Improving Grid Resilience through Informed Decision-Making (IGRID)

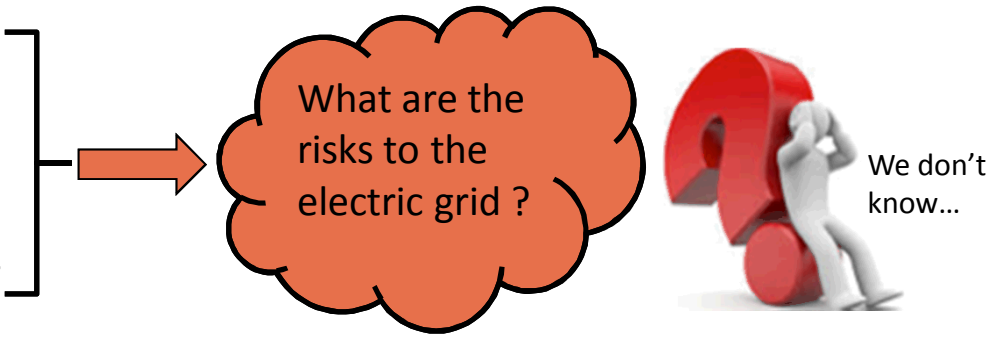
A Sandia project to advance the science of control-room decision-making in the 21st century

SAND2014-16546PE

Laurie Burnham, PI – lburnha@sandia.gov

The distribution grid is rapidly increasing in complexity, automation, and data dependency. Yet the impact on system operators—those who run the grid--is not well understood. But we know…

- Complexity adds stress.
- Automation diminishes critical thinking.
- Excessive data can prolong key decisions.
- Operator skill sets reflect traditional grid.
- Solar generation impacts load management.



Project Objectives

1. Understand and model the impact of grid modernization on operator performance
2. Map linkages between operator decision-making and system vulnerabilities
3. Develop predictive analytics to increase operator effectiveness during major new technology deployments

Work-to-date

- Sandia is partnering with Vermont utilities; has completed cognitive analyses in 5 utility control rooms, involving ~20 operators
- Created prototype model of operator performance and link to grid resilience

"Empowering the People Who Power the Grid"