Time & Location: November 2, 2016 at 10:00 AM in HARRIS CORPORATION ENGINEERING CENTER 450
Title: Virtual Resistance Based DC-Link Voltage Regulation for Microgrid DG Inverters

This research addresses the practical issues faced by Microgrid Distributed Generation (DG) inverters during load sharing. A Microgrid (MG) is an interconnection of domestic distributed loads and low voltage distributed energy sources such as micro-turbine, wind-turbine, PVs and storage devices. These energy sources are power limited in nature and constrain the operation of DG inverters to which they are coupled. DG inverters operated in islanded mode have to maintain the power balance between generation and demand. If DG inverter operating in islanded mode drains its source power below a certain limit or if it is incapable of supplying demanded power due to its hardware rating, it turns on its safety mechanism and isolates itself from the MG. This in turn increases the power demand on the rest of the DG units and can have a catastrophic impact on the viability of the entire system.

This research presents a Virtual Resistance based DC Link Voltage Regulation technique which will allow DG inverters to continue to source their available power even when the power demand is higher than their capacity without shutting off and isolating from the MG.

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Approved for distribution by Issa Batarseh, Committee Chair, on October 19, 2016.

The public is welcome to attend.