

Supercomputers improve solar power forecasts

September 30 2013



Supercomputers improve solar power forecasts.

To improve the accuracy of solar power forecasting, research meteorologist Edwin Campos and his colleagues at DOE's Argonne National Laboratory have partnered with IBM to build a forecasting technology based on IBM's Watson supercomputer, made famous by its 2011 victory over human champions on the television quiz show Jeopardy!.

Campos hopes that the information he gains by integrating big data processing, machine learning and cloud modeling into a Watson-like platform will help grid managers and power plant operators develop more efficient strategies for allocating their resources to manage the unevenness of solar generation.

"Even five minutes of clouds when we thought there'd be sun can equate to tens of thousands of dollars of extra costs from having to buy other forms of power from across the grid," Campos said. "The more accurately we can forecast clouds, the more money we can ultimately save homeowners on their electric bills."

When a solar plant experiences a generation shortfall, other plants - typically fossil-fuel plants that run on coal and natural gas - need to increase generation in order to make up the difference, or else the grid could experience sporadic outages or even a blackout. These energy sources are relatively less environmentally friendly than solar. Additionally, grid operators may need to purchase electricity within a short time frame or continually carry additional back-up power in the absence of accurate and timely solar generation forecasts, which can then increase the cost of electricity. These increases are usually passed on to the consumer. With more accurate [solar power](#) forecasts, energy can be distributed more efficiently and cheaply.

Provided by US Department of Energy

Citation: Supercomputers improve solar power forecasts (2013, September 30) retrieved 24 April 2024 from <https://phys.org/news/2013-09-supercomputers-solar-power.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.