Dear **H. ALAM, M.Y. MASHOR, M. IRWANTO, M. MASRI, F. MALEK, N. GOMESH, Y.M. IRWAN**

The double blind review process for the International Conference On Advanced Science, Engineering And Technology (ICASET) 2015 has been completed. Based on the recommendations of the reviewers and the Program Committee, I am very pleased to inform you that your paper;

OUTPUT CHARACTERISTICS OF PHOTOVOLTAIC MODULE IN MEDAN BASED ON ESTIMATED SOLAR IRRADIANCE USING HARGREAVES METHOD FOR APPLICATION ASSESMENT OF TRANSFORMERLESS PHOTOVOLTAIC INVERTER

has been ACCEPTED for presentation. You are cordially invited to present the paper at ICASET 2015 to be held on 21st – 22nd Dec 2015 in Penang, Malaysia.

Please read following comments from reviewers and make the **necessary corrections where appropriate as suggested for the final submission** of the camera ready paper **before 13th November 2015**. Your paper may still be rejected if this is not followed.

Reviewer #1

Abstract:

Good abstract only with minor suggestions to correct as below:

~~Based on~~Referring to the department of Meteorology, Climatology and Geophysics in Medan, North Sumatera, there is missing data of solar irradiance for the year of 2014. This paper is presented to estimate the solar irradiance using Hargreaves method~~. The estimation~~ based on the latitude and the monthly minimum and maximum temperature of the missing data ~~in Medan~~. The temperature and estimated solar irradiance ~~are~~ were applied to observe the output characteristics of a photovoltaic (PV) module. ~~They are~~ (Avoid using third voice) These parameters were used to asses the potential of the transformerless photovoltaic inverter (TPVI). ~~The results~~ Experimental results show that ~~the estimated solar irradiation using Hargreaves method, the~~ average monthly solar irradiation ~~is~~ was (all results should be reported in past tense) 6.98 kWh/m^2 using Hargreaves method. ~~It is greater than~~ This was more than twice greater than the normal solar radiation (3 kWh/m^2), which indicate~~s~~ed that the sky in Medan ~~is~~ was clear and had very high solar irradiation intensity for the ~~months in the~~ year of 2014. These ~~shows~~findings suggest there are a ~~the~~ big potential of solar irradiation for generating the TPVI in Medan.

1. Introduction

Check on the citation of Refs in the text.

For example on the 1st paragraph, 6th line, the author wrote ([1], [2].

Instead it should be written as Refs. [1,2]; see the paper template. Correct all others as well.

1st para, 8th line: value and its unit make sure on the same line.

1st para, 11th line: change skies to sky and full spell PV for the first time in the body text.

3rd para, 3rd line: … power of the PV array…

3rd para, 4th line: Hence, if the TPVI ~~wants~~ is to be ~~applied~~ installed in one particular area…

3rd para, 5th & 6th lines:…the information of the solar radiation is vital ~~needed~~ ~~to be informed that the area is suitable or not to be installed the TPVI~~ to decide whether it is worthwhile of such installation.

3rd para, last line: ~~are the values are~~ is considered suitable to run…

4th para, 1st line: It is revealed that from ~~Based on of~~ the department of Meteorology,…

4th para, 2nd line: … the solar radiation ~~is~~ was not recorded in 2014. This missing data seriously hinders…

4th para, 6th – 11th line: One of the models used is Hargreaves method ~~which can be applied to estimate the solar radiation in Medan~~. The estimation is based on the latitude and the monthly minimum and maximum temperature in Medan. The temperature and estimated solar irradiance ~~are~~ can be applied to observe the output characteristics of the PV module. These parameters can be ~~They are~~ used to asses the potential of the TPVI installation.

2. Methodology

1st para, 1st line: Medan is the capital city of the North Sumatera province...

Do not put Ref. In the caption of Fig. 1. Instead in the text before that.

2.2 Hargreaves method:

Hargreaves and Samani (1985) (cite Ref. Here) first suggested that the solar radiation (R_s) can be estimated from the difference between maximum and minimum of air temperature...

Check the paragraph line spacing which involve equations, look like inconsistent.

The estimated solar irradiation is important to know about the sk~~ies~~y condition and its potential towards TPVI generation in Medan, North Sumatera.

2.3 Output Characteristics of PV Module

The mathematical modelling of open circuit voltage and open circuit current of the performance...

3. Results and Discussion

3.1.

1st para: Based on the minimum temperature bar chart ~~graph~~ of Fig. 2, its lowest and average values are 15.80 °C and 20.04 °C respectively.... ~~on~~ in August.

Do the same for the rest.

3.2.

The monthly estimated solar radiation was based on the ….

…recorded by the Department of…

All results should be reported in past tense except for facts. Please check throughout the text…

Check the citation of figures. Should write .. in Figs. 8 and 9.. not in Figure (8) and (9)..

4. Conclusions

It is recommended to write the conclusions in paragraph rather than in point forms.

Summarize all important findings and make conclusions of your study.

5. References

No comment.

Reviewer #2

Please refer to attached file (Comments reviewer 2)

Attached in this letter is **JESTEC-Copyright transfer form, author's replies form, JESTEC Template and letter of acceptance for your perusal**. Technically, the **limit pages per**

paper are 8 pages, and any extra page will charged USD 20 per page during your registration payment.

The acceptance of your paper is made with the understanding that at least one author will register by make the necessary payment and attend the Conference to present the paper.

Please be remind that you are required to submit together with your revised manuscript;

- JESTEC-Copyright Transfer Form
- Prove of Payment (*Payment slip, transection reciept, etc...*)

I would like to take this opportunity to thank you for choosing ICASET 2015 to present your research results and looking forward to seeing you in Penang, Malaysia.

Regards

MOHD MUSTAQIM MOHD-NORDIN

Conference Proceeding Editor

International Conference On Advanced Science, Engineering And Technology (ICASET) 2015:

Advanced Science, Technology and Engineering: Lighting the Way Towards Sustainable Future

Penang, Malaysia

21st – 22nd Dec 2015

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AUTHORS' REPLIES FORM

Paper ID : EE-125

Title of paper : **OUTPUT CHARACTERISTICS OF PHOTOVOLTAIC MODULE IN MEDAN BASED ON ESTIMATED SOLAR IRRADIANCE USING HARGREAVES METHOD FOR APPLICATION ASSESMENT OF TRANSFORMERLESS PHOTOVOLTAIC INVERTER**

RESPONSES TO REVIEWERS' COMMENTS

Reviewer #1:

Comments from the reviewer	Authors' response
Abstract: Good abstract only with minor suggestions to correct as below: ~~Based on~~Referring to the department of Meteorology, Climatology and Geophysics in Medan, North Sumatera, there is missing data of solar irradiance for the year of 2014. This paper is presented to estimate the solar irradiance using Hargreaves method~~. The estimation~~ based on the	Already corrected as stated below. Referring to the Department of Meteorology, Climatology and Geophysics in Medan, North Sumatera, there is missing data of solar irradiance for the year of 2014. This paper is presented to estimate the solar irradiance using Hargreaves method based on the latitude and the monthly minimum and maximum temperature of the missing data. The temperature and estimated solar irradiance were applied to observe the output characteristics of a photovoltaic (PV) module. These parameters were used to asses the potential of the transformerless photovoltaic

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2. Introduction Check on the citation of Refs in the text. For example on the 1st paragraph, 6th line, the author wrote ([1], [2]. Instead it should be written as Refs. [1,2]; see the paper template. Correct all others as well. 1st para, 8th line: value and its unit make sure on the same line. 1st para, 11th line: change skies to sky and full spell PV for the first time in the body text. 3rd para, 3rd line: … power of the PV array… 3rd para, 4th line: Hence, if the TPVI ~~wants~~ is to be ~~applied~~ installed in one particular area… 3rd para, 5th & 6th lines:…the information of the solar radiation is vital ~~needed to be informed that the area is suitable or not to be installed the TPVI~~	Already corrected as stated in the manuscript.

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5. Conclusions It is recommended to write the conclusions in paragraph rather than in point forms. Summarize all important findings and make conclusions of your study.	Already corrected as stated in the manuscript.
6. References	-

No comment.	

Reviewer #2:

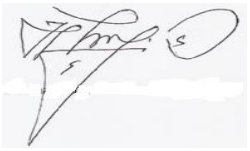
Comments from the reviewer	Authors' response
The solar radiation data is the most important component to estimate output of photovoltaic systems [3], [4], [5]. ⍰ They are low solar radiation (below 2.6 kWh/m2), moderate solar radiation (between 2.6 – 3 kWh/m2), high solar radiation (between 3-4 kWh/m2) and very high solar radiation (above 4 kWh/m2). ⍰ It is important to know the skies condition and its potential towards PV application in Medan, Indonesia. ⍰ Hence, if the TPVI wants to be applied in one area, the information data of solar radiation is needed to be informed that the area is suitable or not to be installed the TPVI. The solar irradiation above 3 kWh/m2 or solar irradiance above 300 W/m2 are the values are suitable to run the TPVI	Comments from this Reviewer #2 are almost same with comments from Reviewer #1 and have been corrected as stated in the revised manuscript.

[12], [13]. – *Rephrase these sentences please* □ Please edit font size and line spacing especially the equations and abbreviations. □ The difference of temperature is the difference between maximum and minimum air temperature (*T* max *T* min). It affects the solar irradiation (*Rs*). *Please rephrase these sentences.* □ The solar irradiation is proportional to the difference of temperature, if the value of temperature difference of increases, thus the value of solar irradiation will also increase. *Please rephrase this sentence.* □ Monthly minimum, maximum, difference of and average temperature throughout the year of 2014 in Medan, North Sumatera is shown in Figure 2. □ *Consider to change the title for Figure 2.* □ Based on the minimum temperature graph, its lowest and average value are 15.80 ^{o}C on August and 20.04 ^{o}C, respectively.	

Based on the maximum temperature graph, its highest and average value are 36.8 ^{o}C on June and 35.23 ^{o}C, respectively. Based on the difference of temperature graph (difference between maximum and minimum temperature – *repeated statement, consider to omit*), its lowest, highest and average value are 12.80 ^{o}C on December, 20.20 ^{o}C on August and 15.19 ^{o}C, respectively. Figure 5 shows the monthly short circuit current of PV module Kaneka G-SA060 amorphous silicon (a-Si) throughout the year of 2014 in Medan. The minimum and maximum short circuit current are 0.62 A on December and 0.80 A on August. Figure 6 shows the monthly open circuit voltage of PV module Kaneka G-SA060 amorphous silicon (a-Si) throughout the year of 2014 in Medan. The minimum and maximum open circuit voltages are 76.99 V on December and 80.22 V on August. Figure 7 shows the monthly maximum power of PV module Kaneka G-SA060 amorphous silicon (a-Si) throughout the year of 2014 in Medan. The minimum and maximum power are 26.17 W on December and 35.63 W on August.	

Fig. 8. I-V curve PV module on the temperature of 27.37 0C and Solar irradiance of 582.01 W/m2 **Fig. 9. P-V curve PV module on the temperature of 27.37 0C and Solar irradiance of 582.01 W/m2** They are implemented in the I-V and P-V curve as shown in Figures (8) and (9), respectively. Please be consistent with the format. The values are applied into Equation (2) to (5) to obtain the output characteristics of PV module. They are implemented in the I-V and P-V curve as shown in Figures (8) and (9), respectively. *Please rephrase these sentences*. They (*referring to?*) show that the short circuit current, open circuit voltage and maximum power of PV module Kaneka G-SA060 amorphous silicon (a-Si) are 0.69 A, 78.84 V and 29.80 W, respectively. *Please label these values in the curves to emphasize and explain their significant in the same paragraph.* According to research result can be concluded that; *Please rephrase this sentence.*	

Sincere;



Dr. Muhammad Irwanto

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Corresponding Author/ Co-author