

THE EFFECTS OF DISTRIBUTED ENERGY RESOURCES

PROJECT TIMEFRAME: FEBRUARY-MARCH 2021 | PROJECT TYPE: STUDY | REFERENCE NO.: REP-1068

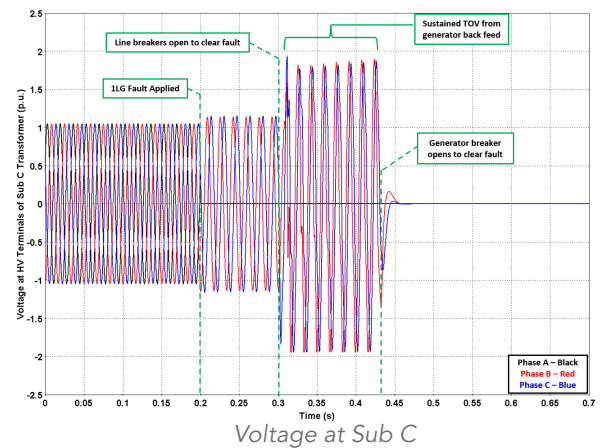
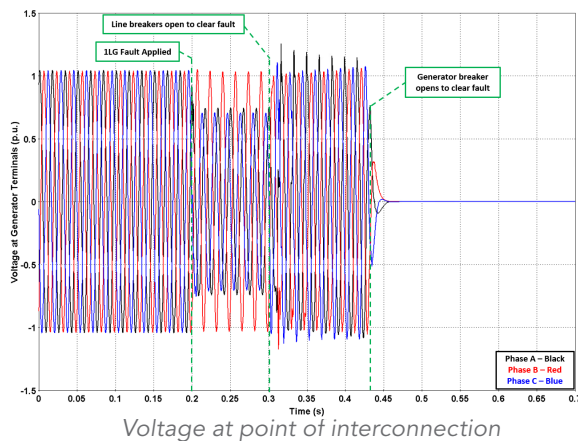
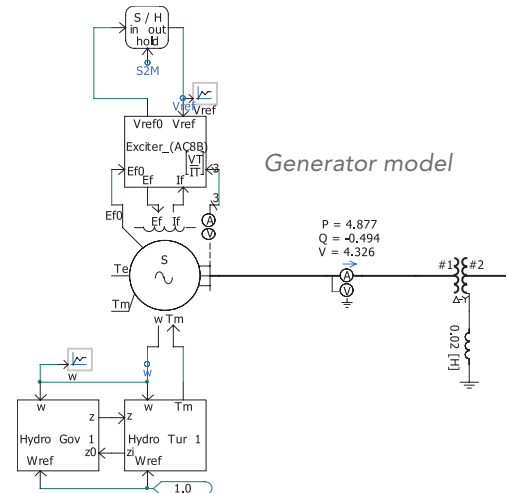
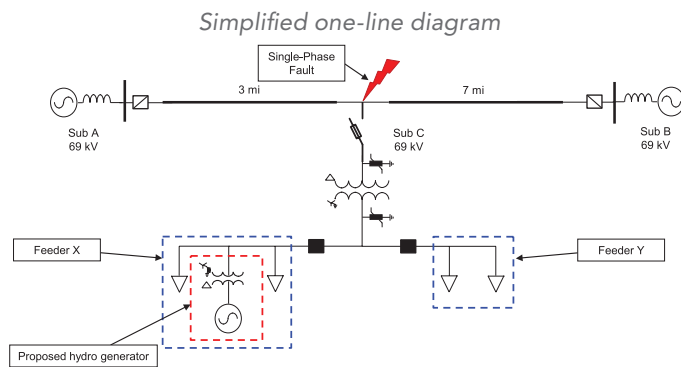
Project Highlights:

Detailed Generator Modeling, Unbalanced Fault and Temporary Overvoltage Analysis, Unintentional Islanding Evaluation

Project Overview: Distributed energy resources (DER) are being installed in Xcel Energy's distribution system at an increasing rate. The increased penetration of DERs in utility distribution systems has created a potential concern for temporary overvoltages (TOV). As a result, Xcel Energy was looking to evaluate the impact of a distribution connected hydro generator on its distribution and sub-transmission system. MEPMI was commissioned to perform a DER impact study. The goal of the study was to quantify the overvoltages, surge arrester energy duties, and potential operational issues such as unintentional islanding due to the proposed hydro generator.

Project Scope:

- Electromagnetic Transients (EMT) model development in PSCAD/EMTDC
- Load rejection overvoltage (LRO) analysis
- Ground fault overvoltage (GFO) analysis
- Open phase operation analysis



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