MANUSCRIPT REVIEW

The manuscript entitled: " **Simulation and application of a new type of energy-saving steel claw for aluminum electrolysis cell based on current density distribution equalization**"

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This study designs a novel kind of current equalized steel claw (CESC). According to the ANSYS simulation study, may produce a more uniform distribution of current density and decrease voltage. The outcomes of the simulations and the industrial application tests agreed quite well, confirming the simulation's results' accuracy. According to the economic benefit analysis, employing CESC reduces electricity use per t of aluminum produced. The differences in temperature, current density distribution and voltage drop between the traditional steel claw and the optimized CESC under ideal angular conditions were presented and compared. When CESC is applied throughout China, reducing the consumption of 0.58 million 406 tons of standard coal and 4.7 million tons of carbon dioxide emissions.

Reviewer' comments:

1) Line 81, please define ab. CGB.
2) What is GBD (line 99)?
3) Figure 4, for 15° tilt, to a 30° tilt had no significant effect on current density and voltage drop. What is the reason for this effect?
4) Explain and describe Figure 7 in a little more detail.
5) Line 190, version of ANSYS software missing.
6) How did you evaluate the emission of CO_2?
7) The graphics are very nicely done.
8) Delete the reference part of the template, after Ref. 27. You have provided 27 references in the text. The formatting of the references does not comply with the journal's requirements.
9) The discussion section is not covered by the review references dealing with a similar issue. It is recommended to add.
10) What is a specific application? You can tell us a little more about it, a little more engineering approach…
11) The graphics are very quality done.
12) Please provide sources for using material parameters. Is the data from some database?

However, addressing the minor concerns outlined is crucial for improving the manuscript's quality and clarity. Thus, it is recommended Minor Revisions.