**Electrical and Mechanical Load Design for Induction Motors**

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***Abstract –*** This paper is concerned with the modeling of motor loads in induction motors in response to the inability of general dynamic load models (GDLM) in their current form to capture the characteristics of induction motors. In order to fully analyze the response of induction motors to the inductive and mechanical loads to which they are subjected in industry, a simple mechanical load model is developed along with the inductive load. The aim of the study is to realize a cheaper mechanical load design by avoiding the high cost of inductive loads required to load the motor as the motor power increases. In addition, despite the GDLM, the proposed induction motor load models are developed to capture the dynamics represented by the proposed induction motor load models. The suitability of the proposed dynamic load model for analyzing the transient and steady state stability of induction motor loads is evaluated. With this load model, the importance of load analysis is demonstrated by revealing the rate of change of induction motor parameters with load.

*Keywords –* Equivalent Electric Circuit; Squirrel Cage Induction Motor; Induction Motor Modelling; Loading of Induction Motor

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