

## **Effect of temperature on a poly-crystalline solar panel in large scale solar plants in Malaysia**

### **ABSTRACT**

The development of large-scale photovoltaic (PV) plants in Malaysia is on the rise since Malaysia is typically tropical and also has high potential for generating electricity. The climate in Malaysia is always humid and hot over a year, hence this paper the influence of temperature variations on a poly-crystalline solar panel is studied. It is very useful to understand the influence of temperature on solar panel output performance in order to predict panel performance under various temperature conditions. This study was founded on experimental results by setting up 50 W polycrystalline silicon panels under various temperatures. It was determined that the short circuit current,  $I_{sc}$  gradually increased with marginal changes, while the open circuit voltage,  $V_{oc}$  decreased linearly when the temperature increased. Due to this effect the maximum power output,  $P_{max}$  as well as its efficiency was linearly reduced once the temperature increased. All the results are considered and discussed accordingly.

**Keyword:** Performance; Poly-crystalline solar panel; Temperature