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# Redefining Solar Generation Estimation: A Comprehensive Analysis of Real Utility Advanced Metering Infrastructure (AMI) Data from Various Projects in New York

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**Abstract :** Understanding historical solar generation and forecasting future solar generation from interconnected Distributed Energy Resources (DER) is crucial for utility planning and interconnection studies. The existing methodology, which relies on solar radiation, weather data, and common inverter models, is becoming less accurate. Rapid advancements in DER technologies have resulted in more diverse project sites, deviating from common patterns due to various factors such as DC/AC ratio, solar panel performance, tilt angle, and the presence of DC-coupled battery energy storage systems. In this paper, the authors review 10,000 DER projects within the system and analyze the Advanced Metering Infrastructure (AMI) data for various types to demonstrate the impact of different parameters. An updated methodology is proposed for redefining historical and future solar generation in distribution feeders.

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