

### Review Form 3

Journal Name:	<a href="#">Journal of Energy Research and Reviews</a>
Manuscript Number:	Ms_JENRR_130136
Title of the Manuscript:	Numerical Analysis of Absorber Layer, Thickness, Bandgap, Temperature, and Interface Defect Density of Perovskite Solar Cells by Device Simulation
Type of the Article	

#### **General guidelines for the 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. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### **Important Policies Regarding Peer Review**

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#### PART 1: Comments

	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	This work will be highly useful to the scientific community because it gives further insight into the understanding of the optimization of lead-based PSCs using SCAPS-1D simulation. It identifies conditions for efficiency enhancement and stability improvement through critical parameters like thickness, bandgap, temperature, and interface defect density; this reduces problems such as thermal instability and performance degradation. The findings contribute to the development of sustainable, high-performance solar cells and provide a valuable resource for future research and practical applications in renewable energy. This work is in line with global efforts to address energy challenges through innovative material science.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title is informative but lengthy. It could be made more concise and engaging while retaining clarity.	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract summarizes the most important elements concerning a study on perovskite solar cell performance, including methodology, key variables, and findings. However, it could be further improved in terms of comprehensiveness and clarity. Suggestions include stating practical implications, minimizing technical details, including numerical highlights, avoiding using redundant terms, and showing clearly how it differs from any other research.	
Is the manuscript scientifically, correct? Please write here.	The manuscript is scientifically accurate and aligns with established research methodologies in perovskite solar cell simulation, using SCAPS-1D for numerical analysis and addressing critical parameters for optimization.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The manuscript has a good set of references, but they need to be timely and recent. For the references to give good coverage, they should include recent studies within the last five years, focus on advanced stability techniques, toxicity mitigation, SCAPS-1D validation, and high-impact journals. Other additional topics of interest could be triple-cation or mixed-halide perovskite compositions, new hole/electron transport layers, and recent reviews summarizing the progress of commercialization of perovskite solar cells. Sharing specific references can help in checking for gaps and suggesting precise additions.	
Is the language/English quality of the article suitable for scholarly communications?	The manuscript is well-written; it is proper for scholarly communication, with clearly represented and logically discussed technical details and findings. Yet, there is room for further improvement in several areas: clarity, grammar, and phrasing. Some sentences should be simplified; the formal tone also needs enhancement. Consistency in abbreviations and precise captions and labels in figures and tables are other points that will enhance effective communication.	
<u>Optional/General</u> comments	Including a brief discussion on how the findings could influence the commercialization or scalability of PSCs might elevate the paper's impact.	

#### PART 2:

	Reviewer's comment	Author's comment <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>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

#### Reviewer Details:

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