

# Design of an Experimental Setup to Find/Verify the Optimal Installation Angle for a Fixed PV Array

By

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*OCTOBER 2023 G – RABI II 1445 H*

# ABSTRACT

The world is currently attempting to switch from using oil to using renewable energy. However, while installing a fixed PV array system, individuals frequently overlook the significance of the solar panels' elevation angles. Not choosing the right angle for the photovoltaic panels could lead to not getting the greatest amount of energy. Moreover, Jeddah's majority of PV array systems are not positioned with the best elevation angles. Because of this, a great deal of energy is being squandered. Thus, research will be done to determine the best elevation angles in Jeddah.

The purpose of this project is to install a PV system at a certain site with multiple elevation angles to obtain the best angle on many parameters. To do that, experiments and tests must be conducted to determine which angles are ideal for a variety of criteria. It will initially be simulated by a piece of software. The simulation results will then be tested by experiments.

There is similar research to our project, like that the research called "Performance Evaluation of a MW-Size Grid-Connected Solar Photovoltaic Plant Considering the Impact of Tilt Angle." They used two different systems in which one of them is fixed PV panel with specific angle and the other is PV panel that changes into two angles to find which is better for the optimum angle. Our project is to build an experimental PV setup that changes into multiple angles in which we build a database for different criteria based on the user needs.