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Looking to the sky to predict Solar Power Intermittency VIJAI THOTTATHIL JAYADEVAN, ALEX CRONIN, VINCENT LONIJ, SARAH JONES, GABE TORRES — Intermittency in solar power production is one of the grand challenges impeding the adoption of solar power on a Giga Watt scale. Intermittency due to clouds will lead to mismatches between power production and consumption which can affect grid power quality and cause blackouts. We have installed a camera at the Tucson Electric Solar Power Test Yard which continuously tracks the sun from dawn to dusk. By analyzing images that the camera provides, we are developing an algorithm which can predict solar irradiance and cloud motion. These predictions can then be incorporated in a solar-aware smart-grid (using load management and energy storage) to reduce production/consumption mismatch due to solar intermittency.

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