



Consortium for Electric Reliability Technology Solutions
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Participant Contact Information and Research Activities

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What is your working definition of a microgrid? How is it different from the following working definition? CERTS microgrid implementations combine loads with sources, and allows for intentional islanding. Our solution relays on local information rather than on complex communication and control or extensive site engineering. To achieve this we promote a peer-to-peer and plug-and-play model for each component of the microgrid. The peer-to-peer concept insures that there are no components, such as a master controller or central storage unit that is critical for operation of the microgrid. This implies that the microgrid can continue operating with loss of any component or generator. With one additional source (N+1) we can insure complete functionality with the loss of any source. Plug-and-play implies that a unit can be placed at any point on the electrical system without re-engineering the controls.	
Briefly describe your research activities on microgrids. We have designed and test a microgrid and are now constructing a full scale microgrid with three 60kW sources. The micro-source controls are beening modified to provided peer-to-peer and plug and play features. The planed tests included variety of loads, new protection concepts and a SCR based interconnection switch which can open and re- sync in cycles using local information.	
Please note which of the following technical issues your research addresses (if any):	
Intentional islanding and resynchronization	Yes
Protection within the microgrid	Yes
Voltage control within the microgrid	Yes

Frequency control within the microgrid during islanded operation	Yes
Fast load sharing among microsources (for load changes faster than the ramping rates of the prime movers)	Yes
Heat load matching and load prioritization	Yes
Economic dispatch of assets	Yes
Meeting environmental constraints	Yes
Other	<i>Provide for sensitive load level of power quality</i>