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Scope of Solar Energy and Wind Energy in District Raebareli (Uttar Pradesh)

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Abstract: ***Renewable energy resources are the Potentials for today and for the forthcoming future of our Generations thus making the relieve from dependability of generations on the fossil fuels and making the right use of resources of what nature has given to us . Talking about the todays existing renewable energies are in the form of Solar, Wind, Tidal, Hydrothermal, Geothermal etc are various kind of sources of energies in the Renewable forms. Talking about the scope of innovations in this area it has shown a great potentials as we can know about the Technology of Decarbonisation in which carbon is been seeing as source of energy Potentials for the future. Talking about the todays worlds consumption , it is about Coal(27%) , Natural gas (24%) , Hydro energy (7%). Talking about Raebareli district in Uttar Pradesh the average Specific Photovoltaic Power Output is found to be 1495.6 kWh/kWp , Direct Normal Irradiation found to be 1190.9 kWh/m^2 and Global Horizontal irradiation is found 1771.5kWh /m^2.So according to these datas it can be conferred that a great scope of solar energy can be utilised in my area and also the Government has some programmes also for installing the solar Panels in thus area .***

Keywords: ***Solar Irradiance, Wind Power, Solar Power Solar Energy***

I. INTRODUCTION

The Solar energy is a very boon for us and also they can be used in various fields of life by reducing the reliability of us from the Non renewable sources of energy as they are very limited and are depleting very fast. So in the Raebareli district as its located on the Plains regions so amount of wind is not much of strength but at the same time the amount of solar energy receiving per yearly are much of that capacity that it can be utilised in the forms of solar power for the Households Lightining not only but for all the Purposes likewise in agricultural fields also. So, the data obtained is from the Website of Nasa Larc .We have Collected the data from that site and does analysis of wind and solar power for the future Installement of any projects In Raebareli.

II. ANALYSIS

3.1 Wind Power

Average speed of wind :- 5.005m/s
Maximum Speed of Wind : 9 m/s

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Minimum Speed of wind : 2.01 m/s

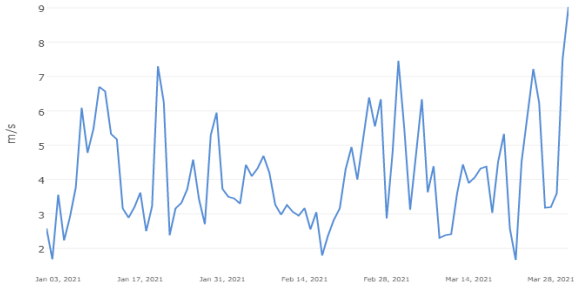

Figure 1.1

3.1.1 Outcome:

So from the above Data we can easily observed that amount of wind been blowing is just below the minimum wind required to generate the Wind energy (6.42m/s minimum wind speed). So, by yearly as the Wind is not same whole throughout the year hence its not possible to install wind power in Raebareli.

3.2 Solar Irradiance

Average Specific Photovoltaic Power Output: 1495.6 kWh/kWp
Direct Normal Irradiation :1190.9 kWh/m^2
Global Horizontal irradiation :1771.5kWh /m^2

3.2.1 Optimum Tilt of Solar Panels by Month

January	February	March	April	May	June
34 °	26 °	18 °	10 °	2 °	180 °
July	August	September	October	November	December
2 °	10 °	18 °	26 °	34 °	42 °

Figure 1.2

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3.2.2 Outcome:

So from the above data we can see that the Average amount of solar energy receiving is very much efficient to Generate the Solar Power hence there is a great scope of Using Solar Energy in Rae bareli and Not Only that these Solar Power Can be Used to Generate Power to Run motor Powers Like Tube wells for the Agricultural Fields and thus it have a very large Diverse of Applications.

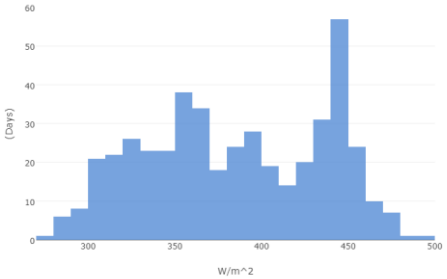

Figure 1.3

III. CONCLUSION

So we can conclude from the Above data that the Rae bareli has a great Potentials and future for the Solar Based Power Plants Installment and also these solar Power can be Utilised in various forms of Applications . Also the Availability of Wind Power is not so much Efficient and hence Wind Energy has a very negligible scope o f existence.

REFERENCE

1. https://power.larc.nasa.gov/data-access-viewer/
2. https://www.shaktipumps.com/solar-calculator.php
3. https://photovoltaic-software.com/pv-softwares-calculators/online-free-photovoltaic-software/pvgis
4. UO SRML: Solar position calculator
5. http://upneda.org.in/
6. https://www.loomsolar.com/blogs/subsidy/solar-panel-subsidy-in-uttar-pradesh
7. Shruti Sharma, Kamlesh Kumar Jain, Ashutosh Sharma a review on "Solar Cells: In Research and Applications",Materials Sciences and Applications, 2015, 6, 1145-1155 Published December 2015 http://dx.doi.org/10.4236/msa.2015.612113 [CrossRef]
8. Askari Mohammad Bagher, Mirzaei Mahmoud Abadi Vahid, Mirhabibi Mohsen. "Types of Solar Cells and Application". American Journal of Optics and Photonics.Vol. 3, No. 5, 2015, pp. 94-113. doi: 10.11648/j.ajop.20150305.17 Book of "Wind and Solar Power Plants" by Mukund Patel, CRC Press [CrossRef]
9. N. Gupta, G. F. Alapatt, R. Podila, R. Singh, K.F. Poole, (2009). "Prospects of Nanostructure-Based Solar Cells for Manufacturing Future Generations of [CrossRef]
10. Photovoltaic Modules". International Journal of Photo energy 2009: 1. doi:10.1155/2009/154059. [CrossRef]
11. Book of "Solar Energy" by Dr. S. P. Sukhatme. Tata McGraw Hill Publication.
12. Gaurav A. Madhugiri, S. R. Karale, "High solar energy concentration with a Fresnel lens: A Review"Vol.2, Issue.3, May-June 2012 pp-1381-1385 ISSN: 2249-6645
13. S. Chakrabarti, S. Chakrabarti Rural electrification programme with solar energy in remote region - acase study in an island Energy Policy, 30 (2002), pp. 33-42 [CrossRef]
14. A. Pueyo, F. Gonzalez, C. Dent, S. DeMartinoThe Evidence of Benefits for Poor People of Increased Renewable Electricity Capacity: Literature Review IDS (2013) IDS Evidence Report No 31
15. United Nations **Sustainable Development Goals** (2015) Available: https://sustainabledevelopment.un.org/sdgs, Accessed 26th Jan 2017 Google Scholar
16. GoI India's intended nationally determined contribution:working towards climate justice Available: http://www4.unfccc.int/submissions/INDC/Published%20Document s/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf (2015), Accessed 14th Aug 2016 Google Scholar

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