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PART 1:

Journal Name:	**Physical Review & Research International**
Manuscript Number:	**2013 PRRI 4296**
Title of the Manuscript:	**Design and Optimization of a Wind System Using a Genetic Algorithm**
Type of the Article	**Research paper**

General guideline for Peer Review process is available in this link:
(http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline)

- This form has total 7 parts. Kindly note that you should use all the parts of this review form.

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PART 2: Review Comments

	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)*
Compulsory REVISION comments	**1) Section 2 structure:** **- sub-Section 2.1: I propose to move lines 75 - 81 and line 91 (including Figure 2 and Table 1) to the beginning of sub-Section 2.2 (maybe in a new subsection 2.2.1 titled "System components" or "Components considered").** **The new title of the sub-Section 2.1 should be "Case study and wind data": beside load data also wind data at the location should described. Therefore I propose to move lines 372 to 378 (beginning of Section 3) to sub-section 2.1. Regarding wind data see comment 2.** **- I suggest to reorganize sub-Section 2.3 so that sub-section 2.3.1 title is "Economic criteria", sub-section 2.3.2 title is "Reliability criteria" and sub-section 2.3.3 title is "Environmental criteria". I would eliminate sub-section with 4 numbers as 2.3.1.1.** **2) Wind data:** **More detail should be given about wind resource assessment; it should be defined which wind data were used. If they where taken from a meteorological station then you should say the distance from the meteorological station to the studied site. If data were collected by an anemometer installed in-situ then the following meta-data should be given:** **- for how long were data measured** **- which anemometer and tower were used** **- the measuring interval**	

	3) <u>Results</u>: **- In my opinion, you should explain in detail which are the 100 configurations considered** **- Why don't you consider a lower tower height? Considering costs described in Table 2, a wind turbine of 600W (initial cost = 2$/W * 600W = 1200$) installed at 50 meters has a tower cost of 12500 $ (250$ /m). Therefore tower is more 10 times more expensive than the wind turbine and that's not really reliable. I am pretty sure it would be much better to install 2 turbines at half of that height.** **- You enable to install up to wind turbines. In the paper you should mention that when multiple wind turbines are installed in the same place then shadow effects between turbines could be important and should be studies when defining final turbines' position.** **- In Table 8 solutions are ordered by their OF value, aren't they? In this case you should control the OF of solution 9.**	

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Minor REVISION comments	- How is it established the cost of loss load (line 226)? - English grammar should re-checked all over the document. For example sentence at lines 35 – 37 should end with "especially for remote and difficult to access **areas**". - Long sentences should be divided into 2 (for example sentence at lines 37 – 40). - Control that references in the bibliography have all the same format. - In the text you should not start a sentence like (at line 41) "[3] have proposed …", better to say "Ref. [3] has proposed …". - I suggest you to read following paper about a mathematical model in order to design off-grid electrification projects considering also microgrid. Ferrer-Martí L, Domenech B, García-Villoria A, Pastor R. A MILP model to design hybrid wind–photovoltaic isolated rural electrification projects in developing countries. Eur J Oper Res. 2013 4/16;226(2):293	
Optional/General comments	The authors propose an interesting method to design an off-grid electrification system based on wind energy. The method aims to minimize economical and environmental costs and to maximize the reliability of the project. Some major comments on paper structure, wind data used and results obtained are hereby reported.	

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