

Supply-Side Shocks and Administrative Frictions: Evidence from Onshore Wind Energy Deregulation in North Rhine-Westphalia

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Extended Abstract

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Abstract Summary

This paper provides a causal evaluation of land-use deregulation in the onshore wind energy sector, focusing on the 2023 abolition of the 1,000 m distance rule in North Rhine-Westphalia (NRW). Utilizing a Difference-in-Differences (DiD) framework and an event study design, we analyze comprehensive, turbine-level administrative data across three critical dimensions: registration volume, total capacity, and project lead times. Our results reveal a robust supply-side shock, characterized by a statistically significant increase in monthly project registrations (+39.9 units) and a corresponding surge in total registered capacity (+249.8, MW) relative to the control group. Placebo tests confirm that these effects represent a distinct structural break rather than a continuation of pre-existing trends. However, this expansion is counterbalanced by a significant decline in project velocity: baseline lead times expanded by 155 days from a pre-treatment mean of 542.10 days. This shift increases the total expected project duration to approximately 697 days or nearly two years. Notably, a 140-day delay persists even after controlling for technological scaling, such as increased rotor diameter and hub height. These findings suggest that while spatial deregulation effectively lowers entry barriers and unlocks investment potential, it simultaneously shifts the energy transition bottleneck from land availability to administrative and permitting throughput.

Presenting Author Biography

Rishan Adha is a Research Associate at the Chair of Energy Economics and Management, Institute for Future Energy Consumer Needs and Behavior (FCN), E.ON Energy Research Center, RWTH Aachen University. Before joining FCN-ECO, he worked as a research assistant at the Department of Statistics and the Graduate Institute of Applied Physics at National Chengchi University in Taiwan. In 2023, he received a Research Fellowship from the University System of Taiwan to study the energy-environment-health nexus.

