

Smart Grid is the Key to Enhance the Penetration of Renewable Energy into Electric Power Systems

Dear researchers,

Due to the rapid development of renewable energy technologies because of environmental concerns, the electric power grid is experiencing a significant change. The electrical power structure is no longer a vertically integrated structure due to the large grid parity of renewables and as a result, smart grid is the key to enhance the penetration of renewable energy into electric power systems. However, due to the intermittent probabilistic nature of renewable energy sources, design and management of power are a great challenge to both power and computing industry. Furthermore, it has been anticipated that future energy structure will be “two-way streets”, allowing every energy user to be not only a customer, but an energy provider as well. So, a smart grid structure is the need in the present scenario. This transition from classical power structure inevitably demands significant research for many rapidly rising issues.

This Special Issue focuses on smart grid that can accommodate renewable energy into electric utility systems. The Special Issue is interested but not limited to the following issues relevant to increased renewable energy penetration:

- 1) Prediction of sustainable energy resources.
- 2) Stability and control of sustainable energy in supporting grid frequency and voltage.
- 3) Steady-state and transient assessment of system, etc.
- 4) Extent to which dispatchable generation reserves required and under what circumstances.
- 5) Effect on reliability be compromised with increased sustainable energy penetration.
- 6) Cost considerations with renewable's variability
- 7) Effect on system operating strategies with sustainable energy generation
- 8) Effect on various measuring devices for effective monitoring and evaluation of electric power system operation, etc.

Dr. Neeraj Gupta
(Ph.D. IIT Roorkee, India), MIEEE
Faculty EED
NIT Hamirpur, H.P., India



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).