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STUDY ON PERFORMANCE OF 80 WATT FLOATING PHOTOVOLTAIC PANEL

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Abstract

Photovoltaic panels are used to generate electric power. The surface temperature of the photovoltaic (PV) panels will affect their efficiency, where the increment of temperature will decrease their efficiency and total power gain. In this study, we will discuss the performance of an floating photovoltaic (PV) panel in a pond simulator, whereby in a two



hour experiment it shows up to 15.5% increment of energy gain compared to a normal photovoltaic (PV) panel. The floating photovoltaic (FPV) panel was designed by replacing the photovoltaic panel frame with a material that has the ability to float on a water surface and is capable of transferring heat at the back of the photovoltaic surface. A heat sink is used to transfer heat at the bottom of the photovoltaic panel, which will decrease the surface temperature when placed on the water surface. The best performance of the photovoltaic panel is 1000 W/m² for a surface temperature of 25 degrees C; however, the efficiency will drop by 0.485% per 1 degrees C temperature increment. The system can be used on lakes, ponds or dams.

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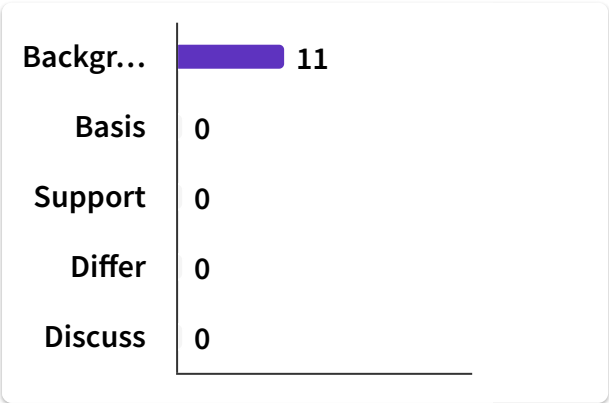
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