

## 태양광 시스템의 계절별 일사량과 전력량

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### Irradiation and Power Analysis According to Seasons

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**Abstract :** In case of favourable irradiation conditions, the ratio of irradiation to the total irradiation went up and then the irradiation increased in the area with high angle of inclination. The study showed that on a clear day with the irradiation of more than  $800[W/m^2]$ , the pattern of alternating current power change in the fixed system was similar with that in the single-axis tracker. On the contrary, in case of unfavourable irradiation conditions, the ratio of diffuse irradiation to the total irradiation went up and then the horizontal irradiation increased. In the demo system, the fixed system, the single-axis tracker and the dual-axis tracker all had low generation power and similar generation pattern with each other. The study showed the generation power varied with the irradiation in the fixed system, while in the single-axis tracker and the dual-axis tracker, the amount of the generation power variation was much more than the irradiation variation. The demo system was operated from 11:00 AM to 2:00 PM for generating power, during which time, 46[%] to 56[%] of the total generation power was produced. In this study, the generation power was increased by 147[%] in the fixed system, by 136[%] in the single-axis tracker, and by 164[%] in the dual-axis tracker, and the pattern of generation power was similar with the generation power variation in the situation where the irradiation increased by 140[%] in the spring with plenty of insolation. The alternating current power was more sensitive to variation of the irradiation than to that of the surface temperature of a module. The variation of the irradiation had a more positive effect on the generation power than the type of array.

**Key Words :** Irradiation, Season, Fixed system, Single-axis tracker, Dual-axis tracker