

CASE STUDY

An MSME engineering unit in Bokaro reduces its lighting bill by 60% through replacing conventional fluorescent lamps with energy-efficient LEDs

BACKGROUND

Bokaro, in the state of Jharkhand, is a mixed engineering cluster in Eastern India. Many MSMEs here are using conventional lighting system in their offices and workshops. Installation of energy-efficient LED variants will lead to substantial energy and CO₂ savings.

Baseline

An engineering unit was using conventional fluorescent tube lights (FTLs) in their offices and workshops of the following specifications. The rated wattage of the FTL (T-12) is 40 W. In addition to the light source, the ballast consumes around 8-12 W.

Type of lamps	No. of lamps	Rated watts
FTL (T-12)	10	52



Figure 1: Conventional fluorescent tube lights

The conventional lamps consume higher power and emit more heat compared to their energy-efficient LED variants. Also, these conventional lamps have lower efficacy and life when compared to LED. Replacing these conventional FTLs with LED tube lights will lead to substantial energy and CO₂ savings.

ENERGY SAVINGS

The specifications of the new energy efficient LED tubelights were as follows:

Type of lamps	No. of lamps	Rated watts
LED TL	10	20

Installation of energy efficient LED tubelights in the offices and workshops will lead to an annual energy saving of 930 kWh which is equivalent to monetary savings of ₹0.07 Lakh per annum. The investment in the recommended measure will be about ₹0.04 Lakh. The payback on investment will be within 7 months. The GHG emission reduction from the recommended measure will be about 1 tCO₂ per annum.

The energy-saving is depicted in Figure 2.

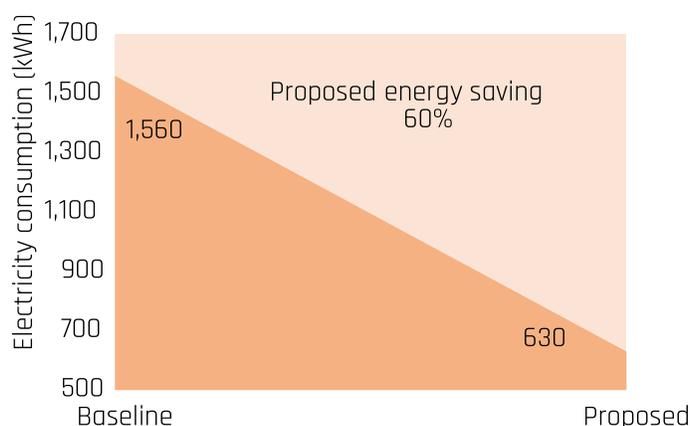


Figure 2: Energy savings

The case study highlights the very attractive payback period offered by LED variants. Considering the high energy saving potential, the adoption of energy efficient lighting system is the need of the hour.

For more details, please contact

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