Comparison of traditional MPPT techniques for solar panels*

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Abstract

With the increase in reliance on solar energy to produce electricity, so many maximum power point tracking techniques for photovoltaic panels were developed to maximize the produced energy and a lot of these are well established in the literature. These techniques vary in many aspects such as: simplicity, convergence speed, digital or analogical implementation, required sensors, cost, range of effectiveness, as well as in other aspects.

This paper presents a comparative study of ten widely-adopted mppt algorithms; their performance is evaluated from energy point of view using the simulation tool (Matlab), considering different solar irradiance variations. Also, an economic evaluation has been made to make a comparison according to performance and cost, to determine the optimal choice.

Keywords: Maximum power point (mpp), maximum power point tracking (mppt), photovoltaic (PV), comparative study.

* For The paper in Arabic see pages (307-324)

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