



## **SMALL SIGNAL STABILITY OF A MICROGRID WITH PARALLEL CONNECTED DISTRIBUTED GENERATION**

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ABSTRACT—Distributed Generation, or DG, involves utilization of small generators that are distributed in a power network, to supply the electric power demands of utility customers. This paper presents the small signal analysis of droop based generation control schemes for parallel connected DG inverters comprising of active power-frequency and reactive power-voltage controllers. Small-signal models are developed for microgrids consisting of several DGs connected in a parallel configuration. Mathematical propositions that develop sufficiency conditions for stability of the system are developed.