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# The Influence of Price Perception and Product Quality on Solar Panel Purchase Intention Mediated by E-WOM

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**ABSTRACT**

The solar panel industry in Indonesia is experiencing significant growth in line with increasing energy needs and awareness of renewable energy. However, consumers' purchasing decisions are not only influenced by economic and technical factors, but also by the dynamics of digital communication. This study aims to analyze the influence of Price Perception and Product Quality on Purchase Intention, with Electronic Word of Mouth (E-WOM) as a mediating variable. The study used a quantitative approach through an online survey of 282 respondents, analyzed using the PLS-SEM method. The results of the study show that Price Perception has a positive and significant effect on E-WOM and Purchase Intention, while Product Quality does not have a significant direct effect on E-WOM and Purchase Intention. E-WOM has been shown to play a significant role in increasing Purchase Intention and mediating the relationship between Price Perception and Purchase Intention. The novelty of this research lies in the affirmation of the role of E-WOM as the main mechanism in explaining purchase intention toward solar panels in Indonesia, where the influence of experience and digital recommendations is more dominant than the perception of product quality alone. These findings provide strategic implications for industry players to optimize price value communication and digital reputation management to increase renewable energy adoption intentions.

**Keywords:** Price Perception; Product Quality; E-WOM; Purchase Intention

## INTRODUCTION

Electrical energy is one of the human needs that can no longer be separated from modern life. All equipment in the home, schools, industries, streets, and public spaces consumes electricity. This demonstrates that dependence on electrical energy is very high in supporting human life. In Indonesia, electricity consumption is increasing alongside the growing number of electricity customers from year to year. This is evidenced by statistical data on the number of electricity customers served by PT Perusahaan Listrik Negara (Persero), commonly abbreviated as PT PLN, from 2019 to 2024. The average increase in the number of customers was 4.17%, and electricity consumption per capita grew by an average of 6%.

With the growth in electricity consumption, infrastructure expansion is needed, including the addition of new power plants. With the increasing number of power plants, total installed power capacity has also grown. Based on statistical data, this trend continued from 2022 to 2023, with the number of power plants increasing by 132 units, from 6,314 units to 6,446 units (PLN Statistics 2022, 2023; PLN Statistics 2023, 2024).

Solar Power Plants (Pembangkit Listrik Tenaga Surya/PLTS) are power plants that generate electrical energy by harnessing energy from the sun. PLTS is included in the Indonesian government's National Strategic Project (Proyek Strategis Nasional/PSN), as

reported in a press release from the Ministry of Energy and Mineral Resources. In its operation, solar panels convert sunlight into electrical energy through a process called photovoltaics (Megantoro et al., 2022). The application of solar panel technology is not limited solely to electric power production companies such as PT PLN, but can also be used by household, industrial, commercial, and public service consumers. Solar panels are considered a form of power generation that is free from direct emissions, as they do not produce $CO_2$ emissions during electricity generation, generate no liquid waste, and cause no noise, making them an environmentally friendly energy source compared to fossil fuel-based energy (Yuwono et al., 2021). On a global scale, energy development is shifting away from sources such as coal, oil, and natural gas, resulting in improvements in fossil energy efficiency as well as the advancement of renewable energy — including hydropower, nuclear, wind, and solar — all with the shared goal of reducing carbon emissions (Kusnanto et al., 2023; Yang et al., 2021).

The study also shows that energy issues are not yet a major concern for young Indonesian consumers, as they remain secondary to economic and health considerations. However, interest in solar panels began to emerge when the benefits were directly linked to savings in electricity costs. Respondents from households with an electricity subscription above 1,300 VA showed higher interest in installing solar panels, particularly when the technology is able to provide long-term electricity savings of up to approximately 40% of monthly bills. On the other hand, the majority of respondents with lower electricity subscriptions remain hesitant to adopt solar panels due to limited understanding, the perception of high prices, and a lack of easily accessible and reliable information about the product and its benefits.

Regarding the low adoption of solar panels, this can be influenced by consumer purchasing decisions when considering the adoption of solar panel technology. Although the government encourages the use of new and renewable energy (NRE) such as solar panels, the ultimate decision to adopt remains with consumers, who are greatly influenced by their perception of value and the information they receive online (Sulistiawati & Yuwono, 2019; Tanto, 2023; Pijoh, 2024; Ramesh et al., 2022). According to Kotler & Keller (2016), such purchasing decisions are based on how consumers perceive prices and what they consider to be the actual prevailing price, rather than on the prices set by marketers. For price-sensitive consumers, high prices can be regarded as the primary factor discouraging the purchase of environmentally friendly products (Chandra et al., 2021). Consumer price perceptions encompass reference prices, price–quality inferences, and price endings (Kotler & Keller, 2016). This renewable energy-based technology requires higher upfront costs than conventional energy products or systems, which has proven to be a barrier to its adoption (Sharma et al., 2025). However, research by Gręboszc-Krawczyk et al. (2021) indicates that consumers are willing to pay higher prices for product quality, environmental benefits associated with solar panel use, and anticipated long-term cost savings.

In several studies, the effect of product quality on purchase intention for solar panel products — as a form of renewable energy — has yielded inconsistent results. A number of studies show that product quality has a positive influence on purchase intention, where the quality of solar panels is the primary consideration for consumers making purchase decisions, particularly because solar panels are perceived as a long-term investment and an environmentally friendly product. A study by Yew et al. (2023) found that product quality has a significant effect on purchase intention for solar panels in Malaysia, clearly indicating that

the higher the quality of solar panel products, the greater the tendency of consumers to purchase them. Contrasting results are shown by other studies, which reveal that product quality does not always increase purchase intention for solar panel products. Research by Tran & Vu (2025) shows that in the context of renewable energy products, the influence of product quality is not always significant when consumers are confronted with external factors such as uncertainty in government policies, inadequate oversight of product quality in the market, and weak trust in market participants or product providers. Under these conditions, even when the quality of solar panels is positively assessed, consumers still exhibit low purchase intention due to risk considerations and structural barriers beyond the product's own attributes (Nguyen et al., 2024).

The novelty of this research lies in its assertion that E-WOM is not merely an additional variable, but the primary explanatory mechanism that bridges economic perception with the intention to adopt renewable energy. Explicitly, this study shows that in the Indonesian solar panel market, the perception of economic benefits supported by digital validation exerts a more dominant influence than standalone product quality perception. Thus, this study expands the renewable energy marketing literature by integrating the perspective of digital consumer behavior within the context of sustainable technology.

The objectives of this study are: (1) to analyze the influence of price perception on E-WOM and purchase intention; (2) to analyze the influence of product quality on E-WOM and purchase intention; and (3) to examine the mediating role of E-WOM in the relationship between price perception and product quality on solar panel purchase intention in Indonesia.

Theoretically, this study contributes to the development of consumer behavior literature in the renewable energy sector by highlighting the dominant role of digital social influence. In practical terms, the findings of this study provide strategic implications for solar panel providers to focus not only on improving the technical quality of products, but also on value communication strategies related to pricing and digital reputation management. Optimizing online reviews, customer testimonials, and public education through digital platforms is a crucial strategy to increase purchase intention.

Policy implications can also be considered, wherein regulators and governments can strengthen renewable energy literacy through credible digital campaigns to increase public trust. By understanding the psychological and digital factors that influence purchasing decisions, Indonesia's energy transition can be supported not only through regulation, but also through a consumer behavior-based approach.

Overall, this study confirms that the decision to purchase solar panels in Indonesia is not solely determined by product attributes, but is the result of an interaction between the perception of economic benefits and digital social influences. This approach is expected to provide a more comprehensive perspective in understanding the dynamics of renewable energy adoption in the digital economy era.

## METHOD

This study applied a quantitative approach to test the relationship between variables statistically. It was categorized as causal research, as it was designed to analyze the influence of price perception and product quality on purchase intention, either directly or through electronic word of mouth (E-WOM) as a mediating variable. Data were collected through a survey method using a structured questionnaire distributed via Google Forms. In terms of time

horizon, this study employed a cross-sectional design, where data were collected at a single point in time.

Online questionnaires were distributed to respondents throughout Indonesia who had experience or interest in solar panel products. Respondents were selected using a non-probability sampling technique based on criteria relevant to the research objectives. Supporting data were also collected through literature studies related to the research topic.

Due to the wide population coverage and study limitations, a sample was used to represent the population. Sample selection employed purposive sampling, with criteria including being domiciled in Indonesia and having knowledge, experience, or interest in solar panels.

Based on Hair et al. (2021), the minimum sample size for this study was determined by multiplying the number of research indicators by a factor of 5 to 10, resulting in a required range of 145 to 270 respondents.

Measurement of variables was carried out through a structured questionnaire designed to capture respondents' perceptions and assessments. Each indicator was measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

**Table 1.** Variable Measurement

| Variable | Indicator | Item | Measurement Scale | Reference Source |
|---|---|---|---|---|
| Price Perception | PP1 | I believe that using Solar Panels will be very expensive | Likert scale 1-5 | (Truong, 2024) |
| | PP2 | In my opinion, the cost of installing Solar Panels is relatively high | | |
| | PP3 | In my opinion, the cost of purchasing Solar Panels is relatively high | | |
| | PP4 | In my opinion, Solar Panels are a practical and economical choice according to their value/benefits | | |
| | PP5 | In my opinion, the price of Solar Panels is a very important factor | | |
| | PP6 | In my opinion, the economic feasibility in the use of Solar Panels is very significant (Economically beneficial) | | |
| | PP7 | I am willing to pay more for better quality Solar Panels | | (Chandra et al., 2021) |
| | PP8 | I am willing to pay more for Solar Panels that have a positive impact on the environment | | |
| Product Quality | PQ1 | In my opinion, the quality of Solar Panel products is sometimes dubious | Likert scale 1-5 | (Yew et al., 2023) |
| | PQ2 | I prefer to buy Solar Panels that are durable and have good quality | | |
| | PQ3 | I would consider buying Solar Panels if the quality is guaranteed | | |
| | PQ4 | I am willing to pay more for better quality Solar Panels | | |

| | | | | |
|---|---|---|---|---|
| | PQ5 | I assume Solar Panel products that do not have certifications or labels are usually of lower quality | | (Tan et al., 2025) |
| | PQ6 | I believe that Solar Panels are eco-friendly products with better quality | | |
| | PQ7 | I feel confident that Solar Panels are eco-friendly products with good quality | | |
| | PQ8 | I assume that Solar Panels are environmentally friendly products with higher quality | | |
| E-WOM | EW1 | I find the reviews about solar panels to be trustworthy | Likert scale 1-5 | (Nguyen et al., 2024) |
| | EW2 | In my opinion, most of the review writers about Solar Panels are trustworthy | | |
| | EW3 | In my opinion, the reviews from the reviewers are in accordance with my impression of the Solar Panel product | | |
| | EW4 | In my opinion, the comments in the reviews about Solar Panels have almost the same content and reinforce each other | | |
| | EW5 | In my opinion, the online information about Solar Panels is clear and helps me in making a purchase decision | | |
| Purchase Intention | PI1 | I will try to buy eco-friendly products like Solar Panels | Likert scale 1-5 | (Tan et al., 2025) |
| | PI2 | I intend to buy an eco-friendly product like Solar Panels | | |
| | PI3 | I am willing to buy Solar Panels instead of similar products that are not environmentally friendly | | |
| | PI4 | I intend to buy Solar Panels at the next purchase opportunity | | |
| | PI5 | I intend to carry out daily activities that support the purchase or use of Solar Panels | | |
| | PI6 | I will switch from using traditional appliances to energy-efficient appliances such as Solar Panels | | (Almrafee & Akaileh, 2024) |

The data analysis in this study was carried out using SmartPLS software with the Partial Least Squares – Structural Equation Modeling (PLS-SEM) approach. The stages of data analysis included validity and reliability tests, evaluation of the measurement model (outer model), evaluation of the structural model (inner model), and hypothesis testing through a bootstrapping procedure.

The validity test was carried out to ensure that the indicators used were truly able to represent the latent construct being measured. Convergent validity was evaluated through outer loading values, where an indicator was declared valid if it had an outer loading value of $\geq 0.70$ (Hair et al., 2021).

The reliability test was carried out using Composite Reliability (CR). A CR value of ≥ 0.70 indicated that the indicators in a construct had good internal consistency (Sarstedt et al., 2022). After the validity and reliability criteria were met, the analysis proceeded to the evaluation of the measurement model (outer model) and structural model (inner model) to ensure the overall adequacy of the model (Hair et al., 2021).

The evaluation of the outer model aimed to assess the extent to which the indicators accurately measured the latent constructs. Discriminant validity was assessed through cross-loading, where each indicator was required to have the highest loading value on its own construct compared to other constructs in the model (Hair et al., 2021). The Average Variance Extracted (AVE) was used to measure the proportion of indicator variance explained by the latent construct, with a threshold of ≥ 0.50 (Sarstedt et al., 2022). Cronbach's Alpha was also used as a supplementary reliability measure, with a threshold of ≥ 0.70 (Hair et al., 2021). Indicators that did not meet the criteria for outer loading, AVE, or reliability were considered for removal while maintaining attention to the theoretical foundation and conceptual relevance.

The evaluation of the inner model aimed to assess the strength of relationships between constructs and the predictive ability of the research model. The coefficient of determination ($R^2$) was used to assess the predictive ability of the model against endogenous latent constructs, indicating the proportion of endogenous construct variance explained by the exogenous constructs in the structural model (Hair et al., 2021). The $Q^2$ value was obtained through the blindfolding procedure to measure the predictive relevance of the model, where a $Q^2$ value of > 0 indicated acceptable predictive relevance (Hair et al., 2021). The $f^2$ effect size was used to assess the relative contribution of each exogenous variable to the endogenous variable, where values of 0.02, 0.15, and 0.35 were categorised as small, medium, and large, respectively (Hair et al., 2021).

Hypothesis testing was carried out using the bootstrapping method in SmartPLS to obtain t-statistic and p-value. A relationship between constructs was declared significant if the p-value was ≤ 0.05 or the t-statistic was ≥ 1.967 at a significance level of 5% (two-tailed test). The conditions for accepting or rejecting a hypothesis were as follows:

1) If p-value ≤ 0.05 and t-statistic ≥ 1.967, then $H_0$ is rejected and $H_a$ is accepted.
2) If p-value > 0.05 or t-statistic < 1.967, then $H_0$ is accepted and $H_a$ is rejected.

## RESULTS AND DISCUSSION

### Results of Descriptive Analysis Related to Respondents and Indicators

### Respondent Characteristics

Based on questionnaire data distributed online through Google Form, this study succeeded in collecting 282 respondents, all of whom were declared worthy of analysis. This number has met and exceeded the minimum sample requirement for SEM-PLS-based quantitative research, so that the data used has adequate quality and feasibility. Descriptive analysis was carried out to describe the characteristics of respondents based on six main categories, namely gender, age, profession, last education, monthly income, and domicile of the location of the solar panel installation.

**Table 2.** Respondent Profile

| Variable | Category | Quantity | Percentage |
|---|---|---|---|
| **Gender** | Male | 200 | 70.9% |

| | | | |
|---|---|---|---|
| | Women | 82 | 29.1% |
| **Age** | 18–25 years old | 45 | 16.0% |
| | 26–35 years old | 103 | 36.5% |
| | 36–45 years old | 79 | 28.0% |
| | 46–55 years old | 37 | 13.1% |
| | Over 55 years old | 18 | 6.4% |
| **Profession** | Private Employees | 149 | 52.8% |
| | Self-Employed/Entrepreneur | 58 | 20.6% |
| | Student/Student | 42 | 14.9% |
| | Civil Servants/ASN | 25 | 8.9% |
| **Education** | SMA | 67 | 23.8% |
| | D3 | 3 | 1.1% |
| | S1 | 168 | 59.6% |
| | S2 | 42 | 14.9% |
| | S3 | 2 | 0.7% |
| **Monthly Income** | < 3,000,000 | 19 | 6.7% |
| | 3.000.000 – 5.000.000 | 32 | 11.3% |
| | 5.000.001 – 10.000.000 | 120 | 42.6% |
| | 10.000.001 – 20.000.000 | 59 | 20.9% |
| | > 20.000.000 | 52 | 18.4% |
| **Domicile** | Jakarta | 118 | 41.8% |
| | Bekasi | 65 | 23.0% |
| | Tangerang | 58 | 20.6% |
| | Bogor | 24 | 8.5% |
| | Depok | 16 | 5.7% |
| | Surabaya | 1 | 0.4% |
| — | **TOTAL RESPONDEN** | **282** | **100%** |

Source : Results of Researcher Data Processing (2026)

In terms of gender, the majority of respondents were men as many as 200 people (70.9%), while women amounted to 82 people (29.1%). Based on age, respondents were dominated by the productive age group, especially 26–35 years old as many as 103 people (36.5%) and 36–45 years old as many as 79 people (28.0%). In the professional aspect, most of the respondents were private employees as many as 149 people (52.8%), followed by self-employed/entrepreneurs as many as 58 people (20.6%), students/students 42 people (14.9%), and civil servants/civil servants as many as 25 people (8.9%).

In terms of education, the majority of respondents were 168 S1 graduates (59.6%), followed by high school as many as 67 people (23.8%), S2 as many as 42 people (14.9%), and a small number of respondents graduated from D3 and S3. In the monthly income category, most respondents were in the 5-10 million Rupiah group of 120 people (42.6%), followed by the 10-20 million Rupiah group of 59 people (20.9%), and more than 20 million Rupiah as many as 52 people (18.4%). Based on domicile, the most respondents came from the Jakarta area (41.8%), followed by Bekasi (23.0%), Tangerang (20.6%), Bogor (8.5%), Depok (5.7%), and Surabaya (0.4%). These findings show that the majority of respondents come from urban areas with relatively high purchasing power and greater interest in renewable energy technologies such as solar panels.

**Descriptive Statistics Research Indicators**

In this study, several variables were used consisting of Price Perception**,** Product Quality**,** Electronic Word of Mouth (E-WOM), and Purchase Intention. Descriptive statistical analysis was performed to understand respondents' responses to each indicator, including minimum, maximum, mean, and standard deviation values (Angelina & Widaningsih, 2025; Nurjanah & Khuzaini, 2024; Utarini, 2025). The use of descriptive statistics aims to describe the general perception of respondents towards the research variables, as well as to provide an overview of the tendencies and variations of answers on the Likert scale of 1–5.

**Statistics Descriptive Price Perception**

The Price Perception variable consists of eight indicators (PP1–PP8). This variable aims to measure respondents' perceptions of the price of Solar Panels, including whether the price is considered expensive, reasonable, economically valuable, and the extent to which respondents are willing to pay more for quality or environmental benefits. The overall average of 4.66 indicates that most respondents have the perception that Solar Panels are a high-priced product, but are still seen as worth in proportion to their long-term benefits. The average total standard deviation is 0.658. The relatively low standard range of deviations reflects that respondents' perceptions are quite homogeneous.

**Statistics Descriptive Product Quality**

The Product Quality variable includes eight indicators (PQ1–PQ8). This variable measures respondents' perceptions of the basic quality of the product, reliability, durability, and the role of certification in building confidence in the quality of Solar Panels. The results of the analysis on the Product Quality variable show that in general, respondents have a positive perception of the quality of Solar Panels. The average value of the standard deviation is 0.649. An overall average score of 4.61 indicates that respondents tend to rate Solar Panels as a good quality product. Overall, these findings confirm that quality perception is an aspect that greatly influences the trust and purchase intention of Solar Panels.

**Statistics Descriptive Electronic Word of Mouth (E-WOM)**

For the E-WOM variable itself, it consists of five indicators (EW1–EW5) that measure the level of trust, consistency of reviews, and the usefulness of online reviews in influencing the purchase decision of Solar Panels. In the results of the analysis of the E-WOM variable, the results showed that respondents had a high level of trust in the reviews of Solar Panels found online (Firdaus, 2023). The average value of the standard deviation is 0.621. With an average score of 4.60, it can be concluded that respondents rate digital information as a relevant, credible, and very helpful source in the evaluation process before making a purchase. Therefore, it can be concluded that the E-WOM variable has an important role in providing additional references and confidence for respondents before deciding to buy Solar Panels.

**Statistics Descriptive Purchase Intention**

Purchase Intention variables were measured using six indicators (PI1–PI6) related to respondents' intention to purchase Solar Panels, preference for environmentally friendly products, and tendency to make future purchases. An overall average Purchase Intention value of 4.68 indicates that respondents have a strong desire to buy and use Solar Panels. The high mean value reflects that respondents already have a good awareness of the long-term benefits of using renewable energy, as well as demonstrating readiness to switch to more efficient energy solutions. Then for the average value of the standard deviation is 0.549. Overall, these

findings show that environmental awareness, trust in the benefits of Solar Panels, and positive information exposure successfully drive strong purchase intent among respondents.

**Instrument Validity Test Results**

In the initial stage, a convergent validity test was carried out by looking at the outer loading value of each indicator in each construct. The criteria used refer to Hair et al. (2019), namely:

Outer loading ≥ 0.70 → valid indicator

Outer loading 0.50–0.69 → can be considered if AVE construct ≥ 0.50

Outer loading < 0.50 → indicator should be removed

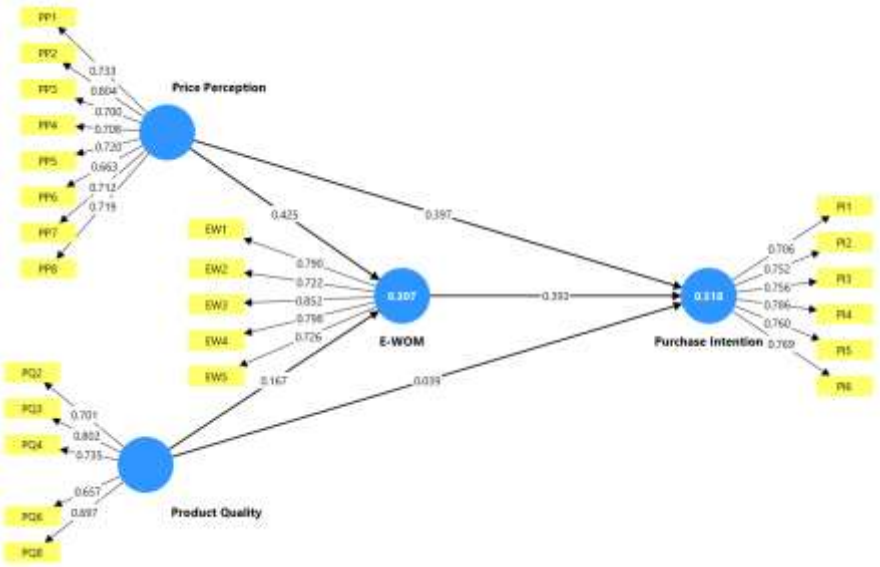


**Figure 1. SEMSumber Model: Results of Researcher's Data Processing (2026)**

The results of the outer loading analysis show that most of the indicators in the model have met the convergent validity criteria. In the Price Perception construct, the PP1 to PP8 indicator has an outer loading value that is in the range 0.663 to 0.804. The highest value is found in PP2 of 0.804, while the lowest value is found in PP6 of 0.663. Overall, the indicators in this construct are able to describe respondents' perception of prices quite well.

In the Product Quality construct, the PQ2 to PQ8 indicator shows a variable outer loading value, which is between 0.657 to 0.802. PQ6 has the lowest value of 0.657, while PQ3 has the highest score of 0.802. Indicators such as PQ2, PQ4, PQ6, and PQ8 are in the above range 0.64, shows a moderate contribution. This difference in values indicates the need to pay more attention to indicators that have low values if they will still have an impact on the value of the construct AVE later. In the E-WOM construct, the EW1 to EW5 indicators show strong performance, with outer loading values starting from 0.722 to 0.852. EW3 is the indicator with the highest contribution of 0.852, while other indicators remained above the minimum limit, so they could be relied upon to explain respondents' perceptions of electronic word-of-mouth. In the Purchase Intention construct, all indicators PI1 to PI6 have a stable outer loading value, which is in the range 0.706 to 0.786. This shows that all indicators in this construct work consistently and have a good ability to describe the buying interest of respondents.

Overall, the majority of indicators in the model have met the required outer loading criteria. Although there are some indicators with lower values, especially in the Product Quality

construct, these indicators can still be considered to be maintained as long as the AVE value of the construct still meets the requirements. If the AVE value is not met, then the indicator with the lowest value can be re-evaluated to improve the quality of the construct measurement.

**Tabel 3.** Outer Loading Model

| Variable | Item Code | Outer Loading | Remarks |
|---|---|---|---|
| Price Perception | PP1 | 0.733 | Valid |
| Price Perception | PP2 | 0.804 | Valid |
| Price Perception | PP3 | 0.700 | Valid |
| Price Perception | PP4 | 0.708 | Valid |
| Price Perception | PP5 | 0.720 | Valid |
| Price Perception | PP6 | 0.663 | Worth considering |
| Price Perception | PP7 | 0.712 | Valid |
| Price Perception | PP8 | 0.719 | Valid |
| Product Quality | PQ2 | 0.701 | Valid |
| Product Quality | PQ3 | 0.802 | Valid |
| Product Quality | PQ4 | 0.735 | Valid |
| Product Quality | PQ6 | 0.657 | Worth considering |
| Product Quality | PQ8 | 0.697 | Worth considering |
| E-WOM | EW1 | 0.790 | Valid |
| E-WOM | EW2 | 0.722 | Valid |
| E-WOM | EW3 | 0.852 | Valid |
| E-WOM | EW4 | 0.798 | Valid |
| E-WOM | EW5 | 0.726 | Valid |
| Purchase Intention | PI1 | 0.706 | Valid |
| Purchase Intention | PI2 | 0.752 | Valid |
| Purchase Intention | PI3 | 0.756 | Valid |
| Purchase Intention | PI4 | 0.786 | Valid |
| Purchase Intention | PI5 | 0.760 | Valid |
| Purchase Intention | PI6 | 0.769 | Valid |

Source: Results of Researcher Data Processing (2026)

**Composite Reliability Test Results**

**Table 4.** Composite Reliability Results

| Variable | Composite Reliability | Remarks |
|---|---|---|
| Price Perception | 0.896 | Reliable |
| Product Quality | 0.843 | Reliable |
| E-WOM | 0.885 | Reliable |
| Purchase Intention | 0.888 | Reliable |

Source: Results of Researcher Data Processing (2026)

All variables have a composite reliability value above the number 0,85 which are generally categorized as high. The composite reliability value ≥ 0.70 indicates that the indicators in a construct have good internal consistency. This value shows that the indicators that make up the construct are consistent and stable in measuring the variables in question. Thus, the entire construct in this study can be declared reliable and suitable for use at the next stage of analysis. The high composite reliability value also indicates a strong internal correlation between items in each construct. This confirms that each latent variable is well

measured by its constituent indicators. With this reliability in place, the measurement model can be seen as accurate and can be moved on to validity testing and structural models.

**Results of the Discriminant Validity Test**

**Table 5.** Results of the Discriminant Validity Test

| Indicator | PP | WHY | EW | PI |
|---|---|---|---|---|
| PP1 | 0.733 | 0.464 | 0.426 | 0.457 |
| PP2 | 0.804 | 0.501 | 0.438 | 0.487 |
| PP3 | 0.700 | 0.477 | 0.380 | 0.377 |
| PP4 | 0.708 | 0.535 | 0.361 | 0.454 |
| PP5 | 0.720 | 0.463 | 0.358 | 0.396 |
| PP6 | 0.663 | 0.466 | 0.352 | 0.449 |
| PP7 | 0.712 | 0.608 | 0.383 | 0.512 |
| PP8 | 0.719 | 0.550 | 0.406 | 0.515 |
| PQ2 | 0.551 | 0.701 | 0.272 | 0.345 |
| PQ3 | 0.557 | 0.802 | 0.336 | 0.405 |
| PQ4 | 0.572 | 0.735 | 0.380 | 0.423 |
| PQ6 | 0.376 | 0.657 | 0.354 | 0.304 |
| PQ8 | 0.404 | 0.697 | 0.304 | 0.276 |
| EW1 | 0.266 | 0.320 | 0.790 | 0.459 |
| EW2 | 0.295 | 0.252 | 0.722 | 0.435 |
| EW3 | 0.427 | 0.379 | 0.852 | 0.531 |
| EW4 | 0.534 | 0.490 | 0.798 | 0.522 |
| EW5 | 0.512 | 0.405 | 0.726 | 0.472 |
| PI1 | 0.429 | 0.336 | 0.421 | 0.706 |
| PI2 | 0.448 | 0.345 | 0.459 | 0.752 |
| PI3 | 0.498 | 0.437 | 0.410 | 0.756 |
| PI4 | 0.498 | 0.370 | 0.506 | 0.786 |
| PI5 | 0.515 | 0.407 | 0.518 | 0.760 |
| PI6 | 0.489 | 0.447 | 0.509 | 0.769 |

Source: Results of Researcher Data Processing (2026)

The cross loading value indicates that each indicator has the highest loading value on its original construct compared to other constructs. This indicates that each indicator is able to distinguish itself from other constructs, so that the validity of the discriminator is met. There are no indicators with higher cross-loading values on other variables. The results of the cross loading ensure that each construct has a clear measurable identity and does not overlap with other constructs. Good discriminant validity is a key requirement in ensuring the quality of the measurement model before proceeding to structural model testing. Thus, all indicators can be declared valid discriminatory.

**Average Variance Extracted (AVE)**

**Table 6.** AVE Results

| Variable | AVE | Remarks |
|---|---|---|
| E-WOM | 0.607 | Valid |
| Price Perception | 0.520 | Valid |
| Product Quality | 0.519 | Valid |

| | | |
|---|---|---|
| Purchase Intention | 0.570 | Valid |

Source: Results of Researcher Data Processing (2026)

Three constructs met the AVE criterion > 0.50, which means that more than half of the variance of the indicator was described by the latent construct. This condition shows that the three constructs have good convergent validity and that the indicators are able to describe the construct in a representative manner. These constructs can be maintained without additional treatment. Meanwhile, the value of AVE on the construct Product Quality previously at the number that did not meet the requirements, namely 0,435, that are below the minimum limit. This indicates that the Product Quality indicator still does not optimally explain the variance of the construct. The improvement was made by removing the indicator on the low-loading variable according to Hair et al. (2019), so that the AVE value increased to 0.519, and the construct is declared valid.

**Cronbach's Alpha Test Results**

**Tabel 7.** Cronbach's Alpha

| Variable | Cronbach's Alpha | Remarks |
|---|---|---|
| E-WOM | 0.839 | Reliable |
| Price Perception | 0.867 | Reliable |
| Product Quality | 0.768 | Reliable |
| Purchase Intention | 0.849 | Reliable |

Source: Results of Researcher Data Processing (2026)

The Cronbach's Alpha value of all variables is above 0.70, so each construct can be declared reliable. The internal consistency between the indicators is well maintained and does not show any symptoms of measurement imperfection. This strengthens the composite reliability results that have been obtained previously. With reliability that has met the standards, the research variables are able to measure the construct in question consistently. This consistency ensures that the data generated can be relied upon for structural analysis at the next stage.

**Inner Model Test Results**

**Coefficient of Determination ($R^2$)**

**Table 8.** R-Square Results

| Variable | R-Square | Remarks |
|---|---|---|
| E-WOM | 0.307 | Weak Relationships |
| Purchase Intention | 0.518 | Moderate Relationship |

Source: Results of Researcher Data Processing (2026)

The determination coefficient ($R^2$) is used to see how well the research model is able to explain the changes that occur in the dependent variable. The $R^2$ value indicates how much variation or difference in dependent variables can be explained by the independent variables used in the model. The higher the $R^2$ value, the greater the proportion of changes in dependent variables that the model can explain. In the results of the data processing, the R-square value of the variable E-WOM of 0.307 shows that Price Perception and Product Quality are able to

explain 30,7% E-WOM variation. This value is categorized as weak so that the model can explain the relationship between variables weakly. Purchase Intention has an R-square value of 0.518 which also belongs to the moderate category. This shows that E-WOM affects 51,8% Purchase Intention variance. This means that there are still other factors outside the model that can influence consumers to buy.

**Predictive Relevance Test Results**

**Q² Predict Test Results**

**Table 9.** Q² Result

| Variable | Q²predict |
|---|---|
| E-WOM | 0.273 |
| Purchase Intention | 0.350 |

Source: Results of Researcher Data Processing (2026)

All Q² predict values are positive, indicating that the model has good predictive relevance to the observational data. The model is declared to have predictive relevance if the value of Q² is > 0, which indicates that the model is able to predict the observation data well. The indicators in the model can be well predicted by the exogenous constructs in the model so that the structural model meets the predictability requirements. The positivity of the entire Q² value indicates that the model is not only statistically fit, but also good at predicting the value of indicators for new data. Thus, the model has strong predictive validity.

**Effect Size (f²)**

The effect size (f²) is used to see how much an exogenous construct affects the endogenous construct if it is excluded from the model. The f² value of 0.02 is categorized as small or weak, 0.15 is categorized as moderate or moderate, and 0.35 belongs to the strong category. Based on the data processing results, the value of the effect size shows that E-WOM exerts the greatest influence on Purchase Intention with a value of f² of 0.222, which is included in the medium category. This shows that E-WOM has a strong enough contribution in encouraging an increase in consumer purchase intent.

The Price Perception variable had a weak influence on E-WOM with an f² value of 0.137**,** which indicates that price perception contributes relatively little to the formation of online reviews or recommendations. In addition, Price Perception also shows a weak influence on Purchase Intention with a value of 0.151**,** even though this value is close to the medium category. The Product Quality variable has a smaller influence than other variables**,** namely 0.021 for E-WOM and **0.002** for Purchase Intention, both of which are in the weak category. These findings show that product quality has a very limited contribution to both influencing E-WOM and Purchase Intention directly in this research model.

**Hypothesis Testing Results**

**Table 10.** Direct and Indirect Hypothesis Test Results

| Construct | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics | P Values |
|---|---|---|---|---|---|
| **EW → PI** | 0.393 | 0.375 | 0.093 | 4.219 | 0.000 |
| **PP → EW** | 0.425 | 0.410 | 0.116 | 3.660 | 0.000 |
| **PP → PI** | 0.397 | 0.398 | 0.090 | 4.410 | 0.000 |

| | | | | | |
|---|---|---|---|---|---|
| **PQ → EW** | 0.167 | 0.192 | 0.102 | 1.636 | 0.102 |
| **Why → PI** | 0.039 | 0.061 | 0.098 | 0.398 | 0.691 |
| **PP → EW → PI** | 0.167 | 0.160 | 0.069 | 2.410 | 0.016 |
| **PQ → EW → PI** | 0.066 | 0.067 | 0.038 | 1.754 | 0.080 |

Source: Results of Researcher Data Processing (2026)

The path coefficient value indicates the magnitude of the change in the dependent variable when the independent variable increases by one unit, either directly or through Electronic Word-of-Mouth as a mediation variable. The results of the path coefficient illustrate the extent to which Price Perception, Product Quality, and E-WOM play a role in forming Purchase Intention.

**Electronic Word-of-Mouth → Purchase Intention (0.393)**

A coefficient of 0.393 indicates a positive and significant relationship, which means that an increase in E-WOM by one unit will increase Purchase Intention by 39.3%. This confirms that the more positive reviews or recommendations consumers have online, the higher their intention to buy the product.

**Price Perception → Electronic Word-of-Mouth (0.425)**

A coefficient value of 0.425 indicates a positive influence, meaning that better price perception increases E-WOM by 42.5%. Consumers who feel that the price is appropriate and valuable tend to be more active in providing digital reviews or testimonials.

**Price Perception → Purchase Intention (0.397)**

A coefficient of 0.397 indicates that price perception has a positive influence on buying interest. When the price perception increases by one unit, then the Purchase Intention increases by 39.7%. This suggests that a reasonable and decent price assessment can strengthen consumers' desire to buy products.

**Product Quality → Electronic Word-of-Mouth (0.167)**

The coefficient **of 0.167** indicates a positive influence between product quality and E-WOM. The better the quality that consumers perceive, the more likely they are to share the experience through online reviews, even if the level of influence is not as great as the perception of price. However, the T-statistical value suggests that this relationship is not significant.

**Product Quality → Purchase Intention (0.039)**

The coefficient of 0.039 indicates a very weak and insignificant relationship, so the quality of the product does not have a direct impact on the purchase intention. This indicates that the quality of new products has an impact on purchase intention when mediated by another variable, namely E-WOM.

**Price Perception → E-WOM → Purchase Intention (0.167)**

The indirect influence of 0.167 indicates that price perception can increase buying intent through the strengthening of E-WOM. The better the price perception, the higher the E-WOM level which ultimately increases purchase intention.

**Product Quality → E-WOM → Purchase Intention (0.066)**

A value of 0.066 indicates that product quality has an indirect influence on purchase intention through E-WOM. Although the effect is small and insignificant, this path still shows that E-WOM plays a role in continuing the influence of product quality on buying interest.

The resulting bootstrapping model describes the structural relationships between variables that underlie the hypothesis formulation in this study. Based on the test results of both the direct and indirect lines as presented in Table 4.10, the results of the hypothesis test can be explained as follows.

**H1: Price Perception has a positive and significant effect on Electronic Word-of-Mouth.**

The test results showed a p-value of 0.000 (< 0.05) and a T-statistic of 3,660 (> 1,967). This proves that price perception has a significant positive influence on E-WOM. Thus, H1 is accepted. These findings indicate that when consumers perceive product prices as feasible and appropriate, they are encouraged to share those experiences through digital reviews or testimonials.

**H2: Product Quality has a positive and significant effect on Electronic Word-of-Mouth.**

The calculation showed a p-value of 0.102 (> 0.05) and a T-statistic of 1.636 (< 1.967). Thus, H2 was rejected. This means that despite the positive relationship, product quality does not have a significant influence on encouraging consumers to convey their experiences online.

**H3: Price Perception has a positive and significant effect on Purchase Intention.**

The test results showed a p-value of 0.000 (< 0.05) and a T-statistic of 4.410 (> 1.967), so H3 was accepted. This shows that the perception of prices that are considered fair, affordable, and commensurate with the value provided by the product is able to increase consumer buying interest.

**H4: Product Quality has a positive and significant effect on Purchase Intention.**

The p-value of 0.691 (> 0.05) and the T-statistic of 0.398 (< 1.967) indicate that the quality of the product does not have a significant direct influence on buying interest. Thus, H4 was rejected. These findings show that the quality of new products has a role in influencing buying interest.

**H5: Electronic Word-of-Mouth has a positive and significant effect on Purchase Intention.**

The p-value of 0.000 (< 0.05) and T-statistic of 4.219 (> 1.967) prove that E-WOM has a significant influence on buying interest. Thus, H5 was accepted. This confirms that the information, reviews, and experiences shared by consumers through digital platforms play an important role in driving purchase decisions.

**H6: Price Perception has a positive and significant effect on Purchase Intention mediated by Electronic Word-of-Mouth.**

This indirect influence was proven to be significant with a p-value of 0.016 (< 0.05) and a T-statistic of 2,410 (> 1,967). Thus, H6 was accepted. This means that price perception is able to increase E-WOM which then strengthens consumer buying interest.

**H7: Product Quality has a significant positive effect on Purchase Intention mediated by Electronic Word-of-Mouth.**

The test results showed a p-value of 0.080 (> 0.05) and a T-statistic of 1.754 (< 1.967), so H7 was rejected. This means that although product quality shows a positive relationship direction, the indirect influence through E-WOM has not been shown to be significant in increasing consumer buying interest.

The direct influence in this study shows that several relationships between variables have strong significance. Price Perception is proven to have a direct effect on Electronic Word-of-Mouth with a coefficient value of 0.425, and has a significant effect on Purchase Intention

with a value of 0.397. Product Quality also has a direct but insignificant influence on Electronic Word-of-Mouth with a value 0.167. In addition, Electronic Word-of-Mouth exerts a strong direct influence on Purchase Intention with value 0.393. Meanwhile, the direct relationship between Product Quality and Purchase Intention has a coefficient value 0.039, but not significant, thus indicating that product quality does not have a direct impact on buying interest.

The indirect influence through the Electronic Word-of-Mouth mediation pathway showed that the two relationships in this study were proven to be significant. Price Perception affects Purchase Intention through E-WOM mediation with an indirect influence value of 0.167, which is obtained from the multiplication of the Price Perception coefficient → E-WOM (0.425) dan E-WOM → Purchase Intention (0.393). In addition, Product Quality also has an indirect influence on Purchase Intention through E-WOM by 0.066. Although the effect value is smaller than Price Perception, these results still show that E-WOM plays an important role as a mediator in the relationship between product quality and purchase intent.

The total influence of each variable on Purchase Intention is calculated by summing between direct and indirect influences. Price Perception has a total influence of 0.564, which comes from a direct influence of 0.397 and indirect influence of 0.167 through E-WOM. This shows that price perception has a strong contribution in shaping consumer buying intentions, both directly and through mediation. Meanwhile, Product Quality has a total influence of 0.105, which consists of a direct influence of 0.039 and indirect influence of 0.066. Although the total value of the influence is lower, these results confirm that product quality still contributes to buying interest, especially through the mediation role of E-WOM.

## CONCLUSION

This study concluded that price perception was the dominant factor shaping consumer purchase intention for solar panels in Indonesia, as prices perceived as reasonable and proportional to economic benefits encouraged positive digital reviews and higher purchase interest. While product quality showed a positive but non-significant influence on E-WOM and purchase intention — suggesting it becomes relevant only when reinforced by external user information — E-WOM emerged as the most influential determinant of purchase intention, with digital reviews and online recommendations playing a highly credible role in consumer decision-making. Path testing further confirmed that E-WOM acted as partial mediation in the relationship between price perception and purchase intention, while no mediation was found between product quality and purchase intention, affirming that purchase decisions in this context are driven more by the perception of economic benefits and digital social influence than by product attributes alone. Future research is recommended to incorporate additional variables such as risk perception, consumer trust, environmental awareness, and the influence of government incentives or subsidy schemes, while longitudinal designs could track shifts in consumer behavior as renewable energy policies evolve; from a legal and regulatory perspective, future studies may also examine the adequacy of existing frameworks governing digital marketing practices, consumer protection in online reviews, and the role of policy instruments in promoting transparent information environments that support sustainable energy adoption in Indonesia.

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