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BOOK OF ABSTRACTS

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Scope, Challenges, Opportunities and Future Goal Assessment of Floating Solar Park

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Keyword: aquatic, environment, ecosystem, floating solar park, sustainability.

Industrialization, globalization, urbanization and increasing population demand more energy for holistic, sustainable development and uphold countries' economic activities. As per the contemporary energy scenario, India shall be facing energy security-related issues in the coming decades. To deal with the alarming shortage of electricity planning commission and NITI Ayog has proposed a unique strategy to meet all future energy demands w, including significant Research Development in the renewable green energy sector with a futuristic roadmap towards exploring and adopting, commissioning and harnessing of exclusive solar energy. Installation of eco-friendly Solar PV power generation plant requires an enormous land area, although India has a vast landmass; unfortunately, most of it has been used by domestic and agricultural activities. To fulfil sustainable goals Government is continuously encouraging enactment of Floating Solar Plant (FSP), i.e., solar Arrays over floating structure on water bodies such as water reservoir, lake, fjord and ocean shores. India is one of the most fortunate nations to have nearly 400 rivers, which plays an essential role in strengthening the livelihood to a large populace. River witnesses' widespread versatile crucial aquatic ecosystems are needed to safeguard and maintain the habitats' balance. In this work, the Author has undergone an intensive literature review and undergone several case studies to assess the viability of novel SWP. Scope, challenges, opportunities, future goal and finally, the specific outcome has been discussed elaborately to present a clear understanding of the concept relevant to SWP. This investigation might help understand its growing importance in approaching context and evaluate whether it is a Boon or Curse in connection to sustainable Environment development and resource management.

Development of a Photovoltaic MPPT Control based on Neural Network

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Keyword: Maximum Power Point, Tracking algorithms, Neural Network, DC/DC boost converter, Solar PV system

The Maximum Power Point Tracking (MPPT) is an important factor to increase the efficiency of the solar photovoltaic (PV) system. This paper presents a solar PV system containing a solar PV array, a DC/DC boost converter and a load. Different MPPT algorithms have been established with their features. The conventional algorithms (Perturb and Observe, Incremental Conductance and Open Circuit Voltage) show a lot of drawbacks. The major issue is the tracking of the Maximum Power Point (MPP) when environmental conditions change faster. So, a MPPT technique based on Neural Network (NN) was developed and which can enhance the efficiency and gathers the advantages of a lot of techniques. A multi layer neural network with back-propagation algorithm is used in order to have a small Mean Squared Error (MSE). The inputs of NN are irradiance, temperature and the output is the duty cycle that controls the boost converter. Finally, it is discussed the results and made comparison in terms of performance of the different algorithms, covering the overshoot, time response, oscillation and stability.
