Review of: "Quantifying the Environmental Impact: A Comparative Analysis of Consensus Algorithms in Blockchain for Carbon Footprint Reduction and Mitigating Climate Change"

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Potential competing interests: No potential competing interests to declare.

This paper explores the escalating prominence of blockchain technology and sustainability.

The paper is well-structured with a logical flow. The paper structure should be described at the end of the introduction section.

The reliance on theoretical discussion without robust data diminishes the paper's conclusiveness. The paper analyzes major building consensus algorithms and their effects on the climate. The selected algorithms are appropriate. However, their effects on the climate should be explained with proofs. For this reason, a model for the blockchain can be designed, and energy consumption and the carbon intensity factor can be approximated for each consensus algorithm.

Further review of consensus methods is necessary. There are many more methods than the ones mentioned, and the detail is important.

Improve the clarity of the methodology by incorporating figures or illustrations. More data support and method refinement may be needed in practical applications to ensure the accuracy and reliability of the assessment.

This paper is accepted with major revision.