

Date: Dec 08, 2016
To: "Feri Afrinaldi" f_afrinaldi@yahoo.com,feri.afrinaldi@ttu.edu,feri_afrinaldi@ft.unand.ac.id
From: Cecilia Almeida eesserver@eesmail.elsevier.com
Subject: Your Submission

Reply To: Cecilia Almeida cmvbag@unip.br

Ms. Ref. No.: JCLEPRO-D-16-01504R2

Title: Minimizing economic and environmental impacts through an optimal preventive replacement schedule: Model and application
Journal of Cleaner Production

Dear Feri,

It is my pleasure to inform you that your article "Minimizing economic and environmental impacts through an optimal preventive replacement schedule: Model and application" has been accepted for publication in Journal of Cleaner Production.

Your accepted manuscript will now be transferred to our production department and work will begin on creation of the proof. If we need any additional information to create the proof, we will let you know. If not, you will be contacted again in the next few days with a request to approve the proof and to complete a number of online forms that are required for publication.

Thank you for considering our publication.

With kind regards,

Dr. Cecilia Maria Villas Bôas de Almeida, PhD
Executive Editor
Journal of Cleaner Production

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Fw: Your Submission

From: Feri Afrinaldi (f_afrinaldi@yahoo.com)

To: taufikdtk@yahoo.com

Date: Saturday, June 25, 2016, 11:32 PM GMT+7

On Saturday, June 25, 2016 11:30 PM, Feri Afrinaldi <f_afrinaldi@yahoo.com> wrote:

On Saturday, June 25, 2016 7:15 PM, Cecilia Almeida
<ees.jclepro.86d0.3a3482.249e633a@eesmail.elsevier.com> wrote:

Ms. Ref. No.: JCLEPRO-D-16-01504

Title: Minimizing economic and environmental impacts through an optimal preventive replacement schedule: Model and application

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Dear Feri,

Please see the comments of the reviewers on the article you submitted to Journal of Cleaner Production. I suggest you consider these comments, suggestions and questions and revise your article accordingly. We would like to receive your revised submission within the next 60 days.

You will see that they are advising that you revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments are appended below.

If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript.

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The revised version of your submission is due by Aug 24, 2016.

Yours sincerely,

Dr. Cecilia Maria Villas Bôas de Almeida, PhD
Executive Editor
Journal of Cleaner Production

Reviewers' comments:

Reviewer #1: Reviewer Comments

The authors developed an interesting mathematical model to determine the optimal schedule of preventive replacement of a component by minimizing both the economic and environmental impacts, including costs related to operation, failure, and replacement of the component as well as the environmental impact associated with the use and replacement action. A novel approach is also proposed with a thorough explanation of the parameters involved and a case study with sensitivity analysis for model validation. The main drawback of the model is that is not completely generalizable since parameters have to be considered on case by case basis. However, it does provide optimal solutions for the case study. Therefore, this paper generally could make a real contribution to the literature if the following comments and those shown in the attached file are addressed before the manuscript can be accepted.

General Comments

1. Few typing mistakes were detected. Please perform a thorough spell-check.
2. Check the in-text reference format. For more than two authors use Author1 et al., YEAR. For more than one reference use (Author1 et al., YEAR1; Author1 et al., YEAR2). Please put the years in ascending order and use semicolons not "and". Otherwise, it is difficult to follow.

Highlights

Some numbers from the case study might be beneficial in terms of percentage in costs minimization and negative environmental impact reduction.

Title

The title accurately describes the purpose of the article.

Abstract

Same as the highlights. Some numbers from the case study might be beneficial in terms of percentage in costs minimization and negative environmental impact reduction.

Materials and Methods

1. In subsection 4.1, authors mentioned that a linear equation came from an interview held with the company staff. Is this an empirical equation? Please elaborate on the way you found this equation since is not clear.
2. In subsection 4.2 you use too many significant figures for km and is not consistent. Stick

to no decimals or explain why they are necessary and keep one format only.

Keywords

The keywords are appropriate for indexing. Modeling can also be added.

Figures and Tables

1. Figures and Tables are notoriously well prepared and the data provided accurately shows the novelty of this manuscript. However, it is recommended to reduce the number of figures. You may add some of them as supplementary material and combined others.
2. Figures 2 and 3 are complementary. Therefore, you may put them as Figures 2a and 2b, respectively.
3. Figure 5 is not necessary; Table 1 is sufficient.
4. Figures 6 and 7 are complementary, put them as Figures 5a and 5b, respectively, in the new version.
5. Figures 8 and 9 are complementary, put them as Figures 6a and 6b, respectively, in the new version.
6. Figures 10 to 13 now become Figures 7 to 10.

Conclusions

Delete "and Future Work" from the heading

A notation list is necessary please add this section

Specific comments and editorial changes are shown in the attached document...

Reviewer #2: It was expected that , considering only the time life of tire, the preventive exchange wouldn't important from an environmental point of view, then the fuel cost needs to be more discussed in the text.

Suggestions :

- On page 8 , line 47, to explain how the equation was obtained through interviews.
- On page 11 , lines 16 to 21, says that the value 17,700.51 are a determinant value. This value is very precise and it was obtained through data that is, naturally, imprecise. Couldn't You include the estimated deviation, or interval, to this value? In this way the graphical determination is sufficient and it isn't necessary use GA. I understand that GA will be used after to multi objective problem.
- On page 13 , the lines 39 to 42 means that the fuel cost it doesn't important to cost minimization. It will bee important include this on the paragraph.
- On the conclusion, the suggestion to use fuzzy increase the complexity of the problem and, from my point of view, the problem was very good approach in this paper ans don't is necessary the fuzzy approach mixed with statistical an GA maths.

Reviewer #3: I think the field of the research is interesting. Unfortunately, the article is weak in technical aspects. I suggest to deeply review the state-of-art.

Abstract:

1. The abstract can be improved. A good abstract should be a synthesis of critical points through the paper.

2. Which environmental aspects did you minimize?
3. Which aspects did you consider in the sensitivity analysis?
4. You mention a procedure to find the best solution of the model: how does it work? which principles sustain this procedure?
5. You say: "This study shows that the developed model does not provide a unique optimal solution for the preventive replacement schedule of the tire but offers a set of optimal solutions". This is a general property of multi-objective problems. You have a trade-off and this is very common. Why to include this issue in the Abstract?

Introduction:

6. The literature review is not robust. You mention some pertinent papers and list their topics, but this is not a state-of-art. I suggest to carefully review these articles (and others) to clearly demonstrate the novelty of your work.

Technical comments:

7. The problem statement and objective is general. You should clearly inform about your objective functions. How did you quantify costs and environmental impact? If you review the literature you will find many indicators. Hundreds, to be more precise.
8. The use of Genetic algorithms (GA) is not properly justified. There are plenty other techniques. Why you cannot use formal optimization? You have continuous and differentiable functions, so proper techniques are related with gradient methods. Please, explain why do you have to use GA.
9. A graphical method? Why? In the 21st century you have formal mathematical and computational tools to find solutions, so you have to properly justify graphical methods. They are not necessary in the present. Because of the weakness of graphical methods, you should always prefer formal methods with a mathematical justification. Is an ethical issue in the 21st century.
10. The results of the article are presented as a list of numerical results, but not a proper research document. You should link your results to your questions and compose a connected text.
11. The results are weak. You have to clearly inform about the novelty of your results or techniques.

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Your Submission

From: Cecilia Almeida (ees.jclepro.86d0.3c894b.b0c41cb3@eesmail.elsevier.com)

To: f_afrinaldi@yahoo.com; feri.afrinaldi@ttu.edu; feri_afrinaldi@ft.unand.ac.id

Date: Sunday, October 9, 2016, 09:32 PM GMT+7

Ms. Ref. No.: JCLEPRO-D-16-01504R1

Title: Minimizing economic and environmental impacts through an optimal preventive replacement schedule: Model and application

Note: While submitting the revised manuscript, please double check the author names provided in the submission so that authorship related changes are made in the revision stage. If your manuscript is accepted, any authorship change will involve approval from co-authors and respective editor handling the submission and this may cause a significant delay in publishing your manuscript.

Dear Feri,

Please see the comments of the reviewers on the article you submitted to Journal of Cleaner Production. I suggest you consider these comments, suggestions and questions and revise your article accordingly. We would like to receive your revised submission within the next 60 days.

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The revised version of your submission is due by Dec 08, 2016.

Yours sincerely,

Dr. Cecilia Maria Villas Bôas de Almeida, PhD
Executive Editor
Journal of Cleaner Production

Reviewers' comments:

Reviewer #1: The presented work has been improved and seems to be of good quality. The manuscript is well written now, and the compilation of work looks in good shape. The authors have convincingly addressed almost all of the reviewers' comments and the abstract and introduction sections improved considerably. Therefore, this paper could make an excellent contribution to the Journal of Cleaner Production.

Reviewer #2: With the refinements the paper are good for publish.

Reviewer #3: Thanks for your detailed answers.
Please find a list of comments and reviews here:

1. Abstract.

Your new abstract is OK. I suggest to use no decimal values in your numbers here, as in your Highlights.

2. Environmental aspects.

OK, your model is general. Anyway, I suggest to inform properly your environmental indicator and quantification technique in your instance. You mention GWP, OK, but how did you quantify this indicator?

3. Sensitivity.

OK.

4. Procedure to find best solution.

Your explanation is OK now but your technique is difficult to justify: How do you warranty to find the best solution? The relation between GA and KKT conditions is not stated. The justification for GA should be improved. You should also include an explanation about finding the best solution with GA, because is not direct.

5. Multiple solutions.

OK.

6. Literature review.

Much better. I also suggest to review other techniques (instead of GA). This point has to be included in the literature review, because your technique is not properly justified. Which other alternatives do you find in literature for problems as yours? Why your technique is better?

7. Objective functions and indicators.

Much better. Anyway, we need more detail in order to recommend the publication of your article.

The general explanation of your mathematical methodology is OK but your instance have to be fully clear. Please, list your objective functions and constraints in the case of bus tires. Mathematical expressions, quantification techniques and values. In your example, please be specific, not general. Please go back to the sense of your example: you present a general explanation and your example could be useful to illustrate the application of your method.

8. GA.

I think the same as before. Please, take the comment into consideration so as to recommend your article for publication. I remind my previous comment:

The use of Genetic algorithms (GA) is not properly justified. There are plenty other techniques. Why you cannot use formal optimization? You have continuous and differentiable functions, so proper techniques are related with gradient methods. Please, explain why do you have to use GA.

You looked for a way to provide derivatives in order to equalize to zero. This is an intuitive way to find KKT conditions in your system. I sustain the same: why not to use formal optimization? The problem of finding local (or global) optima with continuous, nonlinear, multivariable, and differentiable functions is well covered in control literature. Look for information from Lorenz Biegler or George Stephanopoulos, for instance.

9. Graphical method.

I understand you need an UB and LB, but: why to use a graphical method? As I mentioned before, in the 21st century you have to explain very well the use of graphical methods, because they are weak and difficult to systematize.

10. and 11. Novelty and presentation.

I appreciate your efforts to improve the article and include our comments. Nonetheless, I suggest to explain the novelty of your work to readers. Which question are you trying to answer with your research?, why your method is proper in comparison with other options?

Remark the novelty of your development and results.

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