IEEE Systems Council Chapter presents IEEE Distinguished Lecture Series on

Optimization of the Load Flow Calculation Method – Low Voltage Distribution Grids

Prof. Dr. Franz Baumgartner

Date: ***February 13, 2018 (Tuesday)***
Time: ***12:15 – 1:15 PM***
Location: ***VEC 424, CSULB***

Abstract: Decentralized power generation may lead to an inverse power flow compared to a centralized power supply system. Thus, voltage rises have to be limited at customer level with minimum extra costs during high PV power injection. Therefore, active and reactive power control of PV inverter will become more and more important because the additional grid operator's and end customers' investments could be nearly neglected. The decentralized control has to be triggered directly by the line voltage at the PV inverter ensuring an efficient use based on static characteristics, which are defined by the grid operator without the need of additional investment in IT infrastructure. The voltage dependent control of decentralized power generators is not implemented in the open source load flow calculation software Matpower. An elegant solution was found by integrating the dynamic change in active and reactive power directly into the load flow equations. This provides the basis for the techno-economic assessments which will be performed for different low-voltage distribution grid classes in Switzerland, Germany and Austria.

About Speaker: Dr. Franz Baumgartner, born in 1963, is Professor of Renewable Energy at the ZHAW Zurich University of Applied Science School of Engineering since 2008 and head of the Photovoltaic sector within the ZHAW Institute of Energy Systems and Fluid-Engineering. He studied electrical engineering at the technical University of Vienna. In 1989 he started his research activities in the field of Photovoltaic with his doctoral theses on chalcopyrite solar cell materials at the University of Constance, Germany in the department of physics.

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