Abstract

Adel M. Elrefaey

DC offset compensation technique for grid connected inverters

DC current offset severally affects the distribution system components such as isolation transformers, measurement units and protective relays. Various DC current offset compensation techniques hypothetically are suitable to compensate DC current injected by grid connected inverters This paper presents a technique to stifle DC current injection into the AC grid which can be applied to medium-scale solar farms any gathering of lattice connected inverters restricted to a moderately little zone. The importance of this system is that it does not depend on high current measurement devices and does not utilize any type of complex transformers. Also, it permits an operation without transformer for all inverters inside the solar farm and there must be at least one inverter to perform DC offset compensation in addition to its essential function of active power interfacing into the AC grid. This inverter is needed to substitute all DC offsets that can be found in the solar farm current before reaching the main interfacing transformer, therefore we can avoid the hazard of transformer saturation.