Combining wind energy with new forms of storage: A real options analysis

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Abstract
The intermittency of wind, solar and other forms of renewable energy is one of the major problems associated with a large-scale transition towards renewable energy in Europe. Technological solutions that have been proposed and analyzed include storage through a combination of windpower with hydroplants, where water is pumped up to a reservoir during times of high production levels and low demand and from where it can be released when wind generation falls short of demand. However, in the case of Norway for example, not many suitable sites for such installations are left. In this paper, we look at new ways to store power such as using wind power to pump sea water into artificial reservoirs, from where they an be released at peak times. We use real options theory to assess the attractiveness of adopting them in different policy settings.

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