

# A systems approach to Analysing cyber-physical threats in the Smart Grid

## **Abstract**

This paper presents a systems analysis approach to characterizing the risk of a Smart Grid to a load-drop attack. A characterization of the risk is necessary for the design of detection and remediation strategies to address the consequences of such attacks. Using concepts from systems health management and system engineering, this work (a) first identifies metrics that can be used to generate constraints for security features, and (b) lays out an end-to-end integrated methodology using separate network and power simulations to assess system risk. We demonstrate our approach by performing a systems-style analysis of a load-drop attack implemented over the AMI subsystem and targeted at destabilizing the underlying power grid.