

supply if the necessary precautions and control measures are observed.

5. Conclusion

Nigeria is endowed with RES in the form of solar, wind, and water, as highlighted in the research. Locations within Nigeria were chosen when analyzing the feasibility of adopting either solar or wind turbine. Based on secondary data obtained and analyzed, the inland region which includes locations such as Maiduguri and Kano displayed the potential of having solar MG systems adoption due to the presence of more solar radiation and sunlight daily duration on average throughout the year compared to coastal regions. Similarly, locations such as Jos and Kano experience higher wind speed compared to coastal locations and as such present a potential for the adoption of wind turbine MG systems. Although average wind speed across the country is sufficient to operate a wind turbine MG system the wind speed recorded for the coastal region locations is less than 10m/s on average and as such makes it difficult for a wind turbine system to attain maximum output capacity.

Based on the economic analysis carried out in the study, it was noted that the solar MG power system had the highest LCOE compared to a wind turbine. But in all, the two MG systems identified in this research are environmentally safe for the environment and become profitable after the first three years of operation because there is no operational cost and source-costs fuel is free, as compared to other conventional power plant systems which require fuel such as coal and natural gas to function. After due consideration, this research recommends that since there is a presence of solar radiation and acceptable wind speed across the country of Nigeria, people can take to adopting either a solar MG system or wind turbine MG system irrespective of the region. For locations with limited solar radiation, sunlight duration and wind speed can incorporate more panels and batteries into the system for storage for later use.

6. References

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