



Marginal curtailment of wind and solar PV: transmission constraints, pricing and access regimes for efficient investment

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Abstract

As Variable Renewable Energy (VRE) penetration increases in poorly networked areas with suitable VRE resources, transmission constraints will increasingly force VRE curtailment. Under most European market access and pricing arrangements, location and operation decisions are based on average curtailment rates. As the marginal contribution of the last MW of VRE is 3+ times average curtailment, there is a risk of inefficient location and operation. This article compares different pricing and access regimes (including nodal pricing that gives efficient transmission scarcity signals) to compare their impact on the incentives for VRE merchant or market driven entry.

Keywords Transmission constraints, access regimes, variable renewable electricity, marginal curtailment, nodal pricing

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