













2MW power to the grid. As the solar system is connected only in STATCOM as source, and AF is used to mitigate distortion of the system but it has the main role of the system that is regulate the grid voltage in any situation. This concept shows that without any extra power requires the non-conventional energy resources regulates the grid voltages. This concept allows to use more non-conventional resources not only as DG types but also different way like source of voltage regulator devices for better performance. A novel concept can be proposed by using battery with PV as STATCOM source for day and night usage, cause PV practically does not generates the power. But it is possible to charge the battery by PV in day time and regulate the grid using PV and Battery power STATCOM to regulate the grid voltage during day and night time. Using the STATCOM and AF together is also a great challenge but it is heavily effective to mitigate power quality problems of the system. This method can be used for multi-purpose works in near future.

## References

- [1] Rajiv K.Varma, Vinod Khadkikar, and Ravi Seethapathy, “ Night time Application of PV Solar Farm as STATCOM to Regulate Grid Voltage”, IEEE Transaction ON Energy Conversion, VOL. 24, NO.4, pp.983-985, Dec 2009.
- [2] Rajiv K. Varma, Vinod Khadkikar, and Ravi Seethapathy, “ Grid Voltage Regulation Utilizing Storage Batteries in PV Solar – Wind Plant based Distributed Generation System”, IEEE Electrical Power & Energy Conference, Oct 2009.
- [3] B.Chitti Babu , K.B.Mohanty,” Doubly-Fed Induction Generator for Variable Speed Wind Energy Conversion Systems- Modelling & Simulation,” International Journal of Computer and Electrical Engineering, Vol. 2, No. 1, pp.141-147 February, 2010
- [4] Amirnaser Yazdani Prajna Paramita Dash, “ A Control Methodology and Characterization of Dynamics for a Photovoltaic (PV) System Interfaced With a Distribution Network,” IEEE Transactions on power delivery, VOL. 24, NO. 3, pp. 1538-1551 Jul 2009.
- [5] D.Johnson and J.Hilburn, “Rapid Practical Designs of Active Filters, John Wiley & Sons” oxford press, June 2013.
- [6] Min Min Kyaw, V.K. Ramachandaramurthy, “Fault ride through and voltage regulation for grid connected wind turbine”, Renewable Energy 36 (2011) 206e215, March 2010.
- [7] Rajiv K. Varma, Vinod Khadkikar, and Ravi Seethapathy, “ Grid Voltage Regulation Utilizing Storage Batteries in PV Solar – Wind Plant based Distributed Generation System”, IEEE Electrical Power & Energy Conference, Oct 2009.
- [8] B. Singh, S.N. Singh and L. Wang, Electric grid connection and system operational aspect of wind power generation, in Wind Energy Conversion System: Technology and Trends, S.M. Muyeen, (Eds.), Springer-Verlag: UK 2012

## Author Profile



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