

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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The authors try to answer the question of how the selection of blockchain consensus algorithms contributes to the reduction of the carbon footprint in the context of climate change. The choice of topic deserves praise; it is actual and concerns an important issue for science and practice.

Some critical comments to improve the quality of the paper:

- The title is a bit too long; it could be shortened to focus on the most important issues.
- The article is missing keywords that could be helpful in subsequent literature analyses and in matching the article to the appropriate topic.
- The literature review section is correct, but there is no description of the methodology with which the authors analyzed the literature (e.g., systematic review).
- In the introduction section, the literature could be more adequate to the introduction of climate change, an overview of blockchain, and each consensus algorithm. Currently, it is based mostly on self-quotes of the authors' previous works on a wide range of topics like cybersecurity, e-health, artificial intelligence.
- The selected consensus algorithms are poorly introduced, and, for example, the Proof of Authority (PoA) is only mentioned without a description.
- It would be helpful to present the discussed algorithms in a tabular form in which their most important features could be compared and their possible impact on the reduction of the carbon footprint - as in the title of the article - could be visible.
- The authors could add some blockchain applications beyond cryptocurrencies; there are quite a lot of them, e.g., in insurance or healthcare.
- The background section consists mainly of repetitions of the introduction and presents excessive optimism towards blockchain technology without any criticisms.

After the major revisions, submission of an improved version is recommended.

