



PHOTOVOLTAIC BATTERIES WITH MODIFIED GLAZING

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ABSTRACT

Photovoltaic (PV) battery's efficiency increasing is one of the central purposes of PV industry. It is possible to increase solar panel's production of electricity by improving characteristics of solar panel glazing.

Crystal anti-reflective thin film coating on glass was designed specifically for monocrystalline and multicrystalline silicon wafer modules. Developed glazing takes into consideration: silicon crystalline cell light wavelength sensitivity; temperature conditions and need to reject heat in the spectrum that cells do not use for energy production (near infrared radiation); the Sun's position over solar panel during the day and the year (angle of light beam incidence).

Efficiency of regular and modified glazing of PV batteries was investigated in real weather conditions in solar energy testing polygon. It was determined that PV batteries glazing types have different impact on PV batteries production in similar environment conditions. Efficiency increasing was in high solar radiation intensity conditions for modified glazing of PV batteries, because this glazing reduced PV batteries warming from infrared radiation. But difference of energy production was lower in cloudy days, especially when PV module's temperature was low. Annual energy production of modified glazed PV batteries in comparison with regular glazed PV batteries is about 2% higher.

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