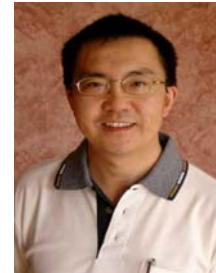


Plenary Presentation

Non-intentional Islanding of Distributed Synchronous Generators: Risks and Solutions

by **Dr. Wilsun Xu**,
Professor in the Department of Electrical and Computer
Engineering, University of Alberta



Abstract

Distributed synchronous generators, due to their relatively large size and lack of flexibility in output control, is the most challenging type of DGs to establish adequate anti-islanding protection. In fact, anti-islanding concern has become one of the largest technical barriers for the interconnection of synchronous DGs in Canada. This talk will present the anti-islanding issues for synchronous DGs and explain the characteristics of frequency-based and voltage-based relays when used for the synchronous DG anti-islanding protection. It leads to a comparative performance analysis of four common anti-islanding relays used by the utility industry. Building on the results, a method for assessing the risk of non-intentional islanding is introduced. The objective is to provide Canadian utility companies a planning tool for them to assess the applicability of common frequency/voltage based relays for various synchronous DG interconnection proposals.

Biography

Dr. Wilsun Xu obtained Ph.D. from the University of British Columbia in 1989. From 1989 to 1996, he worked in Canadian power industry as a professional engineer. He joined the University of Alberta in September 1996 and is presently a full professor in the Department of Electrical and Computer Engineering of the University. Dr. Xu's main research interest is power quality and distributed generation. He was elected to IEEE Fellow in 2005 for contributions to the analysis, simulation and measurement of power system harmonics.