

How machine learning can boost the value of wind power

28 February 2019, by Nancy Cohen



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Google talked about the feats of London-based DeepMind on Tuesday—telling the world that a DeepMind system could help make the use of wind farms to produce energy more viable.

How so? Google's DeepMind team last year began exploring their idea, an algorithm for predicting [power output](#).

This could signify another promising application in putting neural networks to work: Predicting windpower's output 36 hours head of time. Their model recommends how to make "optimal hourly delivery commitments" to the [power grid](#) a full day in advance. If you operate a wind farm, you are getting a recommendation on allocation.

What did they use to train their neural network? Weather forecasts. Past turbine data.

The team position is that machine learning can help wind farm operators make smarter, more data-driven assessments. The result can be a better meeting place between output and [electricity demand](#).

Sims Witherspoon, program manager, DeepMind, and Will Fadrhonc, carbon free [energy](#) program lead, told the world about what happened as Google and DeepMind started testing machine learning on Google's own wind turbines.

The blog said that if [energy sources](#) can be scheduled to deliver a set amount of electricity at a set time, they are often more valuable to the grid.

That unwanted feature of unpredictability has hampered outlooks on wind as an alternative energy source. "Although the adoption of wind power has grown thanks to cheaper turbine costs, it will always suffer from [unpredictability](#). That limits it compared with other energy sources that can reliably deliver power at a set time, said The Download, *MIT Technology Review*. As the Google blog also stated, "the variable nature of wind itself makes it an unpredictable energy source."

The Register's Katyanna Quach offered examples of just how this predictability would feed into viability. She noted that, with DeepMind's contribution, "wind turbine farms can schedule when to deliver a set amount of electricity to the power grid and get a better idea of pricing models. The system might also help in scheduling maintenance and downtime for [turbines](#)."

All in all, their algorithm efforts were for the benefit of Google's own [wind farms](#)—and this ability to allocate wind power one day ahead of time boosted the value of the wind energy by about 20 percent. Boosted the value compared with what? This is what the team had to say. "To date, machine learning has boosted the value of our wind energy by roughly 20 percent, compared to the baseline scenario of no time-based commitments to the [grid](#)."

Reporting for *The Verge*, Nick Statt said the farms are used by Google for its [green](#) energy initiatives.

Why this matters: It's only been used internally but, said The Download, "it's not hard to imagine Google hoping to sell this technology to wind farm operators."

The blog authors: "Our hope is that this kind of [machine learning](#) approach can strengthen the business case for [wind power](#) and drive further adoption of carbon-free energy on electric grids worldwide."

What's next: They said that they continue to refine their algorithm.

More information:

www.blog.google/technology/ai/...t-value-wind-energy/

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