

# INTENTION TO PURCHASE GREEN ENERGY OF AUSTRALIAN CONSUMERS INITIAL RESEARCH FINDINGS

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## ABSTRACT

*The purpose of this paper was to provide an insight on the Australian consumer dynamics on green energy by assessing the role of personal factors affecting the green energy purchase intention (GPI). In doing so, the study has examined the role of green attitude, social influence, and intentions in regard to green energy consumption. It has addressed these concerns in an Australian context, filling a gap in the current literature which mostly consists of overseas countries. The theory of reasoned action (TRA) served as a framework investigating the core determinants of intention and their effect on GPI. This study is a part of a larger study that collected the data of 386 respondents from a postal mail survey in NSW, Australia during October 2018. Data were analysed statistically using SPSS v.25 and Smart PLS 3 software, and the hypotheses were tested using the partial least squares-based structural equation modelling (PLS-SEM) technique. The finding of the study confirmed that purchase intention towards green energy is significantly influenced by social influence followed by green attitude in the TRA model. Green energy marketers and policy makers aiming for sustained, positive changes in consumer behaviour are encouraged to consider the findings and implications of this research. Examining the effect of green attitude and social influence on behavioural intention in the TRA model and including the Australian context are among its other contributions.*

**Keywords:** Green Energy, Green Energy Purchase Intention (GPI), Consumer Behaviour.

## INTRODUCTION

Green energy purchase and consumption has been widely regarded as contributing towards the sustainable behaviour (Ahmed et al., 2019a; Palandino & Pandit, 2019). This is partly driven by consumers' socio-environmental responsibility in addition to their personal interest and choice. A considerable number of studies on green product have focused on factors that motivate consumer intention associated with the tangible green product (Ahmed et al., 2019b). While we are aware of research examining the role factors (e.g., attitude, norm) towards the tangible green products or services such as green hotel (e.g. Yadev et al., 2019), organic food (e.g. Sultan et al., 2020), the more specific literature around consumer perceptions of, and motivation to buy, the intangible product 'green energy', however, remains scarce; an important void in understanding that needs to be addressed. In green energy context, to date most of the research mainly examined the willingness to pay for green energy, (e.g. Zorić & Hrovatin, 2012;

Jin et al., 2019) but limited research has been conducted on the personal motivations behind it (Ahmed et al., 2020). In order to appreciate the reasons why consumers purchase green energy, an understanding of personal factors influences the behavioural intention is required. Understanding the role of personal factors (e.g., attitude, norm) are important because a lack of appropriate knowledge about these cognitive factors negatively influences consumer purchase intention. Further, they are of particular interest to policy makers and macro marketers when contextual factors cannot be changed and personal factors may provide the only factors that might affect behavior (Taufique & Vaithianathan, 2018). It is therefore important to explore which personal factors particularly influence the purchasing motivation, intention and how consumers might be encouraged to adopt green energy consumption behaviour. Accordingly, in this paper a particular emphasis is placed on the personal factors to enhance or impede a consumer's purchase of green energy in Australia, a global leader in the privatisation of the electricity market (Paladino & Pandit 2019). By focusing on a developed nation, the study examines whether or not the personal factors previously examined in other countries are relevant in the new research context, i.e., Australia. This paper will investigate the roles of key factors as the predictors of intention to buy green energy in order to find what motivates sustainable green energy purchase intentions. By this approach, the study will contribute by adding to the noted limited literature on environmentally sustainable behaviour and green energy consumption by investigating the effect of consumers' personal factors on the purchase intention associated with green energy. To aid understanding, these relationships were studied in a structural equation model.

The paper proceeds by setting out the literature review, theoretical framework and hypotheses development prior to the methodological approach adopted. Following coverage of this and the statistical procedures, the results are presented and subsequently discussed before concluding with the implications for further research.

## LITERATURE REVIEW

### **An International Insight**

Academic research in the context of green energy consumerism has centered on the identification of consumer motivation underlying pro environmental behaviours (Ahmed et al., 2020). Research dealing with green energy choice behaviour has approached the issue from different angles and reveals it to be a quite complex matter. One line of research has been concerned with consumers' willingness to pay a premium for green energy (e.g. Jin et al., 2019). Another line of research but limited has been concerned with determinants of buying/consuming green energy. For example, Claudy et al. (2013) found that UK consumers' green energy purchases were determined by positive attitudes, in a recent paper, Halder et al. (2016) found that the intention to consume energy was explained by attitudes, social influences, and behavioral control. Notwithstanding although the influence of these factors are common on behavioral intentions has been demonstrated across many studies are generic in nature, the relationship between consumer attitudes, social influence and behavioral intentions towards a specific product green energy seems to be weak in literature.

## Australian Context

Research towards green energy consumer behaviour has expanded rapidly in the developed countries include USA, UK, Ireland, German. However, research on green energy behavioural issues is at nascent stage in the Australian context in comparison to other developed nation (Ahmed et al., 2019b, 2020). To the best of our knowledge, only the work of Palandino & Pandit (2019) in Australian context were built on robust theoretical foundation. The study focused on assessing the factors leading to consumers' attitude towards green energy, and their indirect effect on green energy purchase intention (GPI). However, the direct impact and/or relationship of the factors to the GPI remains unexplored in Australian setting. These insights are important to inform appropriate sustainable reinforcement in the renewable energy sector, which are critically lacking. Accordingly, this study seeks to analyze the direct effect of the key factors on intention measurement to better understand Australian household norms and attitudes which could drive the GPI. Notably, the knowledge gap as identified in Paladino & Pandit's (2019) study is the point of departure for the current study.

## CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

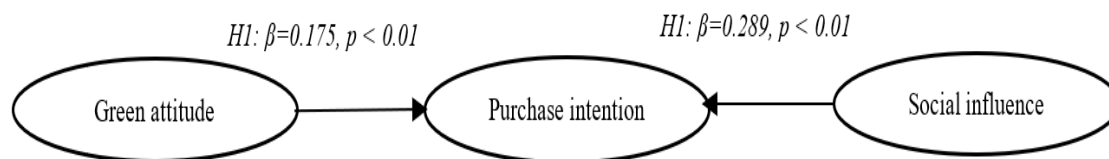
In purchase decision, intention is considered as the powerful predictor of behaviour which is crucial for marketers as it helps in developing strategies for the product (Yadev et al., 2019). The Theory of Reasoned Action (TRA, Ajzen & Fishbein, 1980) is a social psychology theory that attempts to understand and predict the consumer purchase intention proved to be valid in examining the connection between the personal factors and intention to perform a specific behaviour. Ajzen & Fishbein (1980) suggest that behavioral intent is derived from two factors: attitude, and subjective norms. According to TRA, individual's attitude and subjective norm influences the behavioral intention ( $\text{Intention} = \text{Attitude} + \text{Subjective norm}$ ). The TRA has, however, shown limitations with respect to explaining sustainable behaviour. We, therefore, have chosen to use a slightly different approach in an attempt to examine the behavioural intention to buy green energy by modifying construct in the TRA model. For the study purpose in this research two antecedents as green attitude and social influence were conceptualized as a key determinant of GPI with the aid of two dimensions in the TRA as attitude and subjective norm, respectively. Thus, the current study draws upon the knowledge from existing literature on green energy choices and takes the intention to buy sustainable green energy as the dependent variable, while green attitude and social influence towards buying green energy were used as its key predictors.

In the context of green energy, the role of green attitude and social influence are more important than in the case of conventional energy. Understanding the role of these factors on behavioral intentions towards environmentally sustainable practices in green energy consumption is important to gain insights about consumer psychology in predicting the ultimate behaviour. Further, the impact of green attitude and social influence in green energy consumption may help to remove external barriers (e.g., price) and ease the to intend and perform the behaviour. However, studies in green energy context exploring the role of green attitude and social influence are scarce in literature. Accordingly, we thus delineate the influence of chosen constructs on the intention to buy green energy. The aggregation of these factors is depicted in Figure 1 which shows the conceptual model.

## Green Attitude and Behavioural Intention

TRA defines attitude as individual's positive or negative evaluation of a given behaviour and its expected outcomes (Ajzen, 1991). In the same vein, green attitude referred as individual's attitude and given behaviour towards green products. A meta-analysis by Armitage & Conner (2001) suggests that consumption is best predicted by intention to perform the behaviour, while attitude often is the strongest predictor of intention. Also, Sultan et al. (2020) showed that attitude is one of the most important predictors of green purchasing intention. According to Ajzen (1991), stronger attitudes lead to a stronger behavioural intention to perform the behaviour in question. The influence of attitude on purchase intentions regarding green energy purchase is also evidenced in some studies (e.g. Bang et al., 2000; Halder et al., 2016). Based on the above discussion, the hypotheses in the context of current study is as follows:

*H1: The stronger the consumers' green attitude, the more likely intention to purchase green energy.*



**FIGURE 1**  
**THE CONCEPTUAL MODEL**

## Social Influence and Behavioural Intention

Subjective norm can be defined as a person's perceptions of the extent to which significant others (friends, peers, or any other reference groups) would endorse a given behavior and personal motivations to comply with this social pressure (Ajzen, 1991). Research studies in green buying (e.g. Taufique & Vaithianathan, 2018; Emekci, 2019; Sultan et al., 2020) have established that social influence shape individual's behavioral intentions. These studies suggest that the more favorable the social influence, the greater the intentions to perform the green behaviour. Hence, it is reasonable to assume that consumers who value others' opinion and believe that they can easily engage in green energy consumption, are more likely to develop strong intention and ultimately, the ability to buy green energy. Research on green energy has also found that social reference can significantly predict behavioural intention (e.g. Halder et al., 2016). Therefore, the following hypothesis is proposed:

*H2: The stronger the social influence, the more likely intention to purchase green energy.*

## RESEARCH METHODOLOGY

### Measures and Data Collection

This paper is a part of a larger study that collected data from a postal survey in NSW, Australia during October 2018. The study has used a structured questionnaire that measures the following aspects: respondents' attitude about green energy, social influence towards green energy and the purchase intention. All the items were selected from past studies with little

modification. Three items (Weisstein et al., 2014; Mancha & Yoder, 2015) were used to measure attitude, subjective norm was measured by three-item scale (Khare, 2015; Mancha & Yoder, 2015) and intention by two items (Wu & Chen, 2014). The items selected for this study were measured on a seven-point Likert scales (1= strongly disagree to 7= strongly agree). A total of 1200 surveys were distributed, of which 400 were returned. In total, 386 were deemed usable for further analysis. This represented a response rate of 32 per cent.

## Data Analysis

To establish valid and reliable scales for each of the constructs and to determine the causal relationships for theory confirmation, this study used the partial least squares-structural equation modelling (PLS-SEM) suggested by (Hair et al., 2017). The empirical analysis of PLS-SEM consists of two steps: (1) the assessment of the measurement model and (2) the evaluation of the structural model (Hair et al., 2019). This method is a suitable technique particularly when issues for instance measurement difficulties and sample size limitations arise (Khan et al., 2019). Moreover, Reinartz et al. (2009) stated that PLS is the appropriate approach when researchers focus on prediction and theory development where relationships might or might not exist. Hence, the use of PLS-SEM is appropriate.

## ANALYSIS AND RESEARCH FINDINGS

### Assessment of Measurement Model

The first step of model evaluation focuses on measurement models, to ensure that each construct is adequately measured. Factor loadings, composite reliability (CR) and average variance extracted (AVE) are used to assess convergence validity (Hair et al., 2019). As presented in Table 1, all item loads exceed the recommended value of 0.5, the CR values of the construct are greater than 0.7, and All AVE values, ranging from 0.608 to 0.690, exceeded the recommended value of 0.50 (Fornell & Larcker, 1981). Thus, the converging validity is determined. Further, the discriminant validity is assessed through the Heterotrait and Monotrait (HTMT) ratio of correction technique on both the complete and split datasets (Khan et al., 2019). The study finds that discriminant values did not violate the threshold value of HTMT.85 (Kline, 2011), which indicates that there is no multicollinearity problem between the elements of the construct. In addition, the AVE value for each construct was greater than the squared correlation between constructs, indicating that discriminant validity was achieved.

### Assessment of Structural Model

The structural model was considered necessary as the second step to evaluate the research model. The structural model specifies the causal relationships between constructs in the model suggested by Chin, 1998 following two most important criteria: path coefficients and the coefficient of determination ( $R^2$  value). The aim of the path coefficient is to measure the relevance of the path relations in a structural model (Chin, 1998). Therefore, in this research, the PLS algorithm was used to calculate path coefficients ( $\beta$ ), which is the link that exists among independent and dependent variables.

To measure the coefficient of determination ( $R^2$  value), Chin (1998) recommended that for  $R^2$  values around 0.670 is considered as substantial, values of approximately 0.333 as

moderate, while values of 0.190 and lower are considered weak. Therefore, a higher value of  $R^2$  increases the structural model's predictive power. The results illustrate that the total predicted  $R^2$  for intention to adopt green energy is 0.786, which substantial indicates that 78% of the variance in individual intention to adopt green energy is explained by its independent variables (green attitude and social influence). This  $R^2$  value implies that, to enhance Australian customers' intention to purchase green energy, it could be effective for marketers to pay more attention to ways to increase positive attitude and social reference to uptake the green energy market.

<b>Construct</b>	<b>Indicator</b>	<b>Outer loading</b>	<b>Composite Reliability (CR)</b>	<b>Cronbach's Alpha (CA)</b>	<b>AVE</b>
Green attitude	GA1	0.753	0.831	0.752	0.608
	GA2	0.754			
	GA3	0.788			
Social influence	SI1	0.823	0.879	0.844	0.678
	SI2	0.834			
	SI3	0.803			
Behavioural Intention	BI1	0.789	0.820	0.808	0.690
	BI2	0.784	0.813		

## DISCUSSION

The hypotheses for this study were confirmed by examining the path coefficients,  $p$ -values and  $t$ -value which obtained from the output of the bootstrapping method of 2000 resamples (Sultan et al., 2000). Figure 1 highlight the outcomes for the path coefficients and the importance level of relations in the structural model.

Green attitude was investigated in the form of H1. The result shows that, consumer attitude was statistically and significantly related to green energy purchase intention; as a result, this hypothesis H1 is supported ( $\beta=0.175$ ,  $p$ -value = 0.00  $p < 0.01$ ). This finding is consistent with past studies that show consumer attitude influence purchase intention (Ajzen, 1991; Palandino & Pandit, 2019).

H2 examined the effect of social influence on GPI and received strong support from the results being supported ( $\beta=0.289$ ,  $p$  value = 0.00,  $p < 0.01$ ). This finding is inconsistent with past research (Trafimow & Finlay, 1996; Taufique & Vaithianathan, 2018). In the case of Australia, social influence showed the most substantial positive effects on consumers' intentions to use green energy supported by the recent study in Australia (i.e., Palandino & Pandit, 2019). Thus, findings of our study are potentially an additional addition to the literature, indicating that the distinction between individualism, culture and economic growth could be the evolving consumption patterns towards green energy consumption pattern.

## IMPLICATIONS

This study provides both theoretical and managerial implications for comprehending the determinants of Australian consumers' intentions to purchase green energy.

## **Theoretical Implications**

First, little was known about consumers' decision-making processes to purchase green energy. This paper adds to the growing body of research that supports the TRA as a useful predictive model to examine influencing factors on intention formation in a green energy context. The validated research model in this study explored the personal factors (i.e., green attitude and social influence) to better explain consumers' decisions relating to green energy in Australian standpoint. The results showed that this TRA had a strong predictive power for GPI, indicating its applicability to the domain of Australian customers' conscious green energy decision-making. That is, the findings provide a solid theoretical basis for the study of ecofriendly green energy purchasing behaviours.

## **Managerial Implications**

By looking specifically at Australian consumers, the study provides some important implications for the marketers and retailers who wish to explore opportunities in environmentally sustainable products green energy. The following section provides implications for marketing practice and strategy formulation.

### **Influence of Green Attitude**

The study finds that Australian consumers have favorable attitude to purchase green energy in future. Although the relationship between green attitude and purchase intention is significant, attitude has a weak effect on the GPI. Hence, education and communication programs should be jointly developed by the stakeholders to increase consumers' knowledge about green energy as well as their awareness about the environmental benefits of green energy. Energy retailers also need to explore and devise suitable communication efforts aimed at addressing the knowledge of their target consumers segments on issues like environmentally sustainable green energy and their impact on minimizing pollution and thus contribution in mitigating the current issue of global warming and climate change.

### **Influence of Social Influence**

The empirical finding reported that social influence exerts a stronger influence on the intention to purchase green energy in comparison to the green attitude. In view of this, the marketers should devise a communication strategy invoking ethical values and benchmarking conscientiousness towards environmental protection among people. A variety of communication programs, for instance, media advertisements and sponsorship schemes need to communicate the benefits of green energy consumption can stimulate consumer attitude to adopt green energy. The effective communication system (claiming environmental benefit of green energy) among the society which in turn may strongly influence the individual intention towards green energy due to persuasive influence of social group.

## **CONCLUSIONS**

The novel aim of this study was to examine the direct effect of green attitude and social influence on the intention in the TRA model. The results of this empirical study validated the theoretical framework with the topic under investigation on this subject matter in Australian

standpoint filling a gap in the current literature which mostly consists of overseas countries. Thus, this paper presents results from a study, undertaken in Australia, with the goal of contributing to the scarce literature about the determinants of sustainable green energy consumption.

However, the current study includes several limitations that offer opportunities for future research. First, the study is limited to the particular geographical area of Australia i.e. NSW. The data were collected from one major metropolitan region using random sampling. Therefore, the results cannot warrant for generalization of the proposed model in the overall Australian context. Second, the present study is restricted to measuring Australian consumers' intention to purchase green energy; provides no assessment of the actual behavior. Examining actual behavior would be needing recollection of data after a certain period of time leaving the scope for further research. In addition future researchers may also confirm the underlying relationship of this model using with some other important cognitive measures such as green brand, retail service quality, green promotion and moral norm, etc. with the measure of intention and behaviour so as to present a better description of green energy consumerism in Australia a large market in the Oceania region.

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