

Title:	Design A Stand- Alone Generating System to Lighting Animal Farm Using Self Excited Induction Generator
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This paper presents design a standalone generating system to lighting animal farm. The proposed idea in this paper is using three-phase self excited induction generator (SEIG) to lighting animal farm with single phase network and fixed load. A modified Steinmetz connection and symmetrical component theorem are used to reduction the unbalance effect in the coils of the SEIG.

Abstract: A conventional induction machine can be operated as a self-excited induction generator if it is driven at a suitable speed and equipped with suitable excitation capacitors. Squirrel cage induction machines are usually implemented to generate electrical power from renewable energy resources, such as wind energy and biogas energy. Since most of the loads fed by the Pico and Micro power systems are single-phase loads, a single phase source is preferred over three phase source. This is because a single-phase source is cheap, require less maintenance and it need simple protection. However, single-phase induction machines can be operated as a single-phase SEIG, three phases SEIG is cheaper, have better efficiency and more readily it is available at high power rating; greater than 3kW. The use of three-phase SEIG for supplying single phase load is an extreme case of unbalanced operation. The inherent phase imbalance leads to poor generation performance, such as over current and overvoltage, poor efficiency, excessive temperature rise and machine's vibration. These undesirable effects can be alleviated to a large extent by the use of suitable excitation capacitors in modified Steinmetz connection.

Keywords: *Three-Phase Self-Excited Induction Generator (SEIG); Modeling; Biogas Generating System; Lighting Animal Farm; Matlab/ Simulink; Single-phase power generation.*