

Review Form 3

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_126634
Title of the Manuscript:	Comprehensive assessment of Ferroresonance and its Effects in Selected Distribution Substations in Nasarawa State, Nigeria
Type of the Article	Original Research Article

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PART 1: Review Comments

Compulsory REVISION 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>
<p>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</p>	<p>The study s well-written, and it captures the key findings and recommendations of the study on ferroresonance in low-voltage distribution transformers, specifically in Nigerian systems.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>It is better to use this title "Ferroresonance Effects in Distribution Substations: A Case Study of Nasarawa State, Nigeria"</p>	
<p>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.</p>	<p>The core findings are presented well, but you might add specific terminology like "significant" or "substantial" for emphasis and to draw attention to the increase in peak voltage and current. For example: "Findings reveal that increasing grading capacitance from 90 pF to 1550 pF substantially elevates peak voltage and current, with peak voltage rising from 0.420 kV to 2.400 kV and current increasing from 28 A to 103 A."</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>Yes</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>Range of Analysis (50V to 500V): Analyzing transformers across a broad voltage range is helpful, as it ensures capturing ferroresonance behavior at various operating levels. This range allows the study to model ferroresonance scenarios accurately for practical applications in distribution networks.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>Yes, but the authors should add 5 articles which published in 2024, 2023.</p>	

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<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>Please check the language and improve it.</p>	
<p>Optional/General comments</p>	<ul style="list-style-type: none"> • The Total Harmonic Distortion (THD) measurements you've cited (from 6.5% to 35.5% for voltage and 7.8% to 40.2% for current) suggest substantial harmonic amplification under ferroresonance. Detailing which harmonics (e.g., third, fifth, seventh) dominate in each configuration could add depth to the findings, especially if they reveal differences in harmonic profiles between Delta and Star-Grounded setups. • Please apply my recommendation. • Add recent reference which published in 2023, 2024. • Draw a table and compare your study with previous research to give better insight to readers. • Please draw figure 1, 2, and 4. • Please check the grammar and language structure for whole text. • Your introduction is strong, providing a thorough historical context, an explanation of ferroresonance, and a review of recent research. It's informative and flows logically from general background to specific objectives in the context of Nigerian low-voltage distribution systems. However, a few improvements could increase readability and enhance its impact. Here are some suggestions for refinement: The opening sentence about the origins of ferroresonance can be shortened to improve readability. Focus more on the key developments rather than names and dates, which can be kept concise. The paragraph explaining ferroresonance mechanisms could be clearer by restructuring it to highlight the key elements (inductance, capacitance, and voltage sources) and their role in triggering ferroresonance. Conclude with a more specific and direct statement of your study's purpose. This can sharpen the focus and justify the research. • For discussion, it is well-written, but add these parts: The impact of grading capacitance is a key point, yet it could be elaborated by explaining why higher capacitance leads to increased risks and the specific role it plays in resonance buildup. This would make the connection to other studies, like Olguín-Becerril et al., even stronger. Your discussion on harmonic content, particularly the influence of lower-order harmonics (like the 3rd harmonic), is informative. However, it could be expanded to explain how these harmonics specifically affect non-linear inductance and contribute to the resonance phenomenon. A statement on the potential benefits of harmonic filtering technology in transformers prone to ferroresonance could also strengthen this part. 	

PART 2:

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

Reviewer Details:

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