Consortium for Electric Reliability Technology Solutions
Berkeley 2005 Symposium on Microgrids
June 17, 2005
UC Berkeley Faculty Club, Berkeley CA

Participant Contact Information and Research Activities

Name	*Weijun Gao*
Affiliation	*Associate Professor*
Contact Information	Email:weijun@env.kitakyu-u.ac.jp Phone:81-93-695-3234 Address:1-1 Hibikino, Wakamatsuku,Kitakyushu,Fukuoka, Japan

What is your working definition of a microgrid? How is it different from the following working definition?

> 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.

A microgrid, I think, is like the neighbor s in past time of China, who help each others with water when some neighbor was lack of water for a moment. There was no water service in that time. People had to get the water from a distant river. The people always took sufficient water for their family. A microgrid, therefore, has two characteristics. One is Independent to survive by itself. Other is sympathy to be ready to help others. That means a microgrid needs a room to provide sufficient energy to internal demand as well as to have surplus at some extent to contribute the neighbors as they need. It maybe is not a working definition of a microgrid. But it is my philosophy in mivrogrid.

Briefly describe your research activities on microgrids.

My study on microgrids is still on the paper. The recently research is mainly on DER. I just finished one of researches, "Field Study of An Introduction Effect Of Distributed Energy System In Kitakyushu Science And Research Park". In this research, I develop an evaluation tool for energy

conversation, environment, economics and the other effects due to the introduction of DER. *I, now, start a work to try to make a Japanese/Chinese vision for DER-CAM. I, also, engage in a research group in Shanghai. We want to have a demonstration project for microgrids in Shanghai World Expo 2010.*

Please note which of the following technical issues your research addresses (if any):	
Intentional islanding and resynchronization	*No*
Protection within the microgrid	*No*
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 *Please be specific*	