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Article

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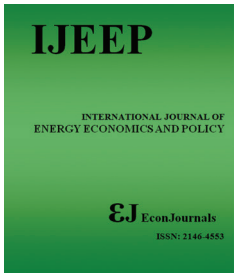

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Renewable Energy and its Moderation on Green Home Selection in Indonesia: Bridging Environment, Product, and Value

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ABSTRACT

This study aims to investigate the moderating role of renewable energy on sustainable environmental factors, environmentally friendly products, and customer value in consumer decision making in choosing a residential house without greenhouse effect in Indonesia. The data source in this study is 270 people who have a residence without a greenhouse effect. The research method is a quantitative descriptive method using Structural Equation Model data analysis using the PLS 3.0 application. The population in this study amounted to 270 people who have a residence without a greenhouse effect, while the number of samples was 270 people who have a residence without a greenhouse effect with a sampling technique using the census method, while the data collection technique was carried out using observation, questionnaires and documentation studies. The results of this study indicate that consumers tend to be more interested in choosing residential houses that use renewable energy and have environmentally friendly features. In addition, customer values perceived by consumers, such as quality, price, comfort, and safety, also have a positive influence on consumer decisions in choosing residential houses without greenhouse effect. Limitations of this study include the use of self-reporting survey data, which may affect the validity and reliability of the results. In addition, this study focused on the context of residential homes in Indonesia, so generalizability of the findings needs to be considered with caution. Recommendations for future research include involving a more representative sample, incorporating objective data to measure environmental variables and environmentally friendly products, and expanding the geographical scope of the study to compare results between different regions in Indonesia.

Keywords: Renewable Energy, Green Environment, Green Product, Residential House, Greenhouse Effect
JEL Classifications: B22, F38, H21, G21, G32, G33

1. INTRODUCTION

In this modern era, environmental sustainability and efforts to reduce negative impacts on the environment are a major focus in many countries, including Indonesia. The environment needs to be preserved, and requires something that can protect the environment from being polluted with pollution, and pollution that can result in damage to existing environmental ecosystems, as well as making the environment healthy and reducing the adverse effects caused by existing environmental damage (Yildizbasi, 2021). The adverse effects seen are due to climate change which is increasingly visible due to global warming due to the effects of greenhouse gas emissions, so a place to live that can be protected from the greenhouse effect that is protected from pollution and is environmentally friendly is needed. In this context, houses that are environmentally friendly and seek to reduce greenhouse gas emissions are an attractive alternative for consumers (Thomas and Mishra, 2022; Jermsittiparsert et al., 2020). However, environmental factors, environmentally friendly products, and customer value can moderate the influence of renewable energy on consumer decisions in choosing a residential house without greenhouse effect. In this developing era, awareness of the need to protect the environment is increasing. One of the efforts that can be made is through the use of renewable energy in building houses

(Maglad et al., 2023). Residential houses that are environmentally friendly and focus on renewable energy can provide long-term benefits for the environment as well as for consumers who choose to live in them (Sinaga and Sitorus, 2023; Yunus et al., 2023). Renewable energy suitable for residential homes no longer uses fossil energy as a driver in electrical energy and of course a replacement energy is needed that comes from natural energy that will be used to drive electricity in the house (Hoang et al., 2021).

An environmentally friendly product environment can be said to produce a green environment, where a green environment is an environment where natural and man-made environments coexist to form a balanced and sustainable ecosystem (Jawabreh et al., 2022). Green environment encourages actions and decisions that promote ecological balance, protection of natural resources, and a higher quality of life for humans and other organisms (Rilling and Herbes, 2022). Sustainable and effective use of natural resources is important for a green environment. This includes saving water, energy, and raw materials, as well as increasing recycling and using environmentally friendly products (Anthony Jnr, 2020). Natural ecosystems are preserved and restored in a green environment. This includes preserving and developing habitats for flora and fauna, and preventing the extinction of threatened species (Karakosta et al, 2021). Green environment emphasizes the need to reduce greenhouse gas emissions as well as pollution in the air, water, and soil. This can be achieved by utilizing renewable energy sources, sustainable transportation, and efficient waste management (Chen et al., 2021; Nurgazina et al., 2021). Green environment promotes the creation and preservation of green open spaces in both urban and rural areas. This involves the creation of parks, urban gardens, and green corridors that improve human health and well-being while also reducing the consequences of urban heat (Ghesla et al., 2020). We can improve air and water quality, conserve valuable natural resources, improve public health, and reduce the negative impacts of climate change by building green neighborhoods (Icaza-Alvarez et al., 2022).

Green environment produces a product that is useful for preventing environmental damage and preventing global warming in order to prevent the greenhouse effect in the living environment, where the resulting product is known as a green product. Green products, also known as eco-friendly products, are goods and services that are designed, manufactured, and used in such a way that their environmental impact is minimized throughout their life cycle. These goods are designed to reduce resource use, reduce pollution and waste output, and promote sustainable practices (Mihailova et al., 2022). The utilization of renewable and recyclable materials is often prioritized in green products. This reduces the demand for virgin resources while also lowering the environmental effects of extraction and processing. Green products may also make efforts to source components from ecologically responsible vendors (Pamucar et al., 2022). Green products are energy efficient, which means they use less energy during manufacture, use, and disposal. Using energy-efficient technologies, optimizing product design for lower energy use, and promoting energy-saving features or certifications are some examples of this (Amuakwa-Mensah and Nasstrom, 2022). Green products strive to reduce emissions of greenhouse gases and other pollutants throughout their life cycle. This can be achieved by the use of cleaner manufacturing techniques, the implementation of efficient waste management systems, and the reduction or elimination of harmful compounds in product formulations (Calza et al., 2020; Alkhateeb et al., 2018).

By presenting a green environment by creating renewable energy that is environmentally friendly, and producing green products that do not disturb the environment and also the human condition, it will be able to increase customer value, where the benefits and perceived value obtained by customers from a product or service in relation to the cost or effort required to obtain it are referred to as customer value. Understanding and delivering customer value is critical to creating and maintaining a loyal customer base, and it is a core idea in marketing and business strategy (Mutezo and Mulopo, 2021). The costs and sacrifices associated with obtaining and using a product or service also affect customer value. These include monetary costs, as well as time, effort, and other resources required. Customers consider whether the perceived benefits surpass the perceived costs, and if so, they place a higher value on the product (Schweiger et al., 2020). Providing unique and special features or properties that match consumer demands and preferences can increase customer value. When a product or service delivers something unique or superior to competitors, it can generate competitive advantage and increase perceived value (Li et al., 2020).

By creating an environmentally friendly green environment accompanied by the emergence of green products that are healthy for the environment, it will create value for customers and make customers comfortable to use them, so that with increasing customer value, customers will automatically decide to use these products because they are beneficial to themselves and others. There are many kinds of green products that provide value to customers, one of which is a product that protects homes from damage to the surrounding environment, where people in Indonesia must have healthy housing, which around the environment has a green environment system (green environment), thus creating a green product (green product) that has good value for customers (customer value) which makes customers decide to choose home products without greenhouse effect. During the 2019 period, there were 125 people who had a residence without a greenhouse effect, in 2020 there were 105 people who had a residence without a greenhouse effect, in 2021 there were 86 people who had a residence without a greenhouse effect, and in 2022 there were 70 people who had a residence without a greenhouse effect, where in the 2019-2022 period the number of users of residences without a greenhouse effect tended to decrease, where this decline is due to the low awareness of the community in building a residence that still uses the greenhouse effect which tends not to create a green environment and does not produce green products, and tends to reduce the value of the product in the minds of consumers without the use of renewable energy for the flow of electrical energy in the house, so that with current habits people in Indonesia are still reluctant to decide to buy a residence without a greenhouse effect and prefer a residence with a greenhouse effect. In this context, this study aims to investigate the moderating role of renewable energy on the factors of sustainable environment, environmentally friendly products, and customer value in consumer decision

making in choosing a residence without greenhouse effect in Indonesia.

2. LITERATURE REVIEW

2.1. Renewable Energy

Kim et al. (2020) renewable energy refers to energy supplies that come from natural sources that can be naturally renewed or replenished in a relatively short time. Renewable energy comes from a variety of sources, including sunlight, wind, water (hydroenergy), geothermal, biomass, and ocean waves. Frenzel et al. (2021) renewable energy is energy that comes from renewable or naturally renewable sources such as sunlight, wind, water, biomass, and geothermal. Renewable energy is produced without depleting or reducing natural resources, and thus has a much lower environmental impact than conventional energy sources (Navratil et al., 2019). Renewable energy production is essential to reduce dependence on finite fossil energy sources, which contribute to climate change. Renewable energy can also provide economic, environmental, and social benefits such as job development, increased sustainability, and lower air pollution and greenhouse gas emissions.

2.2. Benefits of Renewable Energy for Residences without Greenhouse Effect

Kersey et al. (2021) the benefits of renewable energy for residences without greenhouse effect are as follows: Reduced greenhouse gas emissions, where when renewable energy sources such as solar and wind energy are used, they do not cause greenhouse gas emissions. Households can lower their carbon footprint and help combat climate change by switching to renewable energy sources for electricity and heating. Higher energy efficiency, as many renewable energy technologies, such as solar panels or heat pumps, are built to be more efficient and produce more energy from renewable sources. Households can minimize their energy use, save money on electricity, and reduce emissions by choosing energy-efficient appliances. Energy independence, where at home, using renewable energy can provide energy independence. Households can create their own electricity and minimize their dependence on the traditional power grid by installing solar panels, wind turbines, or micro-hydro energy systems in their homes. This reduces the likelihood of power interruptions and increases energy security. Long-term cost savings, where although the initial cost of building a renewable energy system may be greater, consumers can save money in the long run by reducing their dependence on expensive conventional energy. Furthermore, with government incentive and assistance programs, the cost of installing renewable energy can be reduced. Energy diversification, where using renewable energy contributes to the diversification of energy sources. Over-reliance on traditional energy sources can result in supply instability and price swings. Households can reduce risks and achieve energy sustainability by adopting multiple renewable energy sources.

2.2.1. Green environment

Gordon et al. (2022) a *green environment* is an environment where natural and man-made environments coexist to form a balanced and sustainable ecosystem. Green environments encourage actions and decisions that promote ecological balance, protection of natural resources, and a higher quality of life for humans and other organisms. German et al. (2022) *green environment* is the design, construction, and management strategies of homes that incorporate environmentally friendly techniques with the aim of reducing greenhouse gas emissions and negative environmental impacts.

2.3. Principles and Components of Green *Environment* for Residences without Greenhouse Effect

Veskioja et al. (2022) the principles and components of a *green environment* for dwellings without greenhouse effect are as follows: Energy efficiency, where the design and construction of buildings that maximize energy efficiency, such as good insulation, environmentally friendly building materials, and the use of renewable energy systems such as solar panels or heat pumps. This seeks to reduce domestic energy use and greenhouse gas emissions. Water management, where the implementation of rainwater collection and use systems, the use of water-saving appliances, and effective wastewater treatment to limit the use of clean water and prevent environmental pollution. Waste management, where good waste management methods, such as recycling, composting, and waste reduction, help reduce waste generation and protect the environment. Indoor air quality, where environmentally friendly designs and materials, such as efficient ventilation, use of pollutant-free materials, and indoor pollution control, are used to ensure healthy indoor air quality. Use of green building materials, where to reduce the environmental impact of manufacturing building materials, choose low-carbon footprint materials, recycled materials, or responsibly sourced resources. Utilization of green spaces, where the utilization of green spaces is done to encourage the use of environmentally friendly landscape designs, such as tree planting, green parks, or open land, which can improve air quality, lower temperatures, and provide habitats for flora and wildlife. Environmental awareness, which can increase residents' awareness and participation in sustainable behaviors such as energy conservation, green transportation, and reduced consumption.

2.3.1. Green product

Elgaaied-Gambier et al. (2020) *green products*, also known as environmentally friendly products, are goods and services that are designed, produced, and used in such a way that their environmental impact is minimized throughout their life cycle. These goods are designed to reduce resource use, reduce pollution and waste output, and promote sustainable practices. Mrówczyńska et al. (2022) "*green products*" for housing without greenhouse effect are products that are produced with low or minimal environmental impact on climate change and consider the greenhouse effect. Green products are based on the idea of sustainability, resource efficiency, and lowering greenhouse gas emissions created during the product's life cycle.

2.4. Components and Characteristics of Green *Products* for Residences without Greenhouse Effect

Mondejar et al. (2021) the components and characteristics of *green products* for housing without greenhouse effect are as follows: Environmentally friendly raw materials, where *green products* use raw materials that have been responsibly sourced,

such as recycled materials, organic materials, or materials with minimal carbon impact. The use of environmentally friendly raw materials reduces the environmental impact of product production (Razzaq et al., 2021). Energy efficiency, where *green products are* intended to reduce energy use. This can include the use of energy-efficient equipment, technology, or automated controls to reduce energy use during product use. Waste reduction recycling, where *green products are* made with the goal of reducing waste and recycling in mind. This involves the use of recyclable materials, product designs that allow for component replacement, and procedures for retrieving obsolete products. Durability and longevity, where *green products are* made to last longer and resist wear and tear. As a result, the product can be used longer before it needs to be replaced, eliminating the requirement for repeated production. Minimal use of toxic materials, where *green products* do not contain toxic materials or chemicals that are harmful to the environment or human health. To reduce harmful effects, safer and environmentally friendly substitute materials are used. Environmentally friendly packaging, where *green products* consider using less packaging, recyclable packaging, or other environmentally friendly packaging materials. The goal is to eliminate packaging waste and unnecessary resource use. Environmental certification, where *green products* often meet internationally recognized environmental standards or certifications, such as environmental certification or renewable energy labels. This assists consumers in identifying products that adhere to sustainability ideals.

2.4.1. Customer value

Kaiser et al. (2020) explains that *Customer Value* is The perceived benefits and value that customers get from a product or service in relation to the cost or effort required to get it is referred to as customer value. Understanding and delivering customer value is critical to creating and maintaining a loyal customer base, and it is a core idea in marketing and business strategy. Aliero et al. (2021) explains that the benefits or advantages perceived by customers when they use or live in dwellings built with sustainability in mind and without greenhouse effect are referred to as customer value for housing without greenhouse effect. In this context, customer value includes economic, environmental, and social variables generated by housing.

2.5. Aspects of *Customer Value* for Greenhouse Effect-free Dwellings

Ragbir et al. (2021) explains that there are several aspects of *Customer Value* for a residence without a greenhouse effect, namely: Energy efficiency, where customers will benefit from energy savings and reduced electricity prices in homes designed with energy efficiency in mind. Consumers can lower their energy expenses while also helping to minimize greenhouse gas emissions. Indoor air quality, where homes that prioritize indoor air quality will provide client value in the form of cleaner and fresher air. The use of environmentally friendly building materials and adequate ventilation can improve occupant health and comfort. Water conservation, where housing that uses water-saving technology and design will provide customer value in the form of water savings and reduced water bills. Rainwater collection and use practices and water-efficient appliances can provide economic and environmental benefits. Water-saving equipment and rainwater collection and use methods can provide economic and environmental benefits. Green building materials, where Homes that use green building materials, such as recycled materials or materials with a reduced carbon footprint, provide customer value by helping to improve the environment and use resources responsibly. Waste management, where residences with good waste management systems and recycling practices add value to their customers by contributing to waste reduction and resource recovery. Consumers believe they have a responsibility to take care of natural resources and keep the environment clean. Good quality of life, where housing without greenhouse effect that provides a comfortable, safe, and healthy atmosphere adds value to customers' lives by improving their quality of life. Greenery, healthy air, and a positive social atmosphere are available to residents.

2.6. Consumer Decision to Choose a Greenhouse Effect-Free Residence

Ogiemwonyi (2022) consumer decisions to choose a residence without a greenhouse effect involve a selection process based on the environment, sustainability, and reducing the effect on climate change. Rövekamp et al. (2021) the choice to buy or use a service is one of the steps before post-purchase behavior in the buying process. Before entering the decision-making step of adopting services, clients are faced with: Several alternative possibilities, so at this point, consumers will take action to decide whether to buy goods or not depending on the choices made. Factors that influence consumer decisions to choose a place to live without greenhouse effect, namely: Environmental awareness, where consumers who are well informed about environmental issues and the impact of climate change choose homes that do not emit greenhouse gases. Education, access to knowledge, and personal awareness of the obligation to protect the environment can all influence this awareness. Sustainability, where consumers who share sustainability ideals and care about the future of the earth prefer homes that prioritize resource efficiency, renewable energy, and reduced greenhouse gas emissions. Quality of life, where consumers also value the quality of life provided by a residence that does not emit greenhouse gases. They want to live somewhere that offers comfort, security, access to sufficient facilities and services, and decent air quality and environment. Cost savings, where although the initial cost of avoiding the greenhouse effect may be higher, consumers also evaluate the possibility of long-term cost savings. Energy-efficient housing and utilization of renewable energy sources can cut energy bills and operating costs in the long run. Environmental certifications and labels, where official environmental certifications and labels associated with residences, such as green construction certificates or renewable energy labels, are often considered by consumers. These accreditations ensure that dwellings meet specified sustainability and greenhouse gas emission standards. Government support, where government policies and incentives can also influence consumer decisions about where to live without contributing to the greenhouse effect. Subsidies such as tax breaks for renewable energy, green building materials, or energy-saving initiatives can encourage consumers to choose greener solutions.

2.6.1. Green environment relationship consumer decision to choose a residence without greenhouse effect

Li et al. (2019) the *green environment* has a strong relationship with consumer decisions when it comes to choosing a residence that has no greenhouse impact. Consumers who care about the environment and sustainability are more likely to consider environmental factors when deciding where to live, where factors that influences the *green environment* on consumer decisions when it comes to choosing a place to live such as environmental awareness factors. Personal values, quality of life, government support, certification and economic factors.

2.7. The Relationship between Green *Products* and Consumer Decisions to Choose a Residence without Greenhouse Effect

Trudel (2018) *green products* are products that are made with low or minimal environmental impact on climate change and consider the greenhouse effect. When used in a residential setting, *green products* can provide a variety of benefits consistent with the goal of creating a sustainable living environment that does not emit greenhouse gases. The relationship of *green products* with consumer decisions when it comes to choosing a residence that does not have a greenhouse impact consists of energy efficiency factors, the use of environmentally friendly building materials, efficient water management, recycling and waste reduction, and air quality in a healthy environment, as well as support for a sustainable lifestyle.

2.8. Relationship between *Customer Value* and Consumer Decision to Choose a Greenhouse Effect-free Residence

Rocca et al. (2022) consumers evaluate customer value in terms of environmental aspects, quality of life, energy efficiency, cost savings, and social awareness when deciding where to live without the greenhouse effect. Understanding this customer value helps consumers make decisions that are consistent with their values and produce long-term environmental benefits.

2.9. Renewable Energy as a Moderator Factor in the Relationship between *Green Environment, Green Product, Customer Value* with Consumer Decision to Choose a Residence without Greenhouse Effect

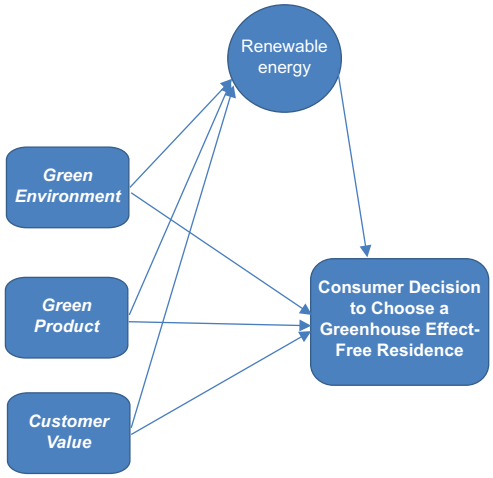
Nundy et al. (2021) renewable energy serves as a moderator in the relationship between green environment, green products, customer value, and consumer decisions to live in a place that does not emit greenhouse gases. Renewable energy is an important factor that influences the interaction of these variables and supports the selection of a more environmentally friendly and sustainable place to live.

The structure of the conceptual framework in this study can be seen in Figure 1 below:

The hypotheses in this study are:

- H1: *Green Environment* affects consumer decisions to choose a place to live without greenhouse effect
- H2: Green *Product* affects consumers' decision to choose a residence without greenhouse effect

Figure 1: Conceptual framework



- H3: *Customer Value* affects consumer decisionsto choose a residence without greenhouse effect
- H4: *Green Environment* affects the role of renewable energy
- H5: *Green Product* affects the role of renewable energy
- H6: *Customer Value* affects renewable energy
- H7: The role of renewable energy affects consumers' decision to choose a residence without greenhouse effect
- H8: *Green Environment* affects consumer decisions to choose a residence without greenhouse effect through the variable role of renewable energy as a moderator variable
- H9: Green *Product* affects consumer decisions to choose a residence without greenhouse effect through the variable role of renewable energy as a moderator variable
- H10: *Customer Value* affects consumer decisions to choose a residence without a greenhouse effect through the variable role of renewable energy as a moderator variable.

3. RESEARCH METHODS

This study used a quantitative approach and collected data through a survey given to potential residential consumers in Indonesia (Dash and Paul, 2021) the quantitative descriptive method with the survey method is a research method based on observational experience regarding the problem to be addressed, and an explanation is carried out through hypotheses and analyzed quantitatively. Sample determination is done by purposive sampling by considering certain criteria (Ghozali, 2021). This research will use the structural equation modeling-partial least squares (SEM-PLS) method as a data analysis tool. SEM-PLS is a method that can test the causal relationship between the variables involved in this study. Data collection will be carried out through surveys to respondents who are potential residential consumers in Indonesia who are interested in the concept of houses without greenhouse effect (Sugiyono, 2017). Data collection will also involve measuring the variables that have been established in this study, such as green environment, green product, customer value, and consumer decision. The survey instrument will consist of questions relevant to the variables under study. The collected data will be analyzed using structural equation modeling (SEM) techniques with the help of SmartPLS software to test the

relationship between the variables under study. The SEM approach and PLS analysis tool will also be put forward as an appropriate method for analyzing data in this study. The population in this study is 270 people who have a residence without a greenhouse effect in 2022, the sample taken is also 270 people who have a residence without a greenhouse effect, where the sampling technique is carried out by the census method, where the sample is taken by the census method (Dash and Paul, 2021) the census method is a research method carried out by taking the entire population into a sample aimed at analyzing data and drawing conclusions.

4. RESEARCH RESULTS

4.1. Convergent Validity

For this test Convergent Validity representation of the research results can be seen in Table 1 below:

Based on Table 1, it can be explained that the value of the outer loading data analysis of several existing variables is >0.70, it can be concluded that the distribution of the *convergent validity* test results of each variable has a distribution of data that is suitable for further testing.

Table 1: Convergent validity test results

Variables	Indicator	Outer loading
Green Environment $(X)_1$	GE 1	0,757
	GE 2	0,806
	GE 3	0,855
	GE 4	0,847
	GE 5	0,875
	GE 6	0,826
Green Product $(X)_2$	GP 1	0,820
	GP 2	0,760
	GP 3	0,756
	GP 4	0,825
	GP 5	0,874
	GP 6	0,732
	GP 7	0,767
Customer Value $(X)_3$	CV 1	0,713
	CV 2	0,734
	CV 3	0,858
	CV 4	0,862
	CV 5	0,752
	CV 6	0,733
	CV 7	0,747
Role of Renewable Energy (Z)	PET 1	0,855
	PET 2	0,870
	PET 3	0,810
	PET 4	0,884
	PET 5	0,753
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	KKMTR 1	0,750
	KKMTR 2	0,851
	KKMTR 3	0,829
	KKMTR 4	0,773
	KKMTR 5	0,707
	KKMTR 6	0,805

Source: PLS 3.0 Data Processing Results, 2022

4.1.1. Average variant extracted (AVE)

The results of the AVE analysis data processing can be seen in Table 2.

Based on Table 2, it can be explained that the data analysis value of *Average Variant Extracted* has a value greater than 0.5, which means that the distribution of data from the AVE test is feasible and accurate, so it is necessary to continue further data analysis.

4.1.2. Composite reliability test

For the results of data processing from the *composite reliability* test can be seen in Table 3 below:

Based on Table 3, it can be explained that the data analysis value of *composite reliability* is greater than 0.6, which means that all variables have a high level of reliability and are suitable for use in further testing.

4.1.3. Path coefficient test

The path coefficient test is the result of data analysis to determine how strong the direct influence of several variables is. The results of the *path coefficient test* can be seen in the R value[2] or R Square value which can be analyzed according to Tables 4-10 below:

Based on Table 4, it can be explained that the R Square value of the *green environment variable is 83*.7, which means that the percentage of increasing *green environment of* 83.7% can be explained by the variable consumer decision to choose a residence without greenhouse effect and the remaining 16.3% can be explained by other variables that are not explained in this study.

Table 2: AVE test

Variables	AVE
Green Environment $(X)_1$	0,755
Green Product $(X)_2$	0,605
Customer Value $(X)_3$	0,644
Role of Renewable Energy (Z)	0,727
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,765

Source: Results of Data Processing with PLS 3.0, 2022

Table 3: *Composite Reliability Test*

Variables	Composite Reliability
Green Environment $(X)_1$	0,837
Green Product $(X)_2$	0,866
Customer Value $(X)_3$	0,825
Role of Renewable Energy (Z)	0,842
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,877

Source: Results of Data Processing with PLS 3.0, 2022

Table 4: R Square Test of Variable X_1 on Y

Variables	R Square
Green Environment $(X)_1$	0,837
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,827

Source: Results of Data Processing with PLS 3.0, 2022

Table 5: R Square Test of Variable X_2 on Y

Variables	R Square
Green Product (X)$_2$	0,728
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,732

Source: Results of Data Processing with PLS 3.0, 2022

Table 6: R Square Test of Variable X_1 Against Z

Variables	R Square
Customer Value (X)$_3$	0,840
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,822

Source: Results of Data Processing with PLS 3.0, 2022

Table 7: R Square Test of Variable X_2 Against Z

Variables	R Square
Green Environment (X)$_1$	0,864
Role of Renewable Energy (Z)	0,633

Source: Results of Data Processing with PLS 3.0, 2022

Table 8: R Square Test of Variable X_2 on Y

Variables	R Square
Green Product (X)$_2$	0,857
Role of Renewable Energy (Z)	0,834

Source: Results of Data Processing with PLS 3.0, 2022

Table 9: R Square Test of Variable X_3 on Y

Variables	R Square
Customer Value (X)$_3$	0,827
Role of Renewable Energy (Z)	0,805

Source: Results of Data Processing with PLS 3.0, 2022

Table 10: Test R Square Variable Z Against Y

Variables	R Square
Role of Renewable Energy (Z)	0,807
Consumer Decision to Choose a Greenhouse Effect-Free Residence (Y)	0,792

Source: Results of Data Processing with PLS 3.0, 2022

Based on Table 5, it can be explained that the R Square value of the *green product variable is* 72.8, which means that the percentage of increasing *green products* of 72.8% can be explained by the variable consumer decisions to choose a residence without greenhouse effect and the remaining 27.2% can be explained by other variables not explained in this study.

Based on Table 6, it can be explained that the R Square value of the *customer value variable is 84,* which means that the percentage of increased *customer value of* 84% can be explained by the variable consumer decision to choose a residence without a greenhouse effect and the remaining 16% can be explained by other variables not explained in this study.

Based on Table 7, it can be explained that the R Square value of the *green environment* variable is 83.7, which means that the percentage of increasing *green environment of* 86.4% can be explained by the variable role of renewable energy and the remaining 13.6% can be explained by other variables not explained in this study.

Based on Table 8, it can be explained that the R Square value of the *green product variable is* 85.7, which means that the percentage of increasing *green products* of 85.7% can be explained by the variable role of renewable energy and the remaining 14.3% can be explained by other variables not explained in this study.

Based on Table 9, it can be explained that the R Square value of the *customer value variable is* 82.7, which means that the percentage of increased *customer value of* 82.7% can be explained by the variable role of renewable energy and the remaining 17.3% can be explained by other variables not explained in this study.

Based on Table 10, it can be explained that the R Square value of the renewable energy role variable is 80.7, which means that the percentage increase in the role of renewable energy by 80.7% can be explained by the variable consumer decision to choose a residence without greenhouse effect and the remaining 19.3% can be explained by other variables that are not explained in this study.

4.2. Hypothesis Test

To explain the results of hypothesis testing can be seen in Table 11.

Based on Table 9 above, it can be explained that partially only the variables of *green environment, green product* and *customer value* affect the variable consumer decisions to choose a residence without greenhouse effect and the variable role of renewable energy, while simultaneously the variables of *green environment, green product* and *customer value* affect the variable consumer decisions to choose a residence without greenhouse effect through the variable role of renewable energy as a moderator variable.

5. DISCUSSION

5.1. The Influence of Green *Environment* on Consumer Decisions to Choose a Residence Without Greenhouse Effect

Green environment affects consumer decisions to choose a place to live without the greenhouse effect, where according to research (Knapp et al., 2020) the better and the increase in the existing green environment, it will make consumers decide correctly that they will continue to live in that place, because the environment is safe from existing disturbances, and make their residence protected from climate change or existing disasters, so that consumers will choose a place to live that is able to protect themselves from any existing activities that make themselves protected from any threats and disasters.

5.2. The Influence of Green *Products* on Consumer Decisions to Choose a Residence Without Greenhouse Effect

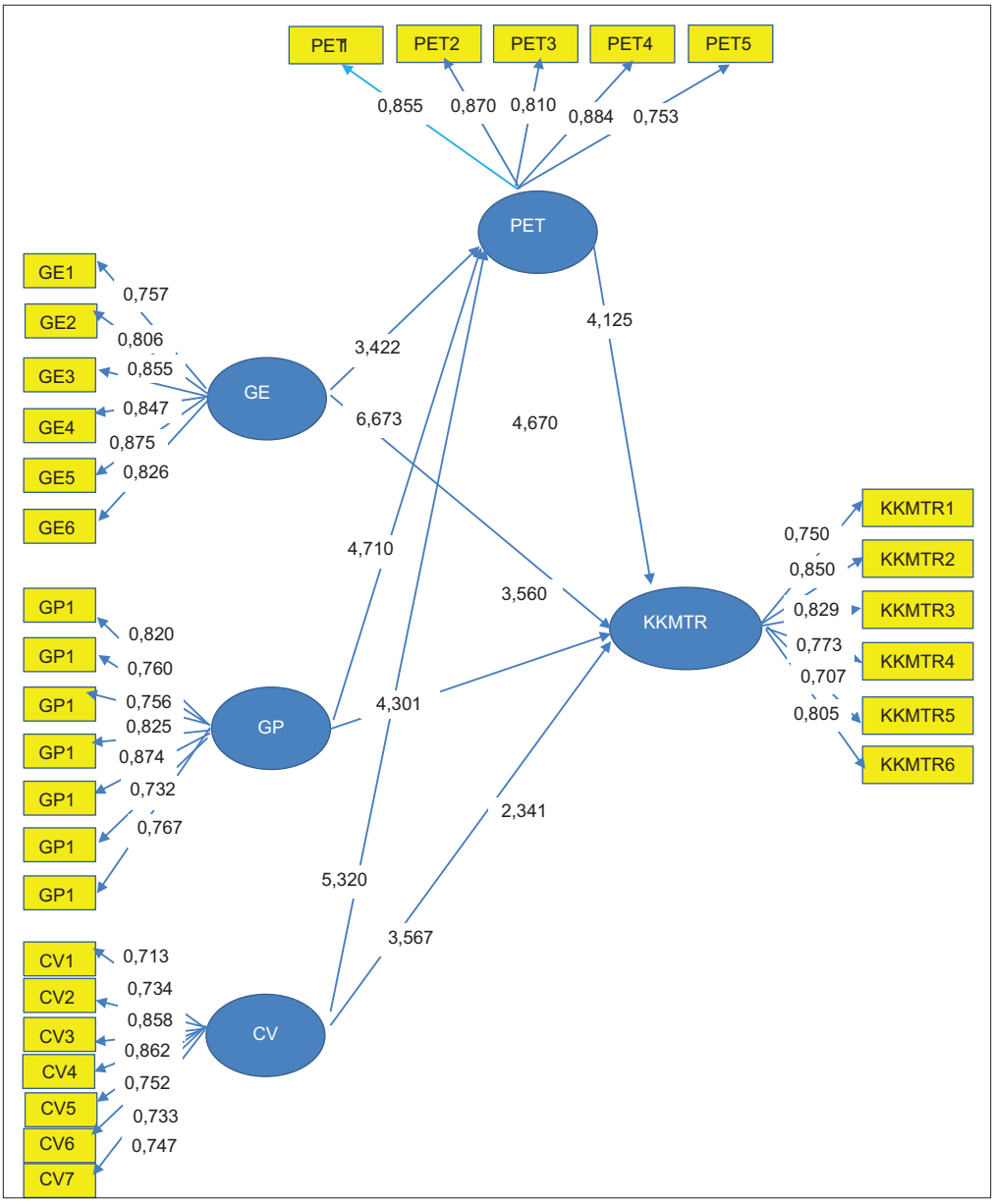
Mondejar et al. (2021) explains that *Green* products in the population area will produce healthy and environmentally friendly products, and be able to improve public health when using products from a green environment that are good for the user's body and in accordance with recommendations for product use that are not

Table 11: Hypothesis Test

Hypothesis	Influence	T-Statistics	P-Value	Results
H1	The influence of *green environment* on consumer decisions to choose a place to live without greenhouse effect	6,671	0,001	Accepted
H2	The influence of *green products* on consumer decisions to choose a place to live without greenhouse effect	4,301	0,003	Accepted
H3	The influence of *customer value* on consumer decisions to choose a place to live without greenhouse effect	3,567	0,000	Accepted
H4	The influence of *green environment* on the role of renewable energy	3,422	0,002	Accepted
H5	The influence of *green products* on the role of renewable energy	4,710	0,001	Accepted
H6	The influence of *customer value* on the role of renewable energy	5,320	0,000	Accepted
H7	The influence of the role of renewable energy on consumer decisions to choose a residence without greenhouse effect	4,125	0,002	Accepted
H8	The influence of *green environment* on consumer decisions to choose a residence without greenhouse effect through the role of renewable energy as a moderator variable	4,670	0,000	Accepted
H9	The effect of *green products* on consumer decisions to choose a residence without greenhouse effect through the role of renewable energy as a moderator variable	3,560	0,000	Accepted
H10	The effect of *customer value* on consumer decisions to choose a residence without greenhouse effect through the role of renewable energy as a moderator variable	2,431	0,001	Accepted

Source: Results of Data Processing with PLS 3.0, 2022

Figure 2: *Bootstrapping* image model



detrimental to consumer health, so that in the end consumers will choose a healthy place to live without the greenhouse effect and protect from exposure to climate change and global change.

5.3. The Influence of *Customer Value* on Consumer Decisions to Choose a Residence Without Greenhouse Effect

Kaiser et al. (2020) the value obtained by customers in having a residence without a greenhouse effect will make consumers feel more satisfaction when using a residence without a greenhouse effect, where such a residence is safe from all forms of natural disturbances, healthy and environmentally friendly, and avoids natural shocks, such as climate change that is detrimental to the population.

5.4. The Influence of *Green Environment* on the Role of Renewable Energy

Kim et al. (2020) the green environment has an influence and plays a role in producing renewable energy, where the green environment produces products that meet the expectations of the community and the Government in managing environmental sustainability to prevent environmental damage and climate change that is detrimental to society.

5.5. The Influence of *Green Products* on the Role of Renewable Energy

Mrówczyńska et al. (2022) green products processed from green environments provide high hopes for being able to improve the quality of renewable energy, and provide an important role for this type of green product to function as renewable energy that is useful and useful for reducing CO2 for the sustainability of environmental conservation.

5.6. The Effect of *Customer Value* on the Role of Renewable Energy

Rocca et al. (2022) the customer value of renewable energy that is managed and produced increases its own role so that the energy is beneficial to society, so that this renewable energy can be a substitute for fossil energy that exists today.

5.7. The Influence of the Role of Renewable Energy on Consumer Decisions to Choose Greenhouse Effect-Free Housing

Ragbir et al. (2021) this renewable energy is one of the energy sources that are in the environment, and protects the residences of residents as consumers from the greenhouse effect, where this protection makes consumers decide to use residences without greenhouse effect.

5.8. The Effect of Green *Environment* on Consumer Decisions to Choose Housing Without Greenhouse Effect Through the Role of Renewable Energy as a Moderator Variable

Kersey et al. (2021) the green environment will create a complete and comprehensive protection from various threats from global warming, where the green environment can reduce greenhouse gas emissions, as well as increase the protection of the residence, thus protecting the residence from the threat of global warming and natural disasters that allow consumers to always decide to choose a residence without a greenhouse because it produces a role and a renewable energy as part of preventing greenhouse gas emissions and reducing global warming.

5.9. The Effect of Green *Products* on Consumer Decisions to Choose a Residence Without Greenhouse Effect Through the Role of Renewable Energy as a Moderator Variable

Elgaaied-Gambier et al. (2020) green products produced from green environments can provide protection from the threat of the greenhouse effect and global climate change, so that it will protect people's homes and make residents as consumers choose to live in a place to live without the greenhouse effect because it has renewable energy as an alternative to protecting the earth and residents from the threat of global warming.

5.10. The Effect of *Customer Value* on Consumer Decisions to Choose a Residence Without Greenhouse Effect Through the Role of Renewable Energy as a Moderator Variable

Trudel (2018) the value of products produced from the green environment provides a picture that the product is useful for protecting people's homes from the effects of global warming and increasing the role of the product has a use value to increase the production capacity of renewable energy to protect the population, so that it will make consumers interested in choosing a place to live without greenhouse gas effects that tend to harm the population as consumers.

6. CONCLUSION

This study will conclude that partially only the variables of *green environment, green product* and *customer value* affect the variable of consumer decisions to choose a residence without greenhouse effect and the variable role of renewable energy, while simultaneously the variables of *green environment, green product* and *customer value* affect the variable of consumer decisions to choose a residence without greenhouse effect through the variable role of renewable energy as a moderator variable.

The results of this study indicate that consumers tend to be more interested in choosing a residence that uses renewable energy and has environmentally friendly features. In addition, customer values perceived by consumers, such as quality, price, comfort, and safety, also have a positive influence on consumer decisions in choosing residential houses without greenhouse effect.

Limitations of this study include the use of self-reporting survey data, which may affect the validity and reliability of the results. In addition, this study focused on the context of residential homes in Indonesia, so generalizability of the findings needs to be considered with caution. Recommendations for future research include involving a more representative sample, incorporating objective data to measure environmental variables and environmentally friendly products, and expanding the geographical scope of the study to compare results between different regions in Indonesia.

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