

# INNOVATIONS IN THE WIND ENERGY SECTOR\*

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## Abstract

When technological innovations are implemented in the wind energy sector, we should observe reductions in the production cost of electricity. However, the accuracy of inferring the rate of innovation from production cost reductions is open to challenge when those costs change due to factors not attributable to technological innovation. This study applies an engineering model to generate time-series of wind energy production cost data as the measure of innovation. This approach enables us to exclude factors which are not attributable to technological innovation. In order to illustrate the importance of our measure of innovation, we conduct a learning curve analysis which measures the correlation between deployment of wind energy technology and cost reductions in electricity production. Our data delivers an improved fit of the learning curve in wind energy technology relative to alternative measures of innovation from the literature.

**Keywords:** Innovation, Levelized Engineering Cost of Energy, Wind Turbine Vintages, Learning Curve

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