Grounding Studies & Strategies

KINECTRICS
a BWXT company

Project Objective

Kinectrics reviewed and analyzed a Canadian utility's current grounding strategies used for network maintenance for a large metropolitan area.

The focus of this project was to develop a selective grounding strategy for maintenance personnel that depended on the location where the maintenance work was being performed on the feeder.



Client: Large Ontario Utility
Location: Ontario, Canada

This project was completed in two phases:

- Phase 1 benchmarked the utility's current grounding strategies against other similar utilities.
- Phase 2 included field and laboratory testing to simulate various grounding strategies upon completion of the modeling analysis.

Distribution network modeling was done using PSCAD software to capture worstcase/most-extreme scenarios and generate meaningful results.



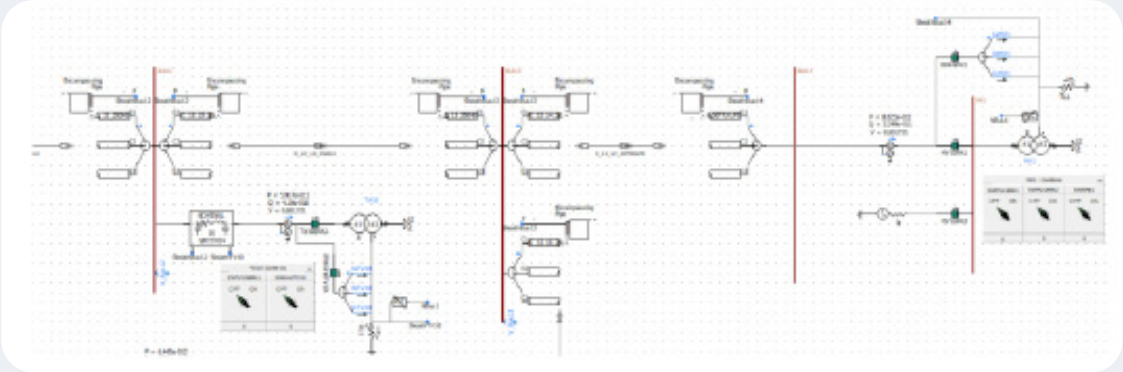
Grounding Truck Testing

Project Scope

1. As part of phase 1 of this project, we reviewed and analyzed different levels of potential exposure associated with various grounding strategies.

   Each grounding methodology was assessed, highlighting key points that the utility may consider adopting.

We identified areas of strength for the utility and provided recommendations to improve the existing process to align it with leading industry practices, as appropriate, based on the results of studies and benchmarking.



2. In phase 2 of this project, we simulated the network system to determine if the modeling analysis indicates that potential risks are beyond an acceptable level, with the utility personnel's input.

   Simulations were performed and results were verified, if the analysis suggested that risks were acceptable. Field testing at utility sites or Kinectrics laboratory testing may be performed, as needed.

The impact of grounding each network transformer associated with primary feeder, when completing cable splicing, on maintenance time and voltage rise under fault conditions were reviewed by Kinectrics.

Value Added Results

The reports were produced in a timely and efficient manner. The study proposed an improved grounding method that would create a safe work site for personnel working on a feeder.

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