

CIGRE Study Committee C6, «Distribution Systems and Dispersed Generation»

WG N° C6.22	Name of Convenor : Chris Marnay (USA)
Title of the Group: <i>Microgrids Evolution Roadmap</i>	
Scope, deliverables and proposed time schedule of the Group	
Background:	
<p>Microgrids comprise Low Voltage distribution systems with distributed energy sources, storage devices and controllable loads, operated connected to the main power network or islanded, in a controlled, coordinated way. The operation of Microgrids offers distinct advantages to customers and utilities, i.e. improved energy efficiency, minimisation of overall energy consumption, reduced environmental impact, improvement of reliability of supply, network operational benefits such as loss reduction, congestion relief, voltage control, or security of supply and more cost efficient electricity infrastructure replacement. Microgrids have therefore been proposed as a novel distribution network architecture within the SmartGrids concept, capable to exploit the full benefits from the integration of large numbers of small scale distributed energy resources (of < approx. 1 MW) into low-voltage electricity distribution systems.</p>	
Scope: The following topics will be elaborated within the WG	
<ol style="list-style-type: none">1. Definition and Clarification of Microgrid Concept: <i>What is a Microgrid? How is it different from other concepts such as (Commercial or Technical) Virtual Power Plants (VPP), Active Distribution Networks, etc. ?</i>2. Market and Regulatory Settings for Microgrids <i>How can a Microgrid become profitable? Who owns and/or operates it?</i>3. Control Elements and Control Methods of a Microgrid <i>How is a Microgrid operated? What control technologies are available and which still need further development? Is islanding preferable? What kind of alternative technologies such as short and long term storage facilities and demand side management is required to support islanding operation?</i>4. Justification of Microgrid Deployment <i>Why are Microgrid needed? What kind of social, technical, environmental and commercial benefits of Microgrid operation benefits can it offer at national and international level? What are the benefits it can offer at local level, i.e. dependent on the particular customer requirements (e.g. outage cost)</i>5. Microgrids evolution roadmap including electricity infrastructure replacement scenarios <i>Which business models will be most suited for Microgrid operation? What advantages of wide deployment of Microgrids can be quantified.</i>	
Deliverables: Technical brochure with summary in Electra	
Time Schedule: Start August 2010	Final report : December 2012
Comments from Chairmen of SCs concerned :	
Approval by Technical Committee Chairman : Klaus Fröhlich Date : 20/05/2010	