

Paper Submission Form - SAIP2025 Proceedings

Sections A, C, D, and E must be completed by all authors (including students) who submit papers. Section B is compulsory for students who submit manuscript(s).

Section A: Paper Submission Information

Paper/Abstract ID	331
Paper title	Integration of grid-scale battery energy storage in solar microgrids for rural communities in Limpopo province
Corresponding Author Name & Surname:	Pfesesani Netshilonwe; Fhulufhelo Nemangwele; Mukovhe Ratshitanga
Corresponding Author Email Address:	pfesesani.netshilonwe@univen.ac.za ; nemangwele@univen.ac.za ; ratshitangam@cput.ac.za

Section B: For Students & Supervisors

Supervisor Name & Surname:	Fhulufhelo Nemangwele
Supervisor Email Address:	nemangwele@univen.ac.za

For this paper, the supervisor must agree/disagree with the following statements.

	Yes	No
1. I am aware that the above-mentioned paper is being submitted for possible publication in the Proceedings of the SAIP Conference. I am satisfied that the presented work is that of the listed authors. I hereby give consent to the submission	✓	
2. I have proof-read the manuscript	✓	
3. I am satisfied that the manuscript is written in appropriate English and is sufficiently free of grammatical and spelling errors	✓	
4. I am familiar with the required manuscript format ("House Style"), and I am satisfied that this manuscript meets the criteria. I am aware that manuscripts not conforming with House Style may be desk rejected	✓	
5. I am satisfied that the scientific content of this manuscript is of sufficient standard for it to be considered for publication in the Proceedings of the South African Institute of Physics Conference Proceedings	✓	

Student Name & Surname: Pfesesani Netshilonwe **Signature:**  **Date:** 22/07/2025

Supervisor Name & Surname: Fhulufhelo Nemangwele **Signature:**  **Date:** 30/07/2025

Section C: Suggested Reviewers

Obtaining the two referee reports necessary for DHET subsidy is an onerous task.

Please provide the names and contact details of three qualified South African and/or international referees. Referees should have a PhD and expertise in the relevant area of Physics. Do not recommend referees who have co-authored a work with any of the authors on the manuscript within the past five (5) years. Manuscripts without three recommended referees may be subject to desk rejection.

Suggested Reviewers in your Research Field (Both local & international)

	Reviewer Names & Surname	Reviewer's Email Address(es)
Suggested reviewer #1	Prof Ernest van Dyk	Ernest.vandyk@mandela.ac.za
Suggested reviewer #2	Prof Mokhotjwa Simon Dlamini	dhlamms@unisa.ac.za
Suggested reviewer #3	Prof Pontsho Mbule	Mbuleps1@unisa.ac.za

Section D: Declaration of Novelty and Use of AI

How is this submitted manuscript scientifically novel?

There is limited peer-reviewed research specifically focused on Limpopo, a rural province in South Africa. Limpopo's specific solar irradiance patterns, population distribution and existing grid limitations provide a unique case study for microgrid integration. Hybrid optimization at grid-scale: Most rural microgrid studies focus on small-scale or household-level systems. This topic addresses grid-scale battery storage, which introduces complexities such as advanced power flow control, load balancing across multiple communities, multi-day storage optimization, integration with national/regional grid infrastructure.

How was AI used in the generation of this manuscript?

Please see the Author Guidelines for the AI use policy.

The AI tool was utilised to enhance the writing by meticulously correcting grammar and refining the overall clarity and flow of the text.

Section E: Plagiarism

	Yes
I am aware that plagiarism detection software may be used on my manuscript.	✓