Pre-Symposium Questionnaire

Montréal 2006
Symposium on Microgrids
Le Grand Lodge Mont-Tremblant
June 23, 2006, Québec, Canada

While the bulk of the research efforts on Microgrids to date has dealt predominantly with technical and economic issues --leading to a number of recent demonstration projects --the future of this concept inevitably hinges on whether utilities adopt this as a viable option amongst other planning and operations alternatives.

The following questionnaire was developed in order to solicit comments from each of the participants on their research in Microgrids and their observations regarding the "gaps" in research, and barriers in the implementation of this concept. The questionnaire consists of two parts: Part 1 identifies current R&D activities and future priority areas of the members, and Part 2 which consists of open questions on the difficulties associated with distribution planning and project implementation[1]**.

The local organizing committees for the Montreal 2006 -Symposium on Microgrids would appreciate your participation in filling this questionnaire by June 9, 2006. We will collect and analyze the responses prior to the Symposium. A summary will be prepared and circulated during the symposium.

Please fax or mail the completed questionnaire by *June 9, 2006*

Fax : (+1) 450-652-5177
or mail:

c/o Farid Katiraei
CANMET Energy Technology Centre-Varennes
Natural Resources Canada
1615 Lionel-Boulet Blvd., P.O. Box 4800
Varennes, Quebec J3X 1S6
Canada

1 ** In preparation of this questionnaire the following two sources are used:

- "DOE-CEC Microgrid Vision and Roadmap", Presented at the Microgrid Vision and Roadmap Workshop, Office of Electricity Delivery and Energy Reliability, Arlington, Virginia, Jan 2005.
- "Survey of Studies and Analysis Tools Used for Assessment of Distributed Generation Integration in Canadian Distribution Systems", CYME International T&D, CETC-V Subcontractor report, CANMET Energy Technology Center - Varennes, Natural Resources Canada, March 2006.

PARTICIPANT CONTACT INFORMATION

Name:

Affiliation:

Contact Information:

Email:

Phone:

Address:

QUESTIONAIRE- PART 1

Q1) Please rank Five Microgrid research and development areas based first on the level of effort currently invested by your organization (column 1) and secondly, based upon the future priorities of your organization (column 2). Ranking them from #1 being the most important area and #5 being the least important. For areas where no effort has been invested or are not considered at all please enter N/A.

Areas	Current Activities (rank most effort 1 to less effort 5)	Future priorities (rank most important 1 to less important 5)
Performance Requirements		
Design		
Monitoring, Communication and Control		
Protection and Restoration		
Operations (protocols, guidelines)		

Q2) Using the categories from the previous table, various R&D activities were then listed under each heading that would aid in closing the gaps in Microgrid research. Please fill in the following table, indicating whether or not your present research falls within the scope of each of the mentioned approaches.

Areas	Approach to close gaps		Under the scope of your current activities?	
			Yes	No
Performance Requirements	Power quality field measurements from Microgrid demonstrations			
	Validation of steady-state models for Microgrids			
	Validation of dynamic models for Microgrids			
Design	Methodologies for planning and design of Microgrids			
Monitoring, Communication and Control	Pilot studies and supporting field measurements to validate frequency and voltage control methods and operation in grid parallel and stand-alone modes.			
	Pilot studies and supporting data for operation of Microgrids for different generation technologies (inverter vs. non-inverter, controllable vs. intermittent).			
	Design and operating experience to identify communication infrastructure needs.			
Protection and Restoration	Studies on protection coordination of a Microgrid	Effect of generation/load levels		
		Effect of generation technologies (inverter vs. non-inverter)		
		Effect of grid configurations (parallel, islanded, different configurations within each)		
	Pilot studies and operating experience for isolating system faults in a Microgrid			
	Design studies and pilots to confirm operating performance for larger Microgrids using a range of generating technologies (Auto-synchronization and black start potential))			
Operations	Development of procedures and/or guidelines to address operations, safety, training and maintenance			

QUESTIONAIRE- PART 2

The following questions deal with the implementation nature of Microgrids and their role in distribution system planning.

Q3) Over the coming decade, distributed generation will likely become an important feature of distribution system planning as it can be used to address various issues (capacity deferral, loss reduction, voltage profile improvement). In addition to the merits that DG can offer in grid parallel mode, it may also be used to operate a portion of the distribution system in isolation, the primary objective being an improvement in local reliability. **Please comment on how you perceive the evolution of distribution planning towards including Microgrids as a fundamental component**.

Q4) At the planning stage of a Microgrid:

4a) What types of studies do you feel need to be considered?

4b) What level of modeling does this imply, i.e. steady-state, system dynamics, electromagnetic transients?

Q5) The barriers to the integration of Microgrids into distribution planning can be broken down by means of various initiatives (technical, regulatory, standards work, education, or other). What work do you feel is most important at present for addressing these barriers? Please state and rank the different priorities.

Thank you for taking the time to complete this questionnaire.

Email: farid.katiraei@nrcan.gc.ca

Fax: (+1) 450 652 5177

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