

The growth of renewables: zero-marginal-cost electricity markets [Guest editorial]

L.A. Nobrega Barroso; H. Rudnick

Abstract-

Decarbonization goals have created a technological revolution that has enabled renewables- in particular, solar and wind generation- to be in the center of most electricity markets all over the world. Renewables are inherently characterized by high production variability combined with limited predictability and controllability, which have created significant flexibility challenges for power systems planning and operations all around the world. Renewables also produce electricity at an almost zero marginal cost. In the presence of high shares of renewables, restructured electricity markets based on setting locational marginal prices will also be challenged, as electricity prices can fall to zero or even negative values if abundant renewable generation is observed. Conversely, prices can rise quickly and may reach high figures if renewables are not producing and scarcity takes place. These effects can be exacerbated in the presence of transmission bottlenecks and high levels of distributed generation.

Index Terms-

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If you institution has a electronic subscription to IEEE Power and Energy Magazine, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Barroso, L.A.; Rudnick, H. "The growth of renewables: zero-marginal-cost electricity markets [Guest editorial]", *IEEE Power and Energy Magazine*, vol.19, no.1, pp.16-18, January, 2021.