

CASE STUDY

Howrah foundry replaces old blower-motor with an energy-efficient IE3 motor - and saves ₹1.4 lakhs annually

BACKGROUND

Howrah, in the state of West Bengal, is one of the major foundry clusters in India. Electric motors constitute an important component of auxiliary energy consumption and are extensively used to drive water pumps, air compressors, blowers, mixers and so on. Replacing the standard efficiency class (IE1) motors with premium efficiency class (IE3) motors will lead to substantial energy and CO₂ savings.

Baseline

An MSME was using standard efficiency class motor of the following specifications.

Design specifications		
Drive	Motor rating (kW)	Design efficiency (%)
Blower	60	90.8

The loading of the motor was found to be 81% of the rated capacity. Moreover, the motor has undergone multiple rewinding which further reduces its efficiency.

A photograph of the existing standard efficiency class motor is shown in Figure 1.



Figure 1: Existing standard motor

It was recommended to replace the existing inefficient motor with a 60 kW optimal loading (81%) premium efficiency class IE3 motor.

PREMIUM EFFICIENCY CLASS MOTORS AND ENERGY SAVINGS

The specifications of the new EE motor is as follows:

Design specifications		
Drive	Motor rating (kW)	Design efficiency (%)
Blower	60	94.7

Adoption of premium efficiency class electric motor will lead to an annual energy savings of 15,977 kWh which is equivalent to monetary savings of ₹1.4 lakh per annum. The investment in a premium efficiency class IE3 motor will be about ₹2.7 lakh. The payback on investment will be within 24 months. The GHG emission reduction from the recommended measure will be about 13 tCO₂ per annum.

(***Note: The above calculation is done on the basis of 7,200 hours of operation per annum)

The energy savings is depicted in Figure 2.

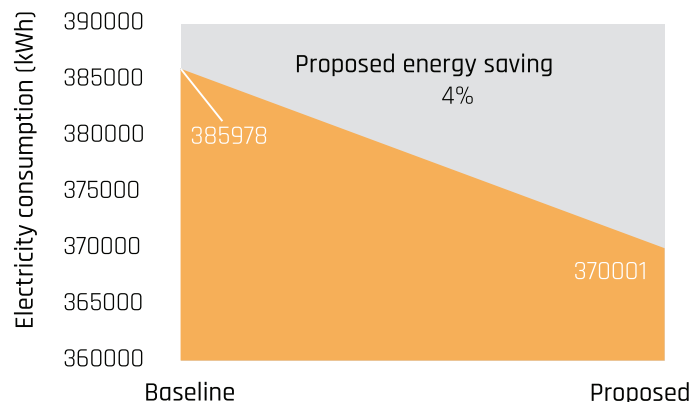


Figure 2: Energy savings

For more details, please contact

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