

Special Issue

Emerging Challenges in Hosting Capacity Enhancement due to High Penetration of Renewable Energy Resources

Message from the Guest Editors

Nowadays, there is an unprecedented deployment of large-scale integration of renewable energy sources (RES) in electrical power systems in response to technical, economic, and environmental developments, as well as political and social initiatives. If not properly assessed, excessive RES penetration may lead to various operational problems such as overvoltage, thermal overloading, power-quality problems, and system-protection problems. These problems occur when the system exceeds its hosting capacity (HC) limit. HC research is a key enabler for affordable, reliable, and renewable energy sources, so it is possible to transition away from traditional high-carbon energy sources. Therefore, it is imperative that novel solutions be sought to enable networks to cope with future developments to realize resilient distribution networks that can host the massive RES penetration while ensuring a safe and reliable electrical operation.

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Deadline for manuscript submissions

closed (31 August 2019)



Energies

an Open Access Journal
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Impact Factor 3.2
CiteScore 7.3



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