



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, and the microgrid possesses independent controls and can island and reconnect with minimal service disruption.</p> <p><i>This is a good definition for a slave microgrid where the DER capacity is way smaller than the grid. We do however consider another type of microgrid that we could call remote or grid-forming microgrids where island able DER microgrids can be aggregated to "form" the grid supplying a remote area with power.</i></p>	
<p>Briefly describe your research activities on microgrids.</p> <p><i>We have been involved for a few years now in R&amp;D for hybrid systems in remote areas, especially on improving energy flow between the various sources and loads. We are also involved in standard development for utility-interconnected inverters and interconnection and in conjunction with that, exploring the issues of grid stability, power quality and planned islanding of small grid section. We are also considering putting our expertise in hybrid systems and grid interaction to bridge the gap between purely stand-alone and grid-forming stand-alone systems.</i></p>	

Please note which of the following technical issues your research addresses (if any):

Intentional islanding and resynchronization	<i>Yes</i>
Protection within the microgrid	<i>No</i>
Voltage control within the microgrid	<i>Yes</i>
Frequency control within the microgrid during islanded operation	<i>No</i>
Fast load sharing among microsources (for load changes faster than the ramping rates of the prime movers)	<i>No</i>
Heat load matching and load prioritization	<i>No</i>
Economic dispatch of assets	<i>Yes</i>
Meeting environmental constraints	<i>Yes</i>
Other	<i>Energy flow optimization and storage</i>