



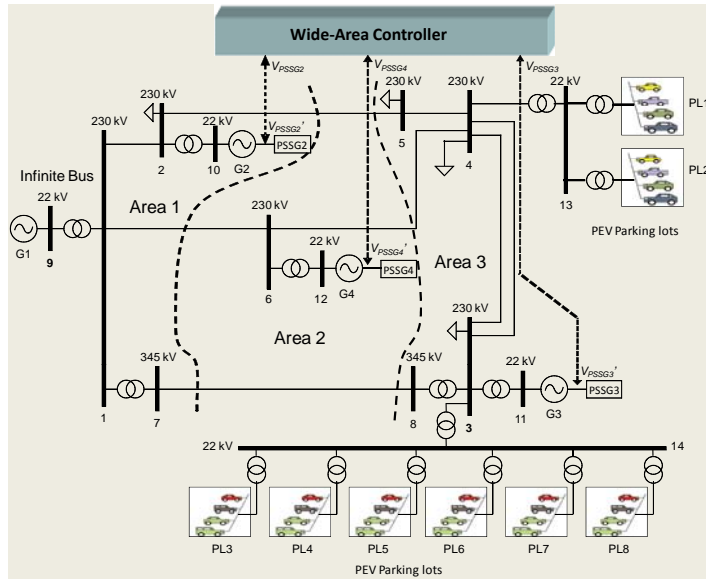
Impact of Plug-in Vehicles on Power System Stability

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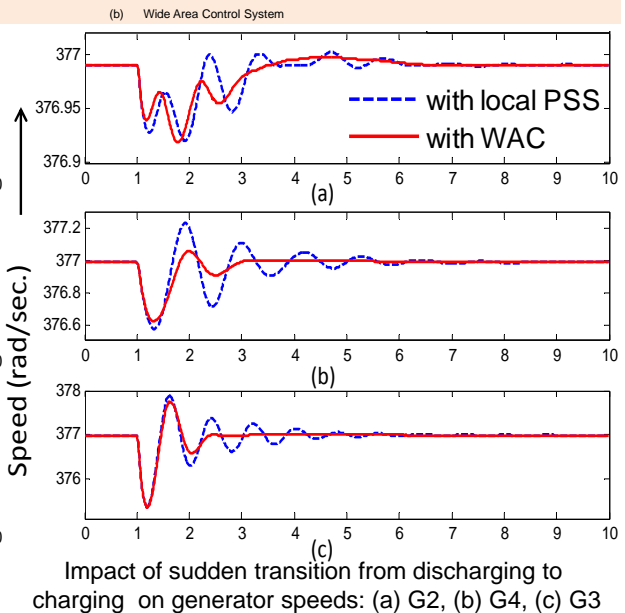
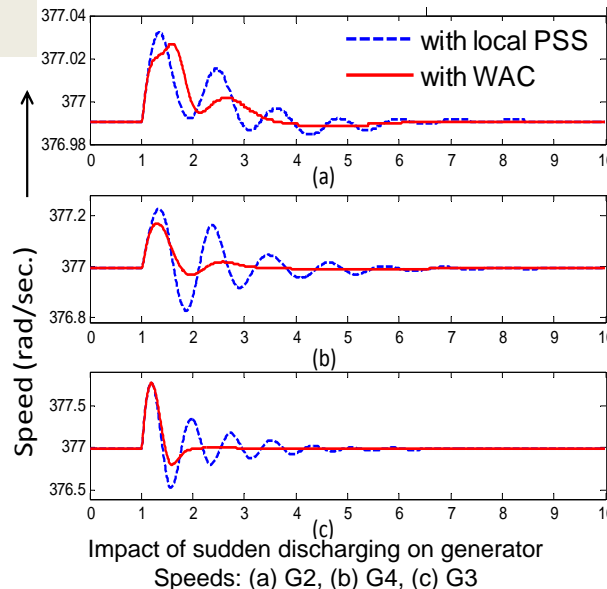
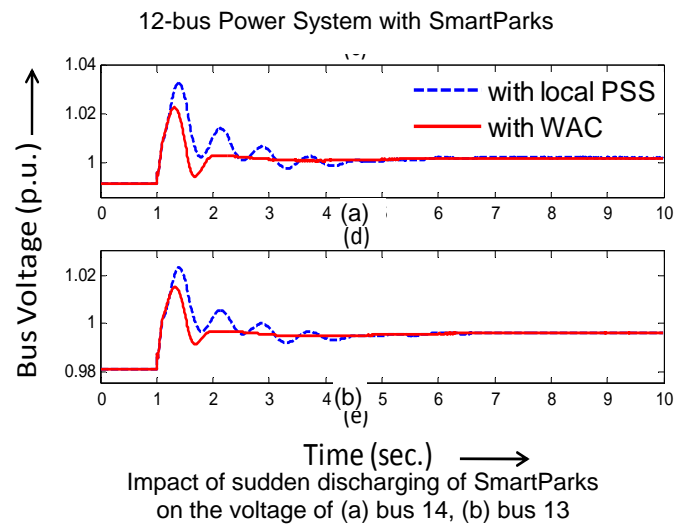
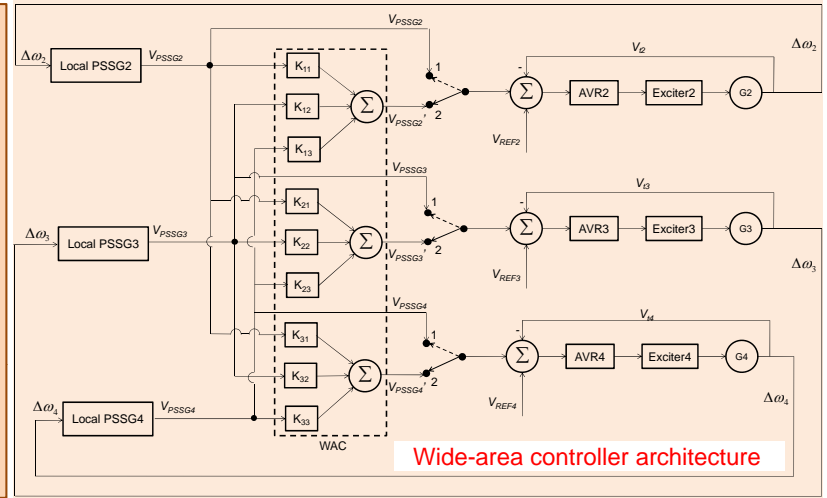
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V2G power transactions are going to be an integrated part of the smart grid. This study shows how sudden charging and discharging of the SmartParks will impact the power system stability & demonstrates the potential a wide-area controller to mitigate the impacts.



- Real-time model of the SmartParks have been developed. Each of them are capable of +/-20 MW power transaction with the grid.
- The Wide-Area signal is obtained based on the weighted aggregation of modulated signals of the local PSS.
- The weights of the WAC are tuned by PSO.



• P. Mitra and G. K. Venayagamoorthy, "Wide Area Control for Improving Stability of a Power System with Plug-in Electric Vehicles", *IET Proceedings of Generation, Transmission and Distribution*, [Accepted with revisions].