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# The Effect of Knowledge, Environmental Awareness, Government Incentives and Perception of Benefits on the Interest in Buying Solar Panel in the Household Sector in Riau Province

**Hosea Wisanta[1*], Lamhot Henry Pasaribu[2]**
[1]Sekolah Tinggi Ilmu Ekonomi Harapan Bangsa, Bandung, Indonesia, wisantahosea12@gmail.com
[2]Sekolah Tinggi Ilmu Ekonomi Harapan Bangsa, Bandung, Indonesia, lamhot_dlb@ithb.ac.id

[*]Corresponding Author: wisantahosea12@gmail.com[1]

**Abstract:** This study aims to analyze the influence of Knowledge, Environmental Awareness, Government Incentives, and Perceived Benefits on the Purchase Intention of solar panel products in the household sector in Riau Province. The results show that Knowledge, Government Incentives, and Perceived Benefits have a positive and significant effect on Purchase Intention, while Environmental Awareness does not show a significant effect. Perceived Benefits is the most dominant variable influencing Purchase Intention. Simultaneously, the four independent variables explain 66.8% of the variation in Purchase Intention, while the remaining 33.2% is explained by other factors not included in this research model. These findings indicate that increasing public understanding, policy support, and positive perceptions of the benefits of solar panels play an important role in promoting the adoption of renewable energy at the household level.

**Keywords:** Solar Panel, Purchase Intention, Knowledge, Government Incentives, Perceived Benefits, Environmental Awareness.

## INTRODUCTION

Dependence on fossil energy has become a major issue in the current global climate crisis. Data from the United Nations shows that over 81% of the world's energy production still comes from the combustion of fossil fuels, including for electricity generation (United Nations, n.d.). According to the Indonesian Ministry of Energy and Mineral Resources (ESDM) Report in 2023, fossil fuel usage in Indonesia stands at 86.92%, while the use of new and renewable energy (NRE) remains at only 13.09% (Ahdiat, 2024). Therefore, increasing the utilization of NRE is a crucial key to addressing this climate issue.

Indonesia has significant solar energy potential, reaching up to 3,200 gigawatts (GW). However, actual utilization is only around 200 megawatts (MW). According to the Directorate General of New and Renewable Energy and Energy Conservation (EBTKE), as of January 2024, the realization of rooftop solar power plants (PLTS) reached 149.2 megawatt-peak (MWp), with 20.81 MWp coming from the household sector involving 5,805 customers.

Additionally, the government has targeted rooftop PLTS development to reach 2,145 MW by 2030 (Infien Energy, 2024).

The process of utilizing solar panels in Indonesia still faces significant challenges. The adoption rate of solar panels in the country remains low—around 0.1% of the available potential. High installation costs are one of the main reasons for the lack of interest in using solar panels. Furthermore, limited public education about solar panel use is another contributing factor. A few years ago, the use of rooftop PLTS was limited to around 10–15% of total electricity capacity, but this restriction has now been lifted (Febrianti, 2024).

The use of rooftop solar power systems in the household sector is regulated under ESDM Regulation No. 2 of 2024. This regulation aims to address challenges and optimize the implementation of rooftop PLTS. It includes adjustments to installation capacity, the elimination of export-import mechanisms, and a simplified application process. The Indonesian government hopes that these changes will increase public interest in installing rooftop PLTS and contribute to the national target of 23% renewable energy by 2025. This regulation also aims to strengthen the domestic solar panel industry by utilizing Indonesia's silica sand resources (Wisnubroto, 2024).

Considering these challenges, research on the factors that influence public interest in purchasing solar panel products becomes highly important. Such research will assist the government in increasing the adoption of renewable energy, particularly solar technology, as a solution to the climate crisis. Indonesia's vast potential and currently low adoption rate of solar energy also present economic opportunities for the solar panel installation industry. However, it is essential to understand the factors influencing public interest in order to determine effective marketing strategies to boost sales, especially in the household market.

Mohammad Almrafee and Mustafa Akaileh (2023) conducted a study titled *"Customers' Purchase Intention of Renewable Energy in Jordan: The Case of Solar Panel Systems Using An Extended Theory of Planned Behavior (TPB)"*. This research aimed to examine the influence of various factors on public purchase intentions toward renewable energy in Jordan. The findings revealed that factors such as Knowledge, Attitude, Social Influence, Price Perception, and Perceived Behavioral Control significantly affect people's intention to adopt renewable energy. Among these factors, Knowledge was identified as having the greatest contribution to Jordanians' intention to purchase renewable energy products.

Based on this study, the researcher has identified several variables considered relevant and potentially influential on public interest in adopting solar panel technology. The first aspect is Knowledge, which plays a vital role in increasing public interest in solar panel adoption. Environmental Awareness is also necessary for communities to support the adoption of environmentally friendly technologies. In addition, Government Support can motivate people to become more interested in using solar panel technology.

To measure an individual's intention, two theories are commonly referenced: the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM). TPB is a theory used to predict an individual's behavior in making rational decisions. In this theory, intention is measured through variables such as attitude toward behavior, subjective norms, and perceived behavioral control (Norisnita & Indriati Indriati, 2022). TAM, on the other hand, is used to explain the process of adopting new technologies. It consists of four core variables: perceived ease of use, perceived usefulness, intention, and actual use (Toraman, 2022).

Considering the market potential in the household sector and the positive environmental impact of solar panel technology, the author intends to conduct a study entitled: *"The Influence of Knowledge, Environmental Awareness, Government Incentives, and Perceived Usefulness on Purchase Intention of Solar Panel Products in the Household Sector in Riau Province."* This research is expected to assist solar panel industry stakeholders in increasing product sales,

and to support the government's efforts in addressing climate issues and the energy crisis by enhancing public interest in clean and renewable energy adoption.

**Knowledge**

Knowledge refers to consumers' awareness of specific information about a product (Magfirah & Aprianti, 2023). According to Ridwan (2018), product knowledge is the consumer's understanding of a product, which serves as a basis for consideration and guidance when making decisions regarding the product offered to them.

**Environmental Awareness**

Environmental awareness is the effort to foster and develop consciousness in preserving the environment (Puspitasari et al., 2021). It is also defined as the understanding of the environmental impact of individual and organizational actions, along with the willingness to take more sustainable steps (Schoch et al., 2009).

**Government Incentive**

Incentives are factors that motivate individuals to take specific actions. Incentives lie at the core of all economic activity, influencing both individual and group or organizational decision-making (Zhan et al., 2021).

**Perceived Benefits**

Perceived benefits refer to the belief that undertaking a certain action will lead to positive outcomes (Meher & Mishra, 2022). In other words, individuals are more likely to be interested and motivated to engage in a particular behavior if they perceive it to offer significant value or advantages.

**Purchase Intention**

Purchase intention is a crucial construct in marketing that reflects the level of consumer confidence and willingness to purchase a product or service. It goes beyond mere interest and serves as a key predictor of actual buying behavior, significantly increasing the likelihood of a purchase (Moslehpour et al., 2022).

## METHODS

**Research Location and Time**

This study aims to analyze the influence of Knowledge, Environmental Awareness, Government Incentives, and Perceived Benefits on Purchase Intention of solar panels in Riau Province. Riau was chosen as the research location due to its significant solar energy potential and diverse population. The study is relevant to the Indonesian government's target of achieving 23% renewable energy usage (EBT). The research was conducted from April 1 to June 30, 2025, covering activities such as hypothesis formulation, literature review, questionnaire design and distribution, and data analysis.

This research employs a quantitative method, which is used to measure the effect of the independent variables on consumers' purchase intention for solar panel products. According to Waruwu (2023), quantitative research is an approach that utilizes numerical data and exact sciences to answer research hypotheses. The strength of this method lies in its predictive ability, accuracy, clarity of variables, and capacity to simplify complex problems (Waruwu, 2023).

**Population**

The population refers to the entire set of units whose characteristics are observed and analyzed by the researcher. It includes all individuals, items, or objects relevant to the research

subject (Goa, 2023). In this study, the population comprises households in Riau Province, with a total of 1,615,494 households (Central Bureau of Statistics, 2023).

**Sample**

The sample refers to a portion of the population whose characteristics are examined or measured and are considered to represent the entire population under study (Goa, 2023). The sample for this research on *"The Influence of Knowledge, Environmental Awareness, Government Incentives, and Perceived Benefits on Purchase Intention of Solar Panel Products in the Household Sector"* consists of households residing in Riau Province.

Sampling was conducted using the purposive non-probability sampling method. The respondents were individuals, either heads of households or household members, who live in Riau and are considered to have the potential or interest in purchasing solar panel products, with a minimum income falling into the middle-income category. Each household could only submit one response to the questionnaire.

To determine the sample size, the researcher used the 10 times rule of thumb method, which suggests that the number of samples should be at least ten times the number of indicators used in the study (Sofyani, 2023). Since this study uses 20 indicators, the required sample size is 200 respondents. This sample size was selected due to the large household population and to focus on individuals in Pekanbaru City and surrounding areas who meet the middle-income criteria.

## RESULTS AND DISCUSSION

**Validity Test**

The validity test tests how valid the research instrument used is in measuring the indicators in the research variables. The validity test is carried out by comparing the r-count and r-table on each existing variable against its indicators.

The criteria for the validity value of the instrument are:

1. The instrument is valid if the r-count is greater than or equal to the r-table and the significance is smaller than alpha (with an alpha value of 0.05).
2. The instrument is invalid if the r-count is smaller than the r-table and the significance is greater than or equal to alpha (with an alpha value of 0.05).

The results of the measurement validity test can be seen in Table 1 below.

**Table 1.** Variable Validity Test Table

| Code | R count | R table | Sig | Information |
|---|---|---|---|---|
| X1.1 | 0,8780 | 0,1388 | 0,00 | Valid |
| X1.2 | 0,9220 | 0,1388 | 0,00 | Valid |
| X1.3 | 0,8720 | 0,1388 | 0,00 | Valid |
| X2.1 | 0,8560 | 0,1388 | 0,00 | Valid |
| X2.2 | 0,9190 | 0,1388 | 0,00 | Valid |
| X2.3 | 0,9060 | 0,1388 | 0,00 | Valid |
| X3.1 | 0,7690 | 0,1388 | 0,00 | Valid |
| X3.2 | 0,7260 | 0,1388 | 0,00 | Valid |
| X3.3 | 0,8260 | 0,1388 | 0,00 | Valid |
| X3.4 | 0,6260 | 0,1388 | 0,00 | Valid |
| X4.1 | 0,8260 | 0,1388 | 0,00 | Valid |
| X4.2 | 0,8170 | 0,1388 | 0,00 | Valid |
| X4.3 | 0,7320 | 0,1388 | 0,00 | Valid |
| X4.4 | 0,8030 | 0,1388 | 0,00 | Valid |
| X4.5 | 0,7580 | 0,1388 | 0,00 | Valid |

| | | | | |
|---|---|---|---|---|
| X4.6 | 0,8230 | 0,1388 | 0,00 | Valid |
| X4.7 | 0,7590 | 0,1388 | 0,00 | Valid |
| Y1.1 | 0,8940 | 0,1388 | 0,00 | Valid |
| Y1.2 | 0,9200 | 0,1388 | 0,00 | Valid |
| Y1.3 | 0,8780 | 0,1388 | 0,00 | Valid |

Source: Research Data Processing Results (2025)

Based on Table 1 above, it shows that the R-Calculation value of each indicator is greater than the specified R-Table. In addition, the significance value of each indicator is below 0.05, so it can be concluded that each indicator used in this study is valid.

**Reliability Test**

This test aims to test how stable and consistent a measurement is. This test produces Cronbach Alpha as an indication of how reliable the researcher's instrument is. An instrument is said to be reliable when it has a Cronbach Alpha above 0.70. The data from the Reliability test results can be seen in Table 2.

**Table 2.** Reliability Test Results

| Variable | Cronbach Alpha | R table | Information |
|---|---|---|---|
| Knowledge (KN) | 0,868 | 0,70 | Reliable |
| Environmental Awareness (EA) | 0,872 | 0,70 | Reliable |
| Government Incentives (GI) | 0,716 | 0,70 | Reliable |
| Perceived Benefits (PB) | 0,897 | 0,70 | Reliable |
| Purchase Intention (PI) | 0,879 | 0,70 | Reliable |

Source: Research Data Processing Results (2025)

Based on the test results in Table 2, it was found that the Cronbach Alpha value was above 0.70. It is concluded that each variable used is stated as Reliable.

**Classical Assumption Test**

**Normality Test**

The Normality Test is used to determine whether the data used is normally distributed or not. Normality testing is tested in two ways, namely graphic analysis techniques (histograms) and the Kolmogorov-Smirnov tester. Graphic analysis is carried out by plotting the Regression Standardized Residual value from the linear regression test carried out by SPSS. The test result graph can be seen in Figure 1.

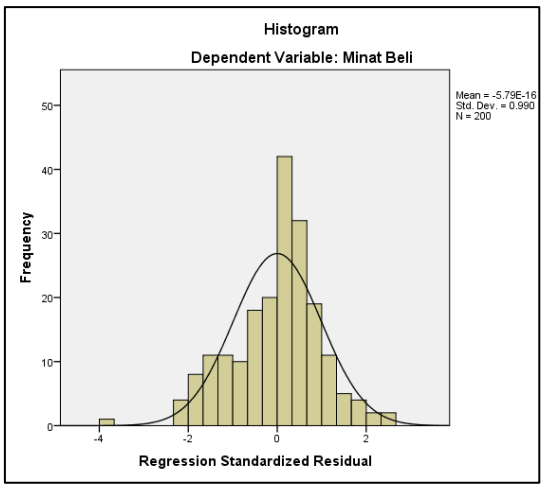



**Figure 1.** Normality Test Graph
Source: Research Data Processing Results (2025)

Figure 1 shows that the data is normally distributed. This can be seen from the shape of the graph which is bell-shaped and centralized. In the Kolmogorov-Smirnov test, data is said to be normally distributed when the significance is greater than 0.05. Conversely, if the significance value is below 0.05, the data is indicated as not normal. The results of the Kolomogorov-Smirnov normality test can be seen in Table 3.

**Table 3. Results of the Kolmogorov-Smirnov Normality Test**

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Unstandardized Residual |
| N | | 200 |
| Normal Parameters[a,b] | Mean | 0E-7 |
| | Std. Deviation | 1.37411020 |
| Most Extreme Differences | Absolute | .095 |
| | Positive | .052 |
| | Negative | -.095 |
| Kolmogorov-Smirnov Z | | 1.339 |
| Asymp. Sig. (2-tailed) | | .055 |

a. Test distribution is Normal.
b. Calculated from data.

Source: Research Data Processing Results (2025)

Table 3 shows that the data significance value is above 0.05, which is 0.055. From this value, it can be concluded that the data used in this study is normally distributed.

## Heteroscedasticity Test

The Heteroscedasticity Test aims to ensure that the data used is homogeneous. The test is carried out by plotting ZPRED on the X axis and SRESID on the Y axis. The results of the Heteroscedasticity Test can be seen in Figure 2 below.

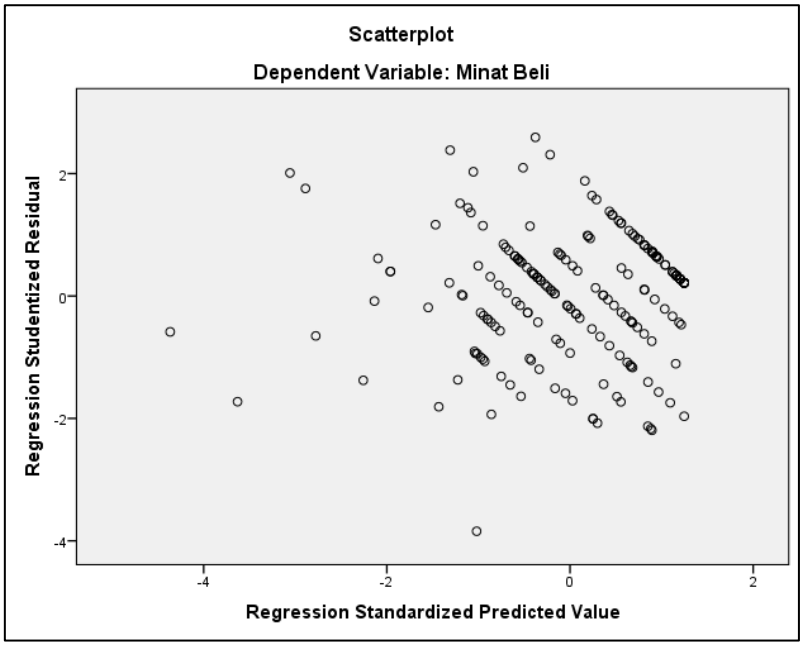



**Figure 2. Heteroscedasticity Test Graph**

Source: Research Data Processing Results (2025)

Figure 2 shows that the data distribution does not appear to form a clear pattern and the points are spread randomly. The graph shows that the regression model does not experience heteroscedasticity.

## Multicollinearity Test

The Multicollinearity Test aims to ensure that a regression model has a perfect correlation between the independent variables used. A good model should have no correlation between independent variables. According to Ghozali (2021), multicollinearity does not occur when the tolerance value is greater than 0.10 and the VIF value is less than 10. The results of the Multicollinearity Test can be seen in Table 4.

**Table 4. Multicollinearity Test Results**

| Coefficients[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -.924 | .744 | | -1.242 | .216 | | |
| | Knowledge | .201 | .046 | .239 | 4.414 | .000 | .581 | 1.722 |
| | Environmental Awareness | -.069 | .064 | -.062 | -1.091 | .277 | .528 | 1.893 |
| | Government Incentives | .083 | .041 | .103 | 1.998 | .047 | .638 | 1.566 |
| | Perceived Benefits | .343 | .030 | .635 | 11.278 | .000 | .537 | 1.863 |

a. Dependent Variable: Purchase Interest

Source: Research Data Processing Results (2025)

Based on Table 4, it shows that the tolerance value of the Knowledge variable (0.581), Environmental Awareness (0.528), Government Incentives (0.638), and Perceived Benefits (0.537) is more than 0.10 and the VIF value of the Knowledge variable (1.722), Environmental Awareness (1.893), Government Incentives (1.566) and Perceived Benefits (1.863) is less than 10. From these results, it is concluded that the independent variables in this study do not have symptoms of multicollinearity.

## Hypothesis Test

### Coefficient of Determination Test (R-Squared)

The coefficient of determination test (R-Squared) aims to test how much percentage of the independent variables can explain the dependent variables together. The R-Squared value ranges from 0 to 1. The higher the R-Squared value produced, the stronger the regression model is said to be. The results of the determination coefficient test can be seen in Table 5.

**Table 5. Determination Coefficient Test (R-Squared)**

| Model Summary[b] | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .817[a] | .668 | .661 | 1.38813 |

a. Predictors: (Constant), Perceived Benefits, Government Incentives, Knowledge, Environmental Awareness

b. Dependent Variable: Purchase Interest

Source: Research Data Processing Results (2025)

Based on the analysis results in Table 5, the percentage of diversity of Purchase Interest Variables (Y) that can be explained by the variables Knowledge (X1), Environmental

Awareness (X2), Government Incentives (X3), Perception of Benefits (X4) is 66.8% while the remaining 33.2% is explained by other variables outside the regression model.

**Multiple Linear Regression Test**

In this test, multiple linear regression is carried out to produce a multiple linear equation model. The linear equation model can be seen in Table 6.

**Table 6. Linear Equation Model**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.924 | .744 | | -1.242 | .216 |
| | Knowledge | .201 | .046 | .239 | 4.414 | .000 |
| | Environmental Awareness | -.069 | .064 | -.062 | -1.091 | .277 |
| | Government Incentives | .083 | .041 | .103 | 1.998 | .047 |
| | Perceived Benefits | .343 | .030 | .635 | 11.278 | .000 |
| a. Dependent Variable: Purchase Interest | | | | | | |

Source: Research Data Processing Results (2025)

The equation model in Table 6 above produces an equation form as follows:

$$Y = -0.924 + 0.201X1 – 0.069X2 + 0.083X3 + 0.343X4$$

From the model, it produces a constant value of -0.924, this shows that if X1, X2, X3 and X4 have a value of 0, then the Y value remains at -0.924.

Based on variable X1 (Knowledge), the results of the regression test show that variable X1 (Knowledge) has a positive regression coefficient with a value of 0.201. This means that if there is an increase in the value of variable X1 (Knowledge) by 1 point, there will also be an increase in variable Y (Purchase Interest) by 0.201.

Based on variable X2 (Environmental Awareness), the results of the regression test show that variable X2 (Environmental Awareness) has a negative regression coefficient with a value of -0.069. This means that if there is an increase in the value of variable X1 by 1 point, there will also be an increase in the variable Y (Purchase Interest) by -0.069.

Based on variable X3 (Government Incentives), the results of the regression test show that variable X3 (Government Incentives) has a positive regression coefficient with a value of 0.083. This means that if there is an increase in the value of variable X3 (Government Incentives) by 1 point, there will also be an increase in the variable Y (Purchase Interest) by 0.083.

Based on variable X4 (Perceived Benefits), the results of the regression test show that variable X4 (Perceived Benefits) has a positive regression coefficient with a value of 0.343. This means that if there is an increase in the value of variable X4 (Perceived Benefits) by 1 point, there will also be an increase in the variable Y (Purchase Interest) by 0.343.

**F Test (Simultaneous)**

The F test aims to show whether the independent variables together can have a significant effect on the dependent variable. The criteria for a variable to be said to be simultaneous are:

1. If sig < 0.05 or F count > F table then there is a simultaneous influence of variable X on variable Y.
2. If sig > 0.05 or F count < F table then there is no simultaneous influence of variable X on variable Y.

The F count value is obtained through testing using SPSS while the F table value is obtained through a table with a significance level of 0.05 and df 198. The results of the F test (Simultaneous) can be seen in Table 7.

**Table 7. F Test Results (Simultaneous)**

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 756.127 | 4 | 189.032 | 98.101 | .000[b] |
| | Residual | 375.748 | 195 | 1.927 | | |
| | Total | 1131.875 | 199 | | | |

a. Dependent Variable: Purchase Interest
b. Predictors: (Constant), Perceived Benefits, Government Incentives, Knowledge, Environmental Awareness

Source: Research Data Processing Results (2025)

Based on the results of the analysis of Table 7 above, the f count value (98.101), f table (2.650) and sig (0.000) were obtained. From these data, it is concluded that there is a significant influence between variables X1 (Knowledge), X2 (Environmental Awareness), X3 (Government Incentives) and X4 (Perception of Benefits) simultaneously on variable Y because the f count and significance values meet the criteria, namely sig <0.05 and f count> f table.

## t Test (Partial)

The t-test is used to determine the influence of each variable based on partial significant impact on the dependent variable. The criteria for the results of the t test are as follows:

1. If t count> t table with a sig value ≤ 0.05. This explains the significant relationship with the dependent variable.
2. If t count < t table with a sig value ≥ 0.05. This explains that there is no significant relationship with the dependent variable.

The results of the t-test can be seen in Table 8 to see the value of the t-test that has been carried out.

**Table 8. Results of the t-test**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.924 | .744 | | -1.242 | .216 |
| | Knowledge | .201 | .046 | .239 | 4.414 | .000 |
| | Environmental Awareness | -.069 | .064 | -.062 | -1.091 | .277 |
| | Government Incentives | .083 | .041 | .103 | 1.998 | .047 |
| | Perceived Benefits | .343 | .030 | .635 | 11.278 | .000 |

a. Dependent Variable: Purchase Interest

Source: Research Data Processing Results (2025)

Based on the analysis results from the table above, the Knowledge variable obtained a t-count value (4.414)> t table (1.972) and sig (0.000) <0.05, so it is concluded that Knowledge has a positive and significant effect on the interest in buying solar panel products in Riau province.

The Environmental Awareness variable obtained a t-count value (-1.091) <t table (1.972) and sig (0.277)> 0.05, so it is concluded that Environmental Awareness has no significant effect on the interest in buying solar panel products in Riau province.

The Government Incentive variable obtained a t-count value (1.998)> t table (1.972) and sig (0.047) <0.05, so it is concluded that Government Incentives have a positive and significant effect on the interest in buying solar panel products in Riau province.

The Perception of Benefits variable obtained a calculated t value (11.278) > t table (1.972) and sig (0.000) < 0.05, so it is concluded that Perception of Benefits has a positive and significant effect on the interest in buying solar panel products in Riau province.

**Hypothesis Testing Results**

Based on the results of the previous tests, the researcher summarizes the results of the hypothesis testing in Table 9. The researcher used a significance value of 0.05 and a t table of 1.972.

**Table 9. Hypothesis Testing Results**

| Hypothesis Relationship | Beta | t | Sig. | Description |
|---|---|---|---|---|
| Knowledge (X1) -> Purchase Intention (Y) | 0.239 | 4.414 | 0.000 | Accepted |
| Environmental Awareness (X2) -> Purchase Intention (Y) | -0.062 | -1.091 | 0.277 | Rejected |
| Government Incentive (X3) -> Purchase Intention (Y) | 0.103 | 1.998 | 0.047 | Accepted |
| Perceived Benefits (X4) -> Purchase Intention (Y) | 0.635 | 11.278 | 0.000 | Accepted |

Source: Research Data Processing Results (2025)

Based on Table 9, the following is an explanation of the results of the hypothesis testing:

**H1: Consumer knowledge about solar panels has a positive and significant effect on Purchase Interest of solar panel products in Riau Province.**

The results of the study show that the Knowledge variable has a positive and significant effect on Purchase Interest of solar panel products in Riau Province because it has a significance of 0.000, less than 0.05 and a calculated t of 4.414 is greater than the t table, which is 1.972. The Beta (Standardized Coefficients) value of 0.239 indicates a positive effect of the Knowledge variable on Purchase Interest of solar panel products. This shows that the higher the level of public Knowledge of solar panel products will increase the public Purchase Interest of solar panel products in Riau Province. Based on these results, it is concluded that Hypothesis H1 in this study is accepted.

The results of this study support previous studies, namely studies conducted by (Le & Tran, 2024), (Cheam et al., 2021) and (Kumar et al., 2022).

**H2: Environmental Awareness has a positive and significant effect on Purchase Interest of solar panel products in Riau Province.**

The results of the study show that the Environmental Awareness variable does not have a positive and significant effect on Purchase Interest of solar panel products in Riau Province because it has a significance of 0.277, greater than 0.05 and a calculated t of -1.091 smaller than the t table of 1.972. The Beta (Standardized Coefficients) value of -0.062 indicates a negative effect of the Environmental Awareness variable on Purchase Interest of Solar Panel Products. This shows that the Environmental Awareness of the community towards solar panel products has no relationship with the Purchase Interest of the community towards solar panel products in Riau Province. Based on these results, it is concluded that Hypothesis H2 in this study is rejected.

From the results above, the researcher argues that Environmental Awareness does not encourage people to buy solar panels, especially in Riau Province. There are 33.2% of other variables that can replace the Environmental Awareness variable to explain the Purchase Interest of solar panel products in Riau Province. This does not mean that the Riau community is not environmentally aware because descriptive analysis shows that the Environmental Awareness of the Riau community is very high, but it is not in line with the Purchase Interest of solar panel products.

**H3: Government Incentives have a positive and significant effect on Purchase Interest of solar panel products in Riau Province.**

The results of the study show that the Government Incentive variable has a positive and significant effect on Purchase Interest of solar panel products in Riau Province because it has a significance of 0.000, less than 0.05 and a calculated t of 11.278 is greater than the t table of 1.972. The Beta value (Standardized Coefficients) of 0.103 indicates a positive effect of the Government Incentive variable on Purchase Interest of solar panel products. This shows that the higher the level of Government Incentives for solar panel products will increase the community's Purchase Interest in solar panel products in Riau Province. Based on these results, it is concluded that Hypothesis H3 in this study is accepted.

The results of this study support previous studies, namely studies conducted by (Kolesnikov et al., 2024), (Lan et al., 2021), (Jirakiattikul et al., 2021), (Sun et al., 2020), (Nguyen et al., 2022), and (Le & Tran. 2024).

**H4: Perceived Benefits of solar panels have a positive and significant effect on Purchase Interest of solar panel products in Riau Province.**

The results of the study show that the Perceived Benefits variable has a positive and significant effect on Purchase Interest of solar panel products in Riau Province because it has a significance of 0.047, less than 0.05 and a calculated t of 1.998 is greater than the t table of 1.972. The Beta value (Standardized Coefficients) of 0.635 indicates a positive effect of the Perceived Benefits variable on Purchase Interest of solar panel products. This shows that the higher the level of Perceived Benefits of solar panel products will increase the public's Purchase Interest in solar panel products in Riau Province. Based on these results, it is concluded that Hypothesis H4 in this study is accepted. The results of this study support previous studies, namely studies conducted by (Asif et. al., 2023), (Jayasingh et. al., 2021), (Nurhazizah, 2023), (Chandra & Briliana, 2021) and (Rahmasari & Siagian, 2024).

## CONCLUSION

This study analyzes the influence of Knowledge, Environmental Awareness, Government Incentives, and Perceived Benefits on Purchase Intention of Solar Panels in the Household Sector of Riau Province. The results showed that the majority of respondents had a good understanding, high environmental awareness, positive perceptions of government incentives, and strong belief in the benefits of solar panels. Purchase intention was also relatively high. Significantly, Knowledge, Government Incentives, and Perceived Benefits had a positive effect on Purchase Intention, with Perceived Benefits being the most dominant factor. In contrast, Environmental Awareness did not have a significant effect. Overall, the four variables were able to explain 66.8% of the variation in Purchase Intention, while the remaining 33.2% was influenced by other factors outside the model.

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