

**Review Form 3**

Journal Name:	<a href="#">Journal of Engineering Research and Reports</a>
Manuscript Number:	Ms_JERR_125265
Title of the Manuscript:	OPTIMIZATION OF STEAM BOILER AIRFLOW CONTROL SYSTEM IN A TYPICAL OIL REFINERY POWER PLANT
Type of the Article	Original Research Article

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**PART 1: Review Comments**

<b>Compulsory</b> REVISION comments	<b>Reviewer's comment</b>	<b>Author's Feedback</b> (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p><b>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.</b></p>	<p>This paper presents the optimization of a steam boiler airflow control system in a typical oil refinery power plant, specifically the Port Harcourt Refinery Company (PHRC) in Alesa-Elеме, Rivers State, Nigeria. The plant, equipped with four steam boilers using a damper-louvers airflow control system, suffers from significant energy inefficiencies due to an over-supply of air. This inefficiency results in an annual waste of 8,502,302 kWh, contributing to a total energy consumption of 59,904,436 kWh at a financial cost of N1,093,255,884. The inefficiency is primarily caused by the Forced Draft Fan (FDF) motor operating at maximum speed continuously, regardless of steam demand or airflow needs.</p>	
<p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>	<p><b>Yes</b></p>	
<p><b>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.</b></p>	<p>The abstract is quite detailed, but I have some suggestions to improve clarity, readability, and impact. Here's a refined version:            Flow and clarity: Reorganized some sentences for better flow and readability.            Technical precision: Streamlined certain technical details for easier comprehension while keeping the technical integrity.            Impact: Highlighted the specific benefits and recommendations more clearly at the end to emphasize the study's importance.            Abstract must have a single paragraph.</p>	
<p><b>Are subsections and structure of the manuscript appropriate?</b></p>	<p><b>Yes</b></p>	
<p><b>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.</b></p>	<p>This manuscript demonstrates scientific robustness and technical soundness through a well-structured approach to solving an energy efficiency issue in steam boiler airflow control. The problem is clearly identified, supported by quantitative analysis of energy wastage and financial costs, which establishes the study's relevance. The proposed solution—replacing the damper-louvers system with a Variable Frequency Drive (VFD)—is appropriate, as it is based on established principles of motor control and energy optimization. The use of MATLAB Simulink for simulation adds further scientific rigor, allowing for the accurate modeling of airflow, motor speed, and power requirements. Moreover, the results are substantial, with clear data on energy savings, cost reductions, and payback period, reinforcing the credibility and practical value of the findings.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>The work presents few references. I suggest that they be expanded.</p>	
<p><b>Minor</b> REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>Yes</p>	
<p><b>Optional/General</b> comments</p>	<p>The paper needs to be formatted. The figures and tables are displayed above the text. It is very confusing. I suggest that the authors redo the formatting before the paper is published.</p>	

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**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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