

“Radically Transforming Buildings Through Integrated Energy Systems”

Thursday
July 31, 2014
10–11 a.m.

Building 5100, Room 128
JICS Lecture Hall

Abstract

With increasing extreme weather events like Hurricane Katrina and Super Storm Sandy, the conventional approach to electricity generation, distribution, and consumption is subject to disruptions that can leave homes and businesses without power for weeks at a time. Furthermore, the rapid deployment of distributed power is beginning to create new challenges for centralized grid systems that must now be addressed. Moreover, 1.3 billion people in the world do not have access to any electricity, and the access of many others is unreliable. With this in mind, off-grid buildings offer a viable solution that ORNL is well positioned to provide. To meet this challenge, we are using a fully integrated approach that will (1) develop advanced-generation storage systems that cross cut vehicles and buildings; (2) implement an off-grid building management system to optimally integrate and manage the building load, distributed generation, and required energy storage; and (3) enable use-inspired research to understand the science needed to make transformative breakthroughs in energy storage. This research leverages key ORNL strengths in building energy efficiency, advanced manufacturing, sensors and controls, microgrids, vehicles, optimization science, equipment development, and energy storage.



Dr. Roderick Jackson

joined ORNL in 2009 and is currently part of the research and development staff of the Whole-Building and Community Integration group. He is responsible for providing sub-programmatic management for residential building integration and deployment research. Dr. Jackson's research is focused primarily on the integration of technologies and best practices that maximize cost-effective energy efficiency in residential buildings. He has more than six years of residential construction experience combined with four years as president of a general contracting firm where he managed custom-built new construction and retrofit residential projects. At ORNL, he also conducts energy policy research and analysis to facilitate comprehensive technical, social, and economic solutions to the energy and climate challenges currently facing the United States. Dr. Jackson received his BA, MS, and PhD in mechanical engineering from the Georgia Institute of Technology.