

Duke Energy Substation-Based ESS Smoothing

Dan Sowder, Curtis Watkins

Dave Schoenwald, Dakota Roberson, Dan Borneo

Duke Energy

Sandia National Labs

Background:

Duke has installed a 402 kW/282 kWh, NaNiCl ESS (FIAMM) as a centralized substation-based distribution ckt asset

Goals:

Using centralized ESS, Duke and Sandia will design and test algorithms to:

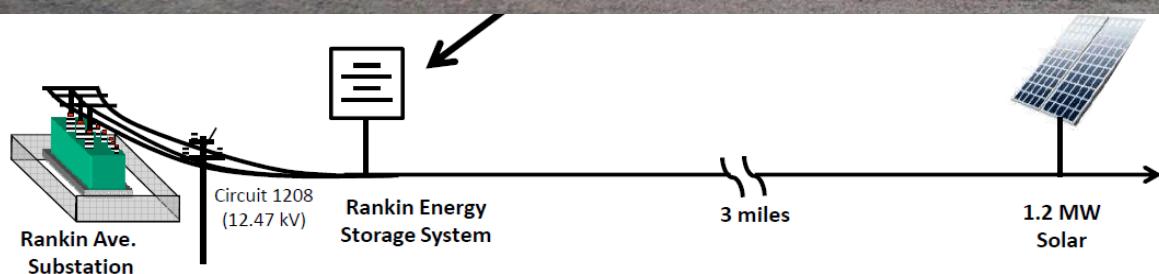
- Mitigate PV-induced power swings on the distribution circuit
- Protect substation assets from PV-induced power swing impacts

Next Steps:

- Design ESS control algorithm to react to voltage changes on the circuit
- Implement active VAR/power factor management using the ESS

We gratefully acknowledge the support of Dr. Imre Gyuk, DOE Energy Storage

Program.



Sandia National Labs and Duke Energy have a Non-Disclosure Agreement (NDA) in place which covers, among other items, the conditions for public dissemination of intellectual property by each entity. This NDA was adhered to regarding the content of this communication.

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND NO. 2013-XXXX