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(54) SHADE DETECTION AND GLOBAL MAXIMUM POWER POINT TRACKING METHOD AND APPARATUS FOR EFFICIENT PHOTOVOLTAIC POWER CONVERSION

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(57) **ABSTRACT**

Disclosed are a shade detection and global maximum power point tracking method and apparatus for photovoltaic power conversion. The method comprises: setting an array voltage at a first duty and an array current at a second duty among data sheet values of a PV array of a PV module as a reference array voltage and a reference array current, respectively; calculating a MPP resistance of the PV array based thereon; calculating a duty to be applied to a switch of a boost converter of the PV module based on the MPP resistance; obtaining an actual array voltage and an actual array current of the PV array based on the duty; and determining whether a uniform shade case occurs based on the actual array voltage, the actual array current, and actual power.