

## **Microgrid synchronization using power offset through a central controller**

### Abstract

A high penetration of renewable energy in power systems gives rise to the inverter based distributed generators (DG) in the current microgrid system. With the ability of microgrid to operate in both islanded and grid connected mode, a robust and reliable coordination and synchronization between the DGs and the utility grid is crucial to provide a seamless transition between operation modes. Droop based technique is the most popular method in microgrid system, however, voltage or current transient are present during mode transition. A power offset synchronization technique is proposed to provide a seamless transition between modes of operation. The results show that the mode transition is smooth and seamless without any voltage or current transients.