New ways to store wind and solar energy

Can wind energy be used as a storage technology?

In the study,the Stanford team considered a variety of storage technologies for the grid,including batteries and geologic systems,such as pumped hydroelectric storage. For the wind industry,the findings were very favorable. "Wind technologies generate far more energy than they consume," Dale said.

Can wind energy be stored on demand?

A big challenge for utilities is finding new ways to store surplus wind energy and deliver it on demand. It takes lots of energy to build wind turbines and batteries for the electric grid. But Stanford scientists have found that the global wind industry produces enough electricity to easily afford the energetic cost of building grid-scale storage.

What is an alternative to storing energy for a few hours?

Another strategy is to use surplus energy to heat a large mass of material to ultrahigh temperatures,then tap the energy as needed. Massive battery banks are one answer. But they're expensive and best at storing energy for a few hours,not for days long stretches of cloudy weather or calm.

How can we save energy from wind turbines and solar panels?

As a result, we need to find ways of storing excess power when wind turbines are spinning fast, and solar panels are getting plenty of rays. Batteries would seem to be the obvious solution, but there are several obstacles to be overcome first, including high prices and a lack of standardization around technical requirements, as Deloitte points out.

What are the advantages of wind over solar power?

One advantage of wind over solar power is that it has an enormous energy return on investment,Benson explained. "Within a few months,a wind turbine generates enough electricity to pay back all of the energy it took to build it," she said. "But some photovoltaics have an energy payback time of almost two years.

Can the wind industry afford a lot of storage?

Writing in the March 19 online edition of the journal Energy &Environmental Science,Dale and his Stanford colleagues found that,from an energetic perspective,the wind industry can easily afford lots of storage,enough to provide more than three days of uninterrupted power.

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