World Academy of Science, Engineering and Technology
International Journal of Energy and Environmental Engineering
Vol:18, No:08, 2024

Leveraging Laser Cladding Technology for Eco-Friendly Solutions and Sustainability in Equipment Refurbishment

Authors : Rakan A. Ahmed, Raja S. Khan, Mohammed M. Qahtani

Abstract : This paper explores the transformative impact of laser cladding technology on the circular economy, emphasizing its role in reducing environmental impact compared to traditional welding methods. Laser cladding, an innovative manufacturing process, optimizes resource efficiency and sustainability by significantly decreasing power consumption and minimizing material waste. The study explores how laser cladding operates within the framework of the circular economy, promoting energy efficiency, waste reduction, and emissions control. Through a comparative analysis of energy and material consumption between laser cladding and conventional welding methods, the paper highlights the significant strides in environmental conservation and resource optimization made possible by laser cladding. The findings highlight the potential for this technology to revolutionize industrial practices and propel a more sustainable and eco-friendly manufacturing landscape.

Keywords : laser cladding, circular economy, carbon emission, energy
Conference Title : ICGGCE 2024 : International Conference on Green Growth and Circular Economy
Conference Location : London, United Kingdom
Conference Dates : August 22-23, 2024