

Title and abstract of my thesis

Title:

An Initial Exploration of Spatial Spreading of Cascading Failure in an Electric Power System

ABSTRACT

Large blackouts typically involve the cascading outage of transmission lines. However, little is known about the overall patterns of cascading outages. This research processes and initially examines observed utility data to explore the spatial spreading of cascading failure. The utility data is combined from two different sources, one year of recorded transmission line outages and a description of the grid connections. This requires extensive work relating different descriptions of the same grid. An initial analysis of the statistics of the spreading is presented, and the potential and implications of a new statistical approach to cascade spreading is assessed.