National SCADA Test Bed

CYBER ATTACKS

CONTROL SYSTEMS EFFECTS

CYBER-TO-PHYSICAL BRIDGE

POWER GRID IMPACTS

Impact Analysis of Cyber Attacks on Control Systems

Understanding the impact of electric supply interruptions caused by cyber attacks helps to prioritize mitigation efforts and aids in vulnerability analysis and threat discovery

Challenge / Approach

Develop ability to map impacts from cyber Attack to grid effects

Incorporate outages caused by cyber attack to conventional reliability analysis approaches

Convert hybrid grid / control system to finite state approximation for analysis

Analysis

Models degraded grid reliability from vulnerabilities

Reveals high-impact risk scenarios

Determines mitigation tradeoffs

Displays dynamic grid effects from cyber attack

Sandia National Laboratories

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

NNSA National Nuclear Security Administration