

### More than Compliance: The Future of Smart Grid

With oil prices rising and environmental concerns all over the headlines, the current electrical grid is in need of a revamp. Energy companies across the country including GE, Pepco, and Constellation Energy, have promoted modern smart grid technologies to improve the communication between the energy provider and its customers. Smart meters authorize two-way communication, allowing more accurate readings on energy use. Furthermore, the ‘smarter’ grid technology also connects lights, heating and cooling systems, appliances and even future electric cars with the utility company and a consumer’s smart phones and computer applications. This creates more control for the consumer in understanding his/her utility bill and energy consumption. However, with every benefit of smart grid comes vulnerability. Without the proper design and controls in place, the potential for remote attack on the smart grid is high. The increasing interconnectivity of devices and household appliances provides a huge risk of compromise – imagine if an unknown third party hacked into the network and started the washing machines of every home in a neighborhood on high, causing the appliances to essentially explode. These are possibilities. The purpose of this capstone is to understand the current risks and the significance of being more than compliant to standards. In order for companies such as Constellation Energy to remain competitive in the smart grid market, standard controls and testing must be beyond the compliance measures of the government. The final recommendations serve as a baseline, only for now, to an ever-changing technological environment.