

# SEE-Tech Solutions Pvt. Ltd.

Solution Providers for Energy Conservation & Plant Safety Improvement

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## **Area: Estimating/Measuring Electrical Motor Efficiency at Site Load Conditions**

**Topic:** Finding out methodology or evolving a new methodology for Estimating or Measuring Three Phase Squirrel Gauge Induction Motor Efficiency at site condition without decoupling the load

**Problem:** Three phase squirrel gauge induction motor efficiency varies with load. It is also affected adversely by repeated rewinding. There are methods to evaluate motor efficiency by varying the load in laboratory; however it is practically not possible in field conditions to de-couple the motor for efficiency measurement methods.

**Need:** Across industries it is quite often found that many motors operate under-loaded, used even after repeated rewinding or simply keeps running at no-load. Therefore it is important to measure motor output or motor efficiency along with input motor power (with is easily measurable). If motor output or motor efficiency is known at the operating load, it will be possible to quantify the savings that can occur by selecting a right size motor, energy efficient motor, or replacing a re-wounded motor.

### **Expected Outcome:**

1. Find out or come out with an approach which can solve this problem. The approach will have some in-accuracies, but will still hold well under the assumptions and will deliver its purpose.
2. Develop an excel sheet which can be used for Estimating or Measuring Three Phase Squirrel Gauge Induction Motor Efficiency at site condition without decoupling the load.
3. Provide rationale for selecting this approach.