



Implementation of IEC Generic Model Type 1 Wind Turbine Generators using RTDS

Cha, Seung-Tae; Wu, Qiuwei; Zhao, Haoran; Margaritis, Ioannis; Sørensen, Poul Ejnar; Østergaard, Jacob

Publication date:
2012

Document Version
Early version, also known as pre-print

[Link back to DTU Orbit](#)

Citation (APA):

Cha, S-T., Wu, Q., Zhao, H., Margaritis, I., Sørensen, P. E., & Østergaard, J. (2012). Implementation of IEC Generic Model Type 1 Wind Turbine Generators using RTDS. Paper presented at International Conference on Wind energy Grid-Adaptive Technologies, Jeju, Korea, Republic of.

DTU Library

Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Implementation of IEC Generic Model Type 1 Wind Turbine Generator using RTDS

Seung Tae Cha^{*}, Qiuwei Wu^{*}, Haoran Zhao^{*}, Ioannis Magaris[†], Poul Sørensen[†], Jacob Østergaard^{*}

^{*} Dept. of Electrical Engineering, Technical University of Denmark (*{stc, qw, hzhao, joe}@elektro.dtu.dk*)

[†] Dept. of Wind Energy, Technical University of Denmark (*{ioma, posq}@dtu.dk*)

Abstract:

With the ever increasing penetration of the wind power generation, transmission system operators (TSOs) and distribution system operators (DSOs) are demanding an accurate dynamic wind turbine generator (WTG) models for power system stability studies. However, the confidential requirements from wind turbine manufacturers prevent the academia and researchers from working on a real or/and manufacturer specific models. A generic WTG model is of great interest that does not contain the confidential information meanwhile represents the manufacturer specific models. These generic dynamic simulation models are useful tools to evaluate the impact of the wind power on the power system stability. Thus, a strong stimulus exists for the development of a generic dynamic model in order to further investigate the dynamic response of WTG under grid disturbances. This paper presents the implementation of the IEC generic Type 1A and 1B WTG models in the real time digital simulator (RTDS) environment. Case studies have been carried out to verify the performance of the IEC generic Type 1 WTG model under both steady state and dynamic conditions. The case study results show that the IEC generic Type 1 WTG model can represent the performance of Type 1 WTGs under both steady state and dynamic conditions.