

# Review OJS\_ The Effect of Luminous Intensity, Humidity, and Temperature on The Output Voltage of Solar Panels

The screenshot shows the OJS submission review interface for article #60179. The page header includes the journal name "EDUKASI ELEKTRO" and ISSN numbers: 2548-8252 (Printed) and 2548-8260 (Online). The submission details are as follows:

- Submission:** #60179 Review
- Authors:** Eko Svi Damarwan, Muhammad Luthfi Hakim, Alex Sandria Jaya Wardhana, Pramudita Budastuti
- Title:** The Effect of Luminous Intensity, Humidity, and Temperature on The Output Voltage of Solar Panels
- Section:** Articles
- Editor:** Rofiq Badarudin

The page also displays the peer review process, including the review version, initial date (2023-04-25), last modified date (2023-05-19), and the reviewer (Reviewer B). The editor decision section shows the decision (Accepted Submission) and the editor (Wafiq Editor). The page is indexed by Google, GARUDA, and ROAD. On the right side, there are sections for SINTA Accreditation (SINTA 3), user information (logged in as eknow\_4), and a download template button.

The screenshot shows a Microsoft Word document titled "60179-171046-1-RV (1) (1).docx" by Pramudita Budi astuti. The document content is as follows:

Volume xx, No. xx, Month 20xx, pages xx - xx

**JEE**  
Jurnal Edukasi Elektro  
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**The Effect of Luminous Intensity, Humidity, and Temperature on The Output Voltage of Solar Panels**

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**Abstract**—The majority of energy consumption in Indonesia utilizes fossil-based energy sources. The longer, the use of fossil-based energy sources will surely run out. Based on this, efforts should be made to switch to new and renewable energy sources. One of the new and renewable energy is the Solar Power Plant. Solar Power Plant is a power plant by utilizing sunlight. In this study, the focus is on the use of off-grid solar power systems. The purpose of this study is to determine the effect of light intensity, humidity, and temperature on the output voltage of a solar power plant. The research method used is experimental. The output voltage of the solar panel occurs at 01.00 pm with a value of 19.2 V. During these conditions the luminous intensity value is 121000 lux at an humidity of 21.4% with a temperature of 40.2°C. The results showed that (1) the greater the luminous intensity, the greater the output voltage of the solar panel, (2) if the greater the humidity, the smaller the output voltage of the solar panel, (3) if the greater the temperature, the greater the output voltage of the solar panel.

**Keywords:** solar panels, luminous intensity, humidity, temperature

**1 Introduction**

The use of fossil energy sources is getting bigger as the need increases. This makes the reserves of fossil energy sources dwindle. For this reason, the transition from the use of fossil energy to New and Renewable Energy is something that is absolutely necessary. Without the discovery of new

**Reviewer 1**  
Reducate the text of the background section.

**Reviewer 1**  
A brief conclusion can be drawn from this abstract.

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Table 1. Solar power plant capacity


No	Category	Capacity
1	Mini Grid	≤10 Kilo Watt
2	Medium Grid	10 Kilo Watt – 500 Kilo Watt
3	High Grid	>500 Kilo Watt

In this study, a small-scale off-grid system solar power plant was designed. The maximum capacity of the solar panels used can generate electricity of 150 Wp.

**1.1 Off-Grid Solar Power Plant**

In this study, the focus is on the use of off-grid solar power systems. Off-Grid Solar Power Plant is a power generation system that utilizes solar radiation without being connected to the PLN network. The only source of electricity generation from Off-Grid Solar Power Plants is using solar radiation with the help of solar panels or photovoltaic. Off-Grid Solar Power Generation Systems are usually used for areas that are not reachable by electricity supply from PLN such as rural areas or outer islands or for secondary electricity needs [6].

Solar cells (photovoltaic) will produce electrical energy at the minimum limit of light needed by photovoltaics to produce electricity and electrical energy. Then the generated electrical energy is stored by the battery. The process of storing electrical energy from photovoltaic into the battery is fully controlled using a solar charge controller (SCC/BCC/BRC) with the aim of preventing excess charging (over-charging) and voltage spikes during the charging process [7]. The solar charge controller used has a working voltage specification of 12.24 V with a maximum current rating of 30A. An image of a solar charge controller is shown in Figure 1 below.



**Fig. 1. Solar Charge Controller**

**Reviewer\_1**  
Please provide the specific research purpose and research question!

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obtained from measurements on the surface of the solar panel.

**3 Result and Discussion**

The data collection process can be seen in Figure 5. The measuring instruments used are voltmeters to measure voltage, lux meters to measure luminous intensity, and temperature humidity meters to measure temperature and humidity. The data collection process was carried out on March 9, 2023, from 10.00 am - 03.00 pm. Data collection is attempted by adjusting the position of the solar panel perpendicular to the direction of sunlight.



**Reviewer\_1**  
Each figure has a description or is presented in a single frame.

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4 Conclusions

One of the renewable energy is the Solar Power Plant. Solar Power Plant is a power plant by utilizing sunlight. In this study, the focus is on the use of off-grid solar power system. The working principle of the solar power generation system is to convert energy from sunlight into electrical energy by solar cells on solar panels by separating the received energy into positive (P) and negative (N) types. After being changed, then the electrical energy is stored in the battery (ACCU) with the command Battery Charge Regulator (BCR), Solar Charge Controller (SCC), or Battery Control Unit (BCU) which then supplies the load (220 V AC). But before going to the load, the voltage and current are changed first by the inverter from (12VDC) to (220VAC). The purpose of this study is to determine the effect of luminous intensity, humidity, and temperature on the output voltage of a solar power plant. The research method used is experimental. The output voltage of the solar panel occurs at 01.00 pm with a value of 19.2 V. During these conditions the luminous intensity value is 121090 lux at an air humidity of 52.4% with a temperature of 40.5°C. The results of the study show that (1) the greater the light intensity, the greater the output voltage of the solar panel. (2) If the greater the humidity, the smaller the output voltage from the solar panel. (3) The greater the temperature, the greater the output voltage of the solar panel.

Reviewer\_1  
It is not necessary to include this text in the conclusion. Let's proceed directly to the main result.

Reviewer\_1  
The conclusion addresses the research question and is not re-referenced in the results or discussion section.

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5 Acknowledgment

I would like to thank the Department of Electrical Engineering Education, Faculty of Engineering, Yogyakarta State University, for facilitating the implementation of this research.

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Reviewer\_1  
The acknowledgment section is not just about expressing gratitude, it serves to explain important aspects of the research that readers need to know.

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**Reviewer\_1**  
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