Review of: "Low-Carbon Hydrogen Economy Perspective and Net Zero-Energy Transition through Proton Exchange Membrane Electrolysis Cells (PEMECs), Anion Exchange Membranes (AEMs) and Wind for Green Hydrogen Generation"

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Potential competing interests: No potential competing interests to declare.

The manuscript presents a novel approach for low-carbon hydrogen production through the use of magnesium-aluminum layered double hydroxides as an ionic conductor, combined with anion-conducting solid polymer electrolytes and a novel integrated inorganic membrane electrode assembly (I2 MEA) for anion exchange membrane (AEM) water electrolysis. The method is theoretically and economically investigated for the purpose of producing low-carbon hydrogen. This review acknowledges that the study offers a promising hydrogen production method and provides comprehensive theoretical and economic analyses. However, regarding the economic analysis, although preliminary economic assessments are conducted, deeper cost analysis and market outlooks may be necessary considering the commercial applications of this method. Finally, for the feasibility of technical implementation and application, it is advisable to consider potential engineering and operational challenges and provide corresponding solutions or suggestions.