs would reduce individual decision to utilise the alternative energy. Thus, we expect that financial costs will positively influence behavioural intentions for renewable energy and develop the following hypothesis

H2: Financial costs is negatively related on the intention to use renewable energy

Subjective Norm

Subjective norm significantly affects the acceptance of renewable energy. Studies have shown that subjective norm, which refers to the perceived social pressure or influence to engage in a particular behavior, has a positive impact on the willingness to pay more for green energy

(Mashari et al., 2021). It has been found that the pressure of subjective norms significantly and positively determines the willingness to pay more for renewable energy (Liobikienė et al., 2021). Additionally, interventions based on social norms have been shown to increase support for renewable energy development (Vesely et al., 2022). Individuals exposed to pro-environmental social norms donated more money to renewable energy initiatives compared to those in the control condition (Hojnik et al., 2021). Therefore, subjective norm plays a crucial role in shaping individuals' acceptance of and willingness to pay for renewable energy (Alexandre et al., 2021). Thus, we expect that subjective norm will positively influence behavioural intentions for renewable energy and develop the following hypothesis:

H3: Subjective norm is positively related on the intention to use renewable energy

Perceived Behavioural Control

Ajzen (1985) clarified that perceived behavioural control is the individuals' belief in his ability to perform some behaviour. Perceived behavioural control directly affects an individuals' intentions, and implicitly influences his or her behaviour. If a person is incapable of engaging in a procedure or operation, their purpose will not be created. In terms of RETs, this variable is related to the ease of acceptance that a customer might conceivably have. One aspect that can influence the individuals' perceived behavioural control is the technicalities associated with using the technology. Perceived behavioural control has shown to have positive impact on consumers' purchasing of environmentally friendly product with evidence to support it. In order to use a renewable energy source, an individual must have access to the resources required for the purchase and installation of RETs and the use of RETs. Studies have shown that perceived behavioural control has a positive relationship with consumer energy conservation intentions (Alam et al., 2014). Wang et al (2017) argues that vehicle choice is important when it comes to energy consumption. In another study, Tan et al (2017) found that perceived behavioural control had a positive impact on the use of energy-efficient appliances by Malaysian consumers. Halder et al (2016) found that the probability of the consumers to use biofuels was positively correlated with perceived behavioural control. Thus, we expect that perceived behavioural control will positively influence behavioural intentions for renewable energy and develop the following hypothesis

H4: Perceived behavioural control is positively related on the intention to use renewable energy

Socio-demographic Factors

Research has shown that different socio-demographic groups may have distinct perspectives, values, and priorities regarding environmental issues and energy choices. Considering socio-demographic characteristics, differences between energy consumption in identical residential units are significant (Shi et al., 2017). Building ownership (i.e., rented vs. self-owned) may affect energy-saving intention and behaviours by influencing occupants' ability to adapt the energy-efficient measure. Some studies found that homeowners tend to employ environmental-friendly measure Yu et al (2011) Thus, there is a probability that building ownership may impact an individual intention to utilise in clean energy. Besides, a majority of current studies supports the assertion that education level may boost energy conservation efforts (Nair et al., 2010; Poortinga et al., 2003, 2004; Sardianou, 2007). Mills and Schleich Mills & Schleich (2012) find that the degree of higher education correlated with the adoption

of energy conservation initiatives and the practice of energy saving in households has been established. In particular, high-school graduates are more likely to point out energy efficiency as the explanation for the value of environmental preservation than recent college graduates. Wan et al (2016) also found that people with a higher level of education appear to have a greater intent to recycle. Another socio-demographic factor that theoretically impacts the purpose and actions of energy conservation is household income. However, only a few studies focused on the relationship between household income and energy-saving intention. Several studies note that higher-income residents appear to consume more energy (Trotta, 2018; Wan et al., 2018). But there is also evidence that indicates households with higher income are more likely to invest in energy efficiency measures, engage in energy-saving measures, or are generally able to perform household energy-saving measures (Poortinga et al., 2003; Wan et al., 2018). Thus, research should be performed on how household income contributes to household energy-saving intentions.

Thus, we expect that socio-demographic factors denote by building ownership, education and income moderates the relationship between attitude, perceived behavioural control, financial costs, subjective norm on behavioural intention to utilise renewable energy and develop the following hypothesis:

H5: Building ownership moderates the relationship between attitude, financial costs, subjective norm and perceived behavioural control and intention to utilise renewable energy

H6: Education moderates the relationship between attitude, financial costs, subjective norm and perceived behavioural control and intention to utilise renewable energy

H7: Income moderates the relationship between attitude, financial costs, subjective norm and perceived behavioural control and intention to utilise renewable energy

Therefore, based on the literature above, this study proposes a framework as in **Figure 3** for modelling the local intentions towards renewable energy utilisation in the context of Malaysia.

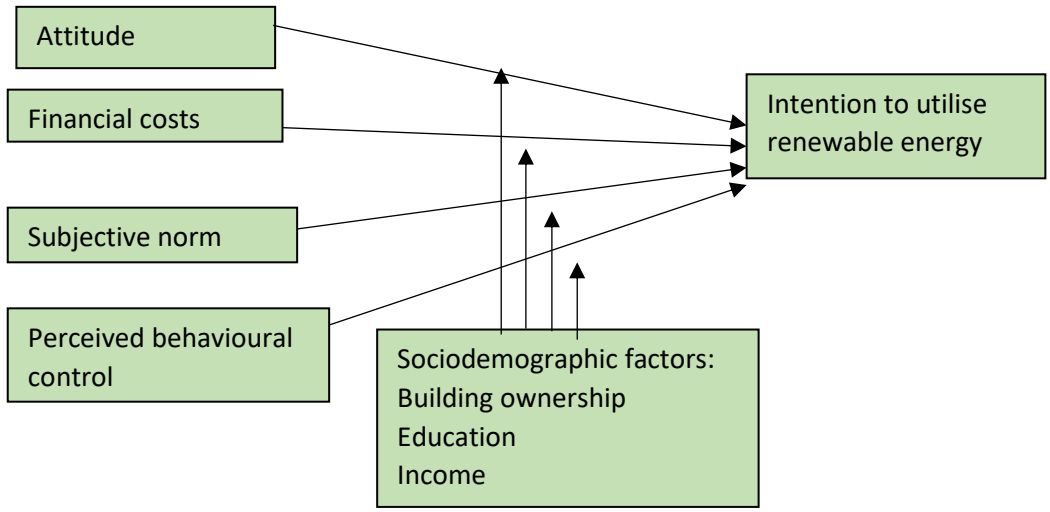

Figure 3: A proposed model for the behavioural intention to utilise renewable energy

Recommendation and Conclusion

The present study suggests a new conceptual model comprising of attitude, financial cost, subjective norm, perceived behavioural control, sociodemographic factors (e.g., building ownership, income and education) on behavioural intention to utilise renewable energy in the context of individuals in Malaysia. Since this paper is just a research project proposal, the following step is to execute Exploratory Factor Analysis (EFA) using pilot data and Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) using the data collected from fieldwork. This analysis is crucial to confirm the relationship among the constructs. The finding of this research has the potential to be a solution for stakeholders especially the Ministry of Energy, Science, Technology, Environment & Climate Change and the Ministry of Energy and Natural Resources of Malaysia with regard in lessening the dependence on fossil fuels usage, increasing the share of clean energy sector, along with understanding the socio-demographic and psychological factors that can influence the renewable energy acceptance among locals.

References

Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In Action Control. https://doi.org/10.1007/978-3-642-69746-3_2

Ajzen, I. (1991). The theory of planned behavior. Organisational Behavior and Human Decision Processes. https://doi.org/10.1016/0749-5978(91)90020-T

Alam, S. S., Nik Hashim, N. H., Rashid, M., Omar, N. A., Ahsan, N., & Ismail, M. D. (2014). Small-scale households renewable energy usage intention: Theoretical development and empirical settings. Renewable Energy. https://doi.org/10.1016/j.renene.2014.02.010

Bujang, A. S., Bern, C. J., & Brumm, T. J. (2016). Summary of energy demand and renewable energy policies in Malaysia. In Renewable and Sustainable Energy Reviews. https://doi.org/10.1016/j.rser.2015.09.047

Chu, S., Cui, Y., & Liu, N. (2016). The path towards sustainable energy. In Nature Materials. https://doi.org/10.1038/nmat4834

Claudy, M. C., Peterson, M., & O'Driscoll, A. (2013). Understanding the Attitude-Behavior Gap for Renewable Energy Systems Using Behavioral Reasoning Theory. *Journal of Macromarketing.* https://doi.org/10.1177/0276146713481605

Daka, K. R., & Ballet, J. (2011). Children's education and home electrification: A case study in northwestern Madagascar. Energy Policy. https://doi.org/10.1016/j.enpol.2011.02.060

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of Price, Brand, and Store Information on Buyers' Product Evaluations. *Journal of Marketing Research*. https://doi.org/10.2307/3172866

Fishbein, M., & Ajzen, I. (1975). Chapter 1. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. In Reading, MA: Addison-Wesley.

Ghosh, A., & Ghosh, D. (2018). Investments in Clean Energy in South Asia: Visiting Barriers and Gaps from the Perspective of Policies and Politics. https://doi.org/10.1007/978-981-10-7509-4_7

Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*. https://doi.org/10.1016/j.jenvp.2013.02.003

Hair, J., Black, W., Babin, B., & Anderson, R. (2010). Multivariate Data Analysis: A Global Perspective. In Multivariate Data Analysis: A Global Perspective.

Hamilton, L. C., Bell, E., Hartter, J., & Salerno, J. D. (2018). A change in the wind? US public views on renewable energy and climate compared. Energy, Sustainability and Society. https://doi.org/10.1186/s13705-018-0152-5

Sahaluddin, N. S. S. B., & Mokhtar, W. K. A. W. (2019). The Awareness of Zakāt in the Universal Society. International Journal of Academic Research in Business and Social Sciences, 9(11), 647-651.

Khairuldin, W. M. K. F. W., Anas, W. N. I. W. N., & Embong, A. H. (2018). Fatwa as a disseminator of Islamic laws among community of Malaysia. International Journal of Academic Research in Business and Social Sciences, 8(11), 516-521.

Mohamad, N. S., & Khairuldin, W. M. K. F. W. (2018). The concept of Halalan Tayyiba in food according to Mufassir. International Journal of Academic Research in Business and Social Sciences, 8(11), 902-909.

Hamid, N. C., & Mokhtar, W. K. A. W. (2019). The Comprehensive Aspect in Islam from Quran and Hadith Perspective. International Journal Of Academic Research In Business And Social Sciences, 9(11).

Hartmann, P., & Apaolaza-Ibanez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*. https://doi.org/10.1016/j.jbusres.2011.11.001

Irfan, M., Zhao, Z.-Y., Ahmad, M., & Mukeshimana, M. (2019). Solar Energy Development in Pakistan: Barriers and Policy Recommendations. Sustainability. https://doi.org/10.3390/su11041206

Kaiser, F. G., & Gutscher, H. (2003). The proposition of a general version of the theory of planned behavior: Predicting ecological behavior. In *Journal of Applied Social Psychology*. https://doi.org/10.1111/j.1559-1816.2003.tb01914.x

Kalkbrenner, B. J., & Roosen, J. (2016). Citizens' willingness to participate in local renewable energy projects: The role of community and trust in Germany. Energy Research and Social Science. https://doi.org/10.1016/j.erss.2015.12.006

Kardooni, R., Yusoff, S. B., & Kari, F. B. (2016). Renewable energy technology acceptance in Peninsular Malaysia. Energy Policy. https://doi.org/10.1016/j.enpol.2015.10.005

Kaufmann, H. R., Panni, M. F. A. K., & Orphanidou, Y. (2012). Factors Affecting Consumers ' Green Purchasing Behavior : Amifiteratru Economic.

Kosugi, T., Shimoda, Y., & Tashiro, T. (2019). Neighborhood influences on the diffusion of residential photovoltaic systems in Kyoto City, Japan. Environmental Economics and Policy Studies. https://doi.org/10.1007/s10018-019-00239-5

Leucht, M., Kölbel, T., Laborgne, P., & Khomenko, N. (2010). The Role of Societal Acceptance in Renewable Energy Innovations´BreakthroughInnovations´Breakthrough in the Case of Deep Geothermal Technology. Proceedings World Geothermal Congress.

Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action. Personality and Social Psychology Bulletin. https://doi.org/10.1177/0146167292181001

Malaysia. (1971). Age of Majority Act. In Malaysia.

Mekhilef, S., Barimani, M., Safari, A., & Salam, Z. (2014). Malaysia's renewable energy policies and programs with green aspects. Renewable and Sustainable Energy Reviews, 40(October), 497–504. https://doi.org/10.1016/j.rser.2014.07.095

Mills, B., & Schleich, J. (2012). Residential energy-efficient technology adoption, energy conservation, knowledge, and attitudes: An analysis of European countries. Energy Policy. https://doi.org/10.1016/j.enpol.2012.07.008

Musall, F. D., & Kuik, O. (2011). Local acceptance of renewable energy-A case study from southeast Germany. Energy Policy. https://doi.org/10.1016/j.enpol.2011.03.017

Nair, G., Gustavsson, L., & Mahapatra, K. (2010). Factors influencing energy efficiency investments in existing Swedish residential buildings. Energy Policy. https://doi.org/10.1016/j.enpol.2010.01.033

Ndebele, T. (2020). Assessing the potential for consumer-driven renewable energy development in deregulated electricity markets dominated by renewables. Energy Policy. https://doi.org/10.1016/j.enpol.2019.111057

Olshavsky, R. W., & Granbois, D. H. (1979). Consumer Decision Making-Fact or Fiction? Journal of Consumer Research. https://doi.org/10.1086/208753

Opiyo, N. N. (2019). Impacts of neighbourhood influence on social acceptance of small solar home systems in rural western Kenya. Energy Research and Social Science. https://doi.org/10.1016/j.erss.2019.01.013

Paravantis, J. A., Stigka, E., Mihalakakou, G., Michalena, E., Hills, J. M., & Dourmas, V. (2018). Social acceptance of renewable energy projects: A contingent valuation investigation in Western Greece. Renewable Energy. https://doi.org/10.1016/j.renene.2018.02.068

Park, E., & Ohm, J. Y. (2014). Factors influencing the public intention to use renewable energy technologies in South Korea: Effects of the fukushima nuclear accident. Energy Policy. https://doi.org/10.1016/j.enpol.2013.10.037

Poortinga, W., Steg, L., & Vlek, C. (2004). Values, environmental concern, and environmental behavior: A study into household energy use. Environment and Behavior. https://doi.org/10.1177/0013916503251466

Poortinga, W., Steg, L., Vlek, C., & Wiersma, G. (2003). Household preferences for energy-saving measures: A conjoint analysis. Journal of Economic Psychology. https://doi.org/10.1016/S0167-4870(02)00154-X

Rhodes, E. R., Jalloh, A., & Diouf, A. (2014). Review of research and policies for climate change adaptation in the agriculture sector in West Africa. Coraf.

Sardianou, E. (2007). Estimating energy conservation patterns of Greek households. Energy Policy. https://doi.org/10.1016/j.enpol.2007.01.020

Shakeel, S. R., Takala, J., & Shakeel, W. (2016). Renewable energy sources in power generation in Pakistan. In Renewable and Sustainable Energy Reviews. https://doi.org/10.1016/j.rser.2016.06.016

Shi, H., Wang, S., & Zhao, D. (2017). Exploring urban resident's vehicular PM2.5 reduction behavior intention: An application of the extended theory of planned behavior. Journal of Cleaner Production. https://doi.org/10.1016/j.jclepro.2017.01.108

Steg, L., Perlaviciute, G., & van der Werff, E. (2015). Understanding the human dimensions of a sustainable energy transition. Frontiers in Psychology. https://doi.org/10.3389/fpsyg.2015.00805

Tan, C. S., Ooi, H. Y., & Goh, Y. N. (2017). A moral extension of the theory of planned behavior to predict consumers' purchase intention for energy-efficient household appliances in Malaysia. Energy Policy. https://doi.org/10.1016/j.enpol.2017.05.027

Trotta, G. (2018). Factors affecting energy-saving behaviours and energy efficiency investments in British households. Energy Policy. https://doi.org/10.1016/j.enpol.2017.12.042

United Nations. (2015). Sustainable Development Goal 2015. United Nation. U.S. Energy Information Administration, International Energy Statistics database, accessed 10/02/2021.

Wan, C., Shen, G. Q., & Choi, S. (2018). The moderating effect of subjective norm in predicting intention to use urban green spaces: A study of Hong Kong. Sustainable Cities and Society. https://doi.org/10.1016/j.scs.2017.11.022

Wang, S., Fan, J., Zhao, D., Yang, S., & Fu, Y. (2016). Predicting consumers' intention to adopt hybrid electric vehicles: using an extended version of the theory of planned behavior model. Transportation. https://doi.org/10.1007/s11116-014-9567-9

Yaqoot, M., Diwan, P., & Kandpal, T. C. (2016). Review of barriers to the dissemination of decentralised renewable energy systems. In Renewable and Sustainable Energy Reviews. https://doi.org/10.1016/j.rser.2015.12.224

Yue, B., Sheng, G., She, S., & Xu, J. (2020). Impact of consumer environmental responsibility on green consumption behavior in China: The role of environmental concern and price sensitivity. Sustainability (Switzerland). https://doi.org/10.3390/su12052074

Zografakis, N., Sifaki, E., Pagalou, M., Nikitaki, G., Psarakis, V., & Tsagarakis, K. P. (2010). Assessment of public acceptance and willingness to pay for renewable energy sources in Crete. In Renewable and Sustainable Energy Reviews. https://doi.org/10.1016/j.rser.2009.11.009