

Smartgrid CyberSecurity Lab ***Power System Operation Manual***

SITUATION:

The electric grid is becoming smarter - but along with the benefits comes increased risk and the need to study cybersecurity for critical infrastructure.

To that end, Red Rocks has recently completed a grant funded project to build a Smartgrid Cybersecurity Lab for its' award winning Cybersecurity Program to teach students how to identify vulnerabilities and prevent exploitations.

The lab includes a Power System made up of components from multiple vendors. The system includes Solar, Diesel Generator and Grid power along with smart batteries, meters, network hardware and a Real-Time Automation Controller

<image> city electric network

CHALLENGE:

The student team that designed the lab will be graduating before the lab hosts its first Cybersecurity class. The faculty using the lab need to be trained how to use and operate the power system to utilize it effectively and safely. Since there is no opportunity for a warm handoff, it is necessary to find an alternative method of transferring this knowledge from designers to users.

<image> cartoon technician solving problem

PRODUCT:

The answer to this high tech problem is intentionally low-tech. Since the dawn of consumer appliances, it has been traditional for product packaging to include a simple paper instruction manual that is written for the layman to be able to understand easily. Accordingly, we developed this manual to be a starting point for faculty and staff that need to work with the power system.

The manual provides off-line instructions in case there is no power or internet available for troubleshooting. Since there was so much documentation for each of the components, a companion USB drive contains PDF copies of all the project documentation.

<image> cover of user manual

<image> clipart usb drive

<image> logo Red Rocks Community College Trefny Honors Program