

Installation Microgrid and Networked Standby Power Design Criteria

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Abstract

Military installations are highly dependent on a fragile and vulnerable commercial power grid, placing critical military and emergency response missions at unacceptable risk during extended utility system outage. While many installations host facility-dedicated stand-by power systems, these systems are only designed to support limited emergency functions for a duration of hours. Networked stand-by power systems, including microgrids, offer a more resilient solution that allow a military installation to survive a loss of commercial power for days or weeks. Several resilience performance metrics are presented as well as how such criteria can be effectively used to inform design. An introduction to military installation power quality and data analytics is also explored.

Biography

Mr. Tarek Abdallah is a Senior Power and Energy Resilience Program Manager with the U.S. Army Engineer Research and Development Center (ERDC) and oversees research and development of resilient power and energy systems for military installations. Areas of research include secure networked power systems and synthetic fuels. Mr. Abdallah is a co-author of the Department of Defense Unified Design Criteria (UFC) for Secure Networked Power Systems and Microgrids. Mr. Abdallah graduated from Dartmouth College with an MS in Electrical Engineering and Power Electronics.

