Mapping the Potential Sites for Floating Photovoltaic Plants in the Philippines

Michelle V. Japitana (1), Maria Lorena L. Tuballa (2), Arnold G. Apduhan (1), Michael Lochinvar S. Abundo (3),

[1] Caraga State Univ., Ampayon, Butuan City, 8600, Philippines
[2] Silliman Univ., Dumaguete City, 8600, Philippines
[3] Nanyang Technological Univ., Singapore and Univ. of San Carlos, Cebu City, Philippines
Email: mvjapitana@carsu.edu.ph; mlt_kin@yahoo.com; agapduhan@carsu.edu.ph; michael.bundo@ntu.edu.sg

This paper aims to determine the potential sites and the optimal floating solar energy source in the Philippines using a combination of Geographic Information System (GIS) and HOMER tool. Floating photovoltaic (PV) systems are new solutions for solar power plants that attracted much attention in recent years, thus, the possibility of installing PV plant in Philippine lakes is investigated. Factors such as water classification and legal limitations are considered in identifying the feasible sites for floating PV system. Initial mapping results confirm that the country has large potential for floating solar electricity with 1,800 square kilometer of suitable sites and could provide up to 40 GW of PV.

Keywords: solar energy, renewable energy, solar irradiation modeling