Journal Name:	Journal of Energy Research and Reviews
Manuscript Number:	**Ms_JENRR_56953**
Title of the Manuscript:	**Forecasting Solar PV Demand Split and Fuel Wood Usage Reduction in Eriti and Oke-Agunla Villages in Nigeria**
Type of the Article	**Data Article**

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PART 1: **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	• **The usual plan is not respected:** **1- Introduction** **2- Materials and methods** **3- Results and Discussions** **4- Conclusion** • **We do not see the problematic in your introduction. What do you want to do concretely?** • **In part "2" entitled Materials and Methods, it is essential to specify the methodology adopted within the framework of this study in order to allow readers to follow you.** • **You don't see your results clearly.** • **Where is the conclusion?**	• **Study now Respect the usual plan :** **1. Introduction** **2. Materials and methods** **3. Results and Discussions** **4. Conclusion** • **problematic in your introduction is presented as follows:** • The International Energy Agency's Renewables Market Report, 2019, estimated 50 percent growth in the global total renewable-based power capacity between 2019 and 2024, with solar PV accounting for 60 percent of the rise. It laid emphasis on the need to surmount policy and regulatory uncertainty, high investment risks and system integration of wind and solar PV to fast track the deployment of renewable. Therefore, in line with this global solar PV penetration forecast, conducting such a study like this which quests to develop appropriate framework for the best policy intervention for solar PV demand split and fuel wood usage reduction in Nigerian villages becomes imperative. Furthermore, in addressing pertinent research questions that constantly agitate the minds of energy analysts and policy makers, in their quest for optimal solutions to the protracted plaguing Nigerian rural energy challenges, this paper examined the current status of solar PV and other energy sources for provision of energy services and also analyzed the best policy option for the optimal contribution of solar PV and fuel wood usage reduction in the future rural energy mix, in the study area. This was done with a view to stimulate policy debate on policy research framework, required as solution input for widespread and accelerated use of solar PV in the rural areas of the country. **2.0 Materials and Methods** **2.1 Materials** **2.1.1 Socio-Economic Parameters for Data Analysis in the Study Areas.** **2.1.2 Eriti Village** **2.1.3 Oke-Agunla Village** **2.2 Methods** **2.2.1** Adapted Model for Analysis of Demand for Energy MADE-II **as Methodology for the Study.** The adapted methodology for this paper is Model for Analysis of Demand Energy (with the acronyms MADE-II), developed at the Institute for Energy Economics and Rational use of Energy, University of Stuttgart, Germany in 1989. It combines the application of statistical, econometric and engineering process techniques as appropriate for the various sectors of the rural economy. Its flexibility and applicability for demand projection over short or long period and its basic analytical approach premised upon the idea that energy is used together with other production factors to provide goods and services to the society makes it suitable in this paper for demand analysis of solar PV utilization in the study area. (Jesuleye O.A. 2017). The conceptual framework which showed the general methodological approach of MADE-II adopted for the study is clearly highlighted in Figure 1. As presented in, Figure 2, MADE-II is made up of 7 Blocks of data in flow for demand analysis. Block 1 deal with general information about useful energy level analysis, base year (2020) and future two constant five-year periods (2025, 2030), while information on development of population is presented in Block 2 (see Tables 3a and 3b for further details). Data analysis for useful energy demand in the rural households sector is treated in Block 3 (Tables 6-9 captured the implementation of this block), while Block 4 dealt with activity level in physical units e.g. kWh/Day/Village (Tables 1, 2, 4 and 5 captured the data for block 4),

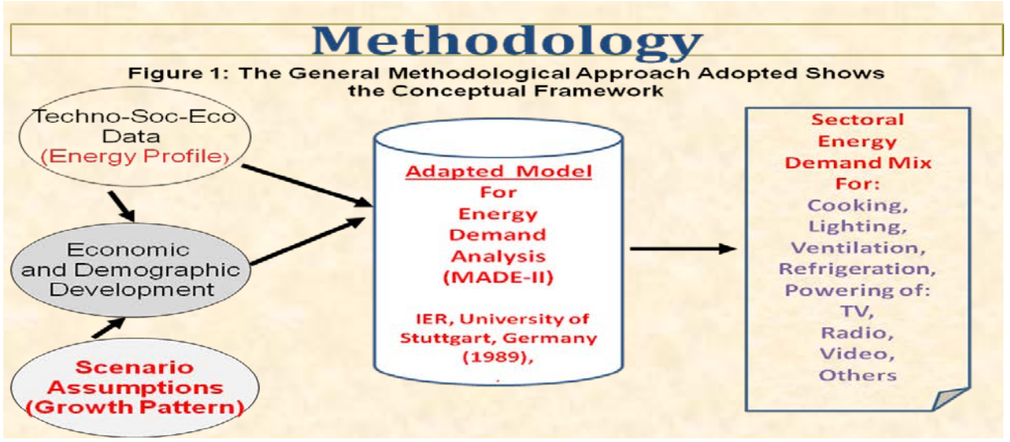

Figure 2: Schematic Diagram of Adapted from Model for Analysis of Demand for Energy MADE-II), IER, University of Stuttgart, Germany, 1989 is also presented.

2.2.2 **The Study Variables and Measurement for quantifying sectoral demand for energy services**

2.2.3

2.2.3.1

2.2.3.2

2.2.3.3

2.2.4

3.0 Results and Discussion

3.1

3.2

4.0. Conclusion

The study showed that the total lighting demand share for solar PV in each of the villages' total energy demand mix in 2020 was insignificantly low at 5.1 percent share in Eriti village and 6.1 percent share in Oke-Agunla village. Contrariwise, firewood demand maintained as high as 94 and 92 percent share for Eriti and Oke-Agunla villages respectively in the total energy demand mix and by 2030, in Oke-Agunla village, 3-stones-firewood stoves demand for cooking fell drastically from 77% to 30% share, whereas improved firewood stoves demand for cooking rose astronomically from 11% share in 2020 to 45% share by 2030. Nigerian government should adopt such best policy intervention scenario for all the rural areas in the country. It also revealed that high incidents of poverty experience by these villagers accounted generally for the less than 4 share each in the total energy demand for entertainment, ventilation, process heat and refrigeration services in the overall energy demand split for all energy services, even by 2030, in the two villages. It further showed that these village dwellers possessed low financial capability for electricity access and acquisition of the stock of end use appliances, such as fridges food preservation and vaccine refrigeration, fans for ventilation, electric pepper grinders for food processing and process heat in their energy consumption profiles. They could not consume beyond the solar PV intervention access granted them by the government supply, which was found to be grossly inadequate for the two village populace. Thus, the best policy intervention scenario analysis for the future energy demand in the study area could be considered in the review of the existing rural energy policy of the nation. The study highlighted the need for increased government interventions through solar PV deployment, which will be a good avenue for increasing their living standard. It will afford them the opportunities for food and vaccine refrigeration, increased solar bulbs usage for lighting, less kerosene usage for lighting, increased kerosene usage for cooking, reduction in the domineering 3 stones firewood stoves usage for cooking, increased improved firewood stoves usage for cooking and improved environmental mitigation.

Minor REVISION comments	**After reviewing the work, I think that this work has no serious comments and can be adopted in the author's edition**	
Optional/General comments	**What is the method used? Present your results followed by their comments**.	

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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	