



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

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<p>What is your working definition of a microgrid? How is it different from the following working definition?</p> <p>A microgrid is an integrated power delivery system consisting of interconnected loads and DER which, as an integrated system, can operate in parallel with the grid or in an intentional island mode. The integrated DER are capable of providing sufficient and continuous energy to a significant portion of the internal demand, the microgrid possesses independent controls, and can island and reconnect with minimal service disruption.</p> <p><i>Same as above plus: The microgrid is able to provide heterogeneous power quality and or reliability to at least some of its loads. Power conversion could involve multiple technologies, but will usually involve some combined heat and power capability.</i></p>					
<p>Briefly describe your research activities on microgrids.</p> <p><i>Modeling of optimal customer adoption of DER based on system economics and site constraints, shared combined heat and power applications, and tariff/fuel price structures.</i></p>					
<p>Please note which of the following technical issues your research addresses (if any):</p> <table border="0"><tr><td>Intentional islanding and resynchronization</td><td><i>No</i></td></tr><tr><td>Protection within the microgrid</td><td><i>No</i></td></tr></table>		Intentional islanding and resynchronization	<i>No</i>	Protection within the microgrid	<i>No</i>
Intentional islanding and resynchronization	<i>No</i>				
Protection within the microgrid	<i>No</i>				

Voltage control within the microgrid	No
Frequency control within the microgrid during islanded operation	No
Fast load sharing among microsources (for load changes faster than the ramping rates of the prime movers)	No
Heat load matching and load prioritization	Yes
Economic dispatch of assets	Yes
Meeting environmental constraints	Yes
Other	<p><i>various aspects of combined heat and power systems:</i></p> <ol style="list-style-type: none"> <i>1. optimal sizing and operation of on-site power systems</i> <i>2. joint optimization of meeting electricity and heat loads</i> <i>3. heat storage and energy lags</i> <i>4. costs of uncertainties in operations, e.g. generator outages</i> <i>5. integrated operating algorithm development for microgrids</i> <i>6. implementation of microgrid capability into building energy simulation, especially using the EnergyPlus model</i>