

# Energy Forecasting



Predictable solar is reliable solar.

As more and larger solar projects come online, utilities, plant operators, and grid managers recognize the importance of managing the intermittent nature of solar electrical generation.

Accurately forecasting the generation of solar energy allows these stakeholders to rely on solar-produced energy without impacting energy reliability.

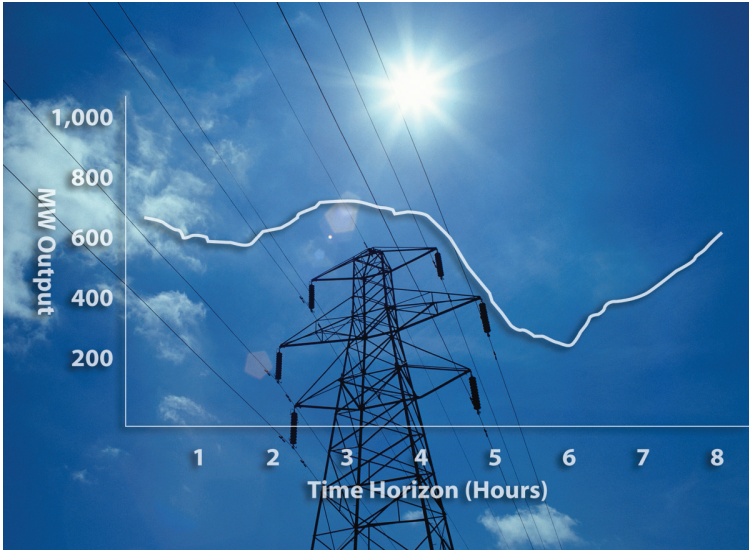
**Power Production Forecasting**  
AWS Truepower provides highly reliable forecasts of solar irradiance and solar plant power generation that are vital to plant operators, power marketers, utilities, Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs).

Predicting the output of renewable energy projects—days, hours or minutes in advance—provides significant cost savings for utility operations.

Forecasting the short-term energy production from a solar project can

greatly reduce imbalance charges, minimize incremental reserve costs, facilitate plant dispatch scheduling, inform spot-market trading, and optimize plant maintenance.

The challenge of successfully integrating large quantities of renewable energy into the power grid has been a key focus area at AWS Truepower for over two decades. With our forecasting services, the risk and uncertainty of integrating solar energy is greatly reduced.



**Forecasting Services**

AWS Truepower employs sophisticated atmospheric models to forecast the weather conditions for each project site. Unlike most other firms offering similar forecasting services, AWS Truepower has been developing, customizing, and validating numerical weather prediction models since the 1980's. This makes AWS Truepower not just a model user but a model developer.

Our forecasting system also includes adaptive statistical techniques that are customized for each project to produce the most accurate forecasts possible. The system predicts the solar irradiance at a solar project site, then converts the prediction into plant output estimates.

Forecasts can be provided from several minutes to several days, or even weeks in advance. Our web interface presents all the information the user needs in a clear and simple format. With a click of the mouse, our customers

can access tabular or graphical forecasts and examine the recent record of forecast accuracy. We can also provide regular reports of forecast performance.

**Ramp Events**

The passage of clouds through a project area can cause sudden increases or decreases in solar irradiance and generation. These rapid changes in solar irradiance are commonly known as ramp events and have dramatic effects

on solar energy production.

AWS Truepower employs a suite of different numerical weather prediction models in the solar forecasting system. This allows us to generate multiple forecasts and assess the probability of rapid changes in the weather occurring. Advancements to the AWS Truepower solar forecasting system include the use of satellite data, rapidly updating weather models, and cloud advection algorithms. These advancements coupled with site data and our suite of numerical weather prediction models allow us to create unique ramp event forecasts that enable timely and accurate prediction of rapid changes in local weather conditions.

**Delivery**

Forecasts are generated and delivered around the globe from AWS Truepower's secure forecasting operations center.

Forecasts are delivered automatically through our interactive online portal, web services (xml), FTP, or e-mail, and are updated on a customized schedule to meet customer needs.

*AWS Truepower has an extensive forecasting research program that continually advances power forecasting techniques. Advancements that prove beneficial are immediately implemented in our operational forecasting services. Research is the core strength behind our forecasting services, but our success results from our goal to always exceed client expectations. Each power forecast is uniquely developed to satisfy the distinct needs and risk tolerance of the client.*