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"O&M Requirements for Solar PV and Energy Storage Systems"

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Biography

I received my Ph.D. in electrical engineering from the University of Louisville in 2014. My studies focused on demand management systems for electric vehicle (EV) charging and other challenges associated with EV charging. My primary interests lie in new and emerging technologies and how those technologies affect our lives.

At LG&E and KU my primary responsibility involves collaboration on research projects that contribute in theory, practice and application of new and emerging technologies, processes and equipment related to the energy industry and power markets. I was involved with the design process of the EW Brown utility-scale solar PV installation. I have also managed the design, installation, and operation of the first utility-scale energy storage system in the state of Kentucky. Additionally, I currently lead a working group within the Electric Power Research Institute's (EPRI) Energy Storage Integration Council (ESIC) to help develop standardized testing and evaluation protocols for energy storage technologies.

Abstract

Cumulative installations of solar photovoltaic (PV) generation in the United States have increased significantly over the last decade to levels of ~10 gigawatts (GW) installed capacity on an annual basis. Today commercially available PV modules typically have a 20-25-year warranty, but estimates show them capable of producing acceptable power for 30 years or more whereas other components such as inverters have much shorter life expectancies.

Additionally, energy storage is quickly evolving as a tool for utilities to solve intermittent power generation issues faced with renewable generation and provide critical grid support functions. Even though energy storage is still a relatively young technology, it is already making the transition from R&D to operations, therefore it is important to understand the maintenance and operational needs of this equipment as well.

This presentation will cover solar PV basics as well as look at common repairs and maintenance that is required for such systems. It will also cover energy storage technologies and some common equipment for typical installations.