

Title: Resilient Community Microgrids: Building a Resilient Community Using DERs

Abstract: As part of a collaborative effort among state government, utility companies, industry and universities, an advanced microgrid control architecture is designed, which will coordinate seamlessly with the bulk power grid at multiple points of common coupling, automatically balance the load and generation, provide power for critical services (hospitals, emergency shelter, etc.), detect faulty conditions on a continuous basis, communicate with DERs, form networked microgrids with neighboring communities when needed, and maintain safe operating conditions at all times. The microgrid control is tested using a unique digital-twin approach in which laboratories at the partner institutions. It will have direct, real-time connections to a microgrid operated by a major utility in North Carolina. The end result is expected to be reduced customer outage time, and enhanced resiliency of the power grid.