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The renewable energy policy Paradox

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Abstract

One major avenue for policymakers to meet climate targets is by decarbonizing the power sector, one component of which is raising the share of renewable energy sources (renewables) in electricity generation. However, promoting renewables --in liberalized power markets-- creates a paradox in that successful penetration of renewables could fall victim to its own success. With the current market architecture, future deployment of renewable energy will necessarily be more costly and less scalable. Moreover, transition towards a full 100% renewable electricity sector is unattainable. Paradoxically, in order for renewable technologies to continue growing their market share, they need to co-exist with fossil fuel technologies. Ignoring these findings can slow adoption and increase the costs of deploying new renewable technologies. This paper spots the incompatibility between electricity liberalization and renewable policy, regardless of the country, location or renewable technologies. The Paradox holds as long as market clear prices with short term marginal costs, and renewable technology's marginal cost is close to zero and not dispatchable.

Keywords: renewable energy policy, electricity market liberalization, electricity market design, renewable ene

Full text

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