Resiliency: The Electric Grid's Only Hope

Testimony by Professor William Sanders, UIUC, before United States House of Representatives Committee on Science, Space, & Technology

Professor Sanders is co-principal investigator of the CREDC (Cyber-Resilient Energy Delivery consortium) program. Two ISTS professors, Professor Sean Smith and Professor Sergey Bratus, represent Dartmouth as part of the consortium. The CREDC program is one of the main cybersecurity research projects at the ISTS.

Professor Sanders testimony relied quite heavily on a 2014 report commissioned by the Congress instructing the National Academies of Science, Engineering and Medicine to "identify technologies, policies, and organizational strategies to increase the resilience and reliability of the U.S. electricity system."

This report "notes that when major electricity outages do occur, economic costs can tally in the billions of dollars and lives can be lost. It argues that resilience is not just about lessening the likelihood that these outages will occur. It is also about limiting the scope and impact of outages when they do occur, restoring power rapidly afterwards, and learning from these experiences to better deal with events in the future."

Here is the summary of Professor Sanders testimony regarding grid resiliency:

1. Grid resiliency is different than grid reliability, and requires a fundamentally new approach.

2. Grid resiliency attempts, to the greatest extent possible, to avoid long-term blackouts, but understands and admits that it may not be totally possible to avoid them, and thus works to respond as quickly as possible to the event once it occurs, preserving "critical" services during the period of degraded operation and, over time, strives for full recovery and enhanced robustness.

3. Efforts with appropriate funding must be put in place for:

    a. Emergency preparedness exercises that include multisector coordination,
    b. Implementing available technologies and best practices,
    c. Supporting DOE research in grid resiliency,
    d. Creating a stockpile of physical components that enhance resiliency,
    e. Developing means for cyber resilience,
    f. Continuous envisioning of possible impairments which could lead to large-scale grid failures, and
    g. Ongoing efforts to assess and, as needed, to mandate strategies designed to increase the resilience of the electricity system.

4. The grid can only be resilient if its cyber infrastructure is resilient, so research and development are critically needed that provides assured mechanisms to ensure cyber resiliency

Professor Sanders full testimony can be found here: http://bit.ly/2xVSdwi