

Aiming at Optimization of Tracking Technology through Seasonally Tilted Sun Trackers: An Indian Perspective

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Abstract : Discussions on concepts of Single Axis Tracker (SAT) are becoming more and more apt for developing countries like India not just as an advancement in racking technology but due to the utmost necessity of reaching at the lowest Levelized Cost of Energy (LCOE) targets. With this increasing competition and significant fall in feed-in tariffs of solar PV projects, developers are under constant pressure to secure investment for their projects and eventually earn profits from them. Moreover, being the second largest populated country, India suffers from scarcity of land because of higher average population density. So, to mitigate the risk of this dual edged sword with reducing trend of unit (kWh) cost at one side and utilization of land on the other, tracking evolved as the call of the hour. Therefore, the prime objectives of this paper are not only to showcase how STT proves to be an effective mechanism to get more gain in Global Incidence in collector plane (G_{inc}) with respect to traditional mounting systems but also to introduce Seasonally Tilted Tracker (STT) technology as a possible option for high latitude locations.

Keywords : tracking system, grid connected solar PV plant, CAPEX reduction, levelized cost of energy

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