

FACULTY MENTOR Ghoudjehbaklou, Hassan

PROJECT TITLE Estimating dynamic parameters of Distributed Energy Resource (DER) models

PROJECT DESCRIPTION

North American Electric Reliability Corporation (NERC) is the highest regulating authority to maintain reliability of the North America's transmission Grid. NERC Energy Resources Task Force has recently concluded that due to anticipated high penetration of Distributed Energy Resources (DER), offsetting Loads by the amount of power or energy generated by renewables may not correctly model the impact of the renewables during major contingencies and system events. Thus NERC is proposing to explicitly modeling Utility grade DER (U-DER) and Retail grade DER (R-DER) in composite load model. With this complex modeling, estimation of the parameters of the Composite Load is a huge challenge. In this project students investigate different techniques to estimate parameters of above model using the measurements that are available at the feeder head. Different black-box and white-box parameter optimizations may be investigated and compared (depending on the number of students involved.)

INTERNS NEEDED 1 or 2 MS Students OR 1 or 2 Undergrad Students

PREREQUISITES

Candidates are expected to be familiar with power system and have basic knowledge of power flow calculation and dynamic model simulation. Experience in Matlab and Microsoft Excel VBA programming is absolutely required.

