

## Review Form 1.6

Journal Name:	<a href="#">Asian Journal of Research in Computer Science</a>
Manuscript Number:	Ms_AJRCOS_88857
Title of the Manuscript:	Centric Data Analytics Framework for Solar Energy Efficiency in the rural settings
Type of the Article	Original Research Article

### **General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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**PART 1: Review Comments**

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Compulsory</b> REVISION comments	<p><b>Note.</b> The following suggestions aim to fill some gaps in the manuscript.</p> <p><b>CRc1)</b> We know that clouds diminish the power of solar panels, especially in habitually foggy or overcast regions. According to the National Renewable Energy Laboratory, the solar resource during foggy or low-cloud conditions is approximately 10% of the value under clear-sky conditions. This hamper has not been discussed in the present work. The author is asked to add some comment about, in particular in relation to the rural areas studied.</p> <p><b>CRc2)</b> The Earth itself is a rather large obstruction, and it acts nightly to disturb the flow of photons to helplessly immobile solar arrays. Figure 4. shows the average daily solar radiation and clearness index. To get a more precise view of the situation, could the author provide details on the daily data, especially the afternoon and night data?</p> <p><b>CRc3)</b> Another issue comes from the fact that to power an entire building, a large solar array is required. Unfortunately, the photovoltaic technology is still in its infancy but, for now, we must build large arrays to compensate for the inefficiencies of single panels. Furthermore, the system may also be required to turn the panels as they follow the sun across the sky. Batteries, too, can take up a fair amount of space. By using the HOMER software, the author provided the size of different components of a hybrid renewable energy system. However, the key question is "<i>what is the size of the <u>entire system</u> proposed by the author?</i>"</p> <p><b>CRc4)</b> Another crucial aspect, not discussed by the author, is system deterioration. Like anything else left out in the sun, also his system gradually becomes damaged by ultraviolet radiation. Rain, snow, dirt, temperature fluctuations, hail and wind also pose serious hazards. For the sake of completeness, the author is asked to provide an estimate (even an approximate one) on how much the annual repair costs of his system could be caused by ultraviolet radiation.</p> <p><b>CRc5)</b> The author did not analyse another (very) crucial issue: the environmental pollutants that could be produced by his system. For instance, we know that when sealed inside solar panels, cadmium is harmless. If leaked from the panel, cadmium can inflict serious environmental damage. Panels must be disposed of with extreme care in order to keep this carcinogenic substance from leeching into soil and water. Batteries, specifically deep-cycle, lead-acid batteries, are required by solar arrays to ensure a constant supply of electricity. They contain lead and sulfuric acid, which are both highly toxic (especially to marine creatures). One of the main objectives of this work is to draw the attention of public authorities, so that the hybrid renewable energy system proposed by the author is taken into consideration. In this regard, it is essential, in my opinion, that the author addressed a short section where the problem of environmental pollution produced by his system is treated and analysed in a thorough and objective way.</p> <p><b>CRc6)</b> With reference to the proposed system, the author is asked to clarify the following four issues:</p> <p><b>1) Control complexity of his system</b> Please consider that the control of the operation of the different energy sources, their interaction and co-ordination can become complicated;</p> <p><b>2) Maintenance cost of his hybrid solar energy systems with respect to a normal solar system</b></p> <p><b>3) Battery life of his system</b> The batteries connected to the hybrid system may have a lower life as they are often exposed to natural elements like heat, rain, etc.</p> <p><b>4) For his system, please specify the number of instruments connectable</b> Indeed, we know that the number of devices that you can be connected to a hybrid solar energy system is limited and vary from system to system.</p>	
<b>Minor</b> REVISION comments	<p><b>MRc1)</b> Please, make sure that all acronyms mentioned in manuscripts are specified when they first appear in the text, even when they are well known in the literature (e.g., AC, DC, R&amp;D, O&amp;M). This is because one of the main objectives of the work is to raise awareness among government authorities (as well as public opinion) who may not be familiar with these terminologies.</p> <p><b>MRc2)</b> This paper shows the considerable advantages offered by solar energy in the selected rural areas of study, in particular in six geo-locations in Kwara State. However, he does not mention and analyses the main disadvantages of this technique. He just mentioned (very fleetingly) some limitations of his technology.</p>	

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	<b>MRC3)</b> Based on the suggestions expressed in the previous section " <i>Compulsory REVISION comments</i> ", other relevant works should be added to the list of the 17 references cited in the manuscript.	
<b>Optional/General</b> comments	As rightly pointed out, the problems in terms of efficiency, energy quality, stability and economic feasibility hamper the use of the model system proposed by the author. However, the works are vulnerable in many respects, some of which are mentioned above. To attract the interest of the reader more, it is advisable that the author analyses, one-by one, all the main factors that may limit the efficiency of his system model.	

### **PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

### **Reviewer Details:**

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