World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:18, No:05, 2024

Power Supply by Soil Battery and Production of Hydrogen Fuel for Greenhouse and Space Heating

Authors : Mohsen Azarmjoo, Yasaman Azarmjoo, Zahra Alikhani Koopaei

Abstract : The increasing global population and continued growth in energy consumption underscore the need for renewable and sustainable energy sources more than ever. Soil batteries are a method for generating electrical energy by using recycled materials. Recycled materials include galvanized and copper sheets and recycled tires. Additionally, hydrogen, being a clean and efficient fuel, has the potential to replace fossil fuels. Consequently, hydrogen production from water presents a sustainable solution for energy supply. By utilizing aged materials, hydrogen production becomes more cost-effective and environmentally friendly. This article focuses on energy-deprived agricultural lands, explaining how soil batteries and hydrogen can provide the necessary energy for agricultural equipment, such as irrigation, lighting, greenhouse ventilation, and heating. The article explores the benefits of utilizing this method, emphasizing its potential to reduce environmental pollution through the use of recyclable materials. It is worth mentioning that these technologies face challenges, but their progress toward achieving zero-energy consumer standards positions them as promising future technologies for electricity generation. This article provides detailed insights into emerging technologies using a constructed case study involving soil batteries and a hydrogen fuel production device.

Keywords : electricity generation, soil batteries, tires, hydrogen, heat supply, water, aged materials, recycling, agricultural lands
Conference Title : ICCAR 2024 : International Conference on Control, Automation and Robotics
Conference Location : Vancouver, Canada
Conference Dates : May 20-21, 2024