

Cost effective opportunities in electrical energy management for dairy industry

■ **D.A. CHAUDHARY, J.B. UPADHYAY AND A.G. CHAUDHARI**

ABSTRACT : Energy is a critical input for the production and consumption activities in the development of economy of any country. In addition to land, labour and capital, energy are the four factors for the production of dairy product. In dairy industry, Energy conservation (EC) is not the suppression of demand for energy use in dairy industry, but efficient use of more and more energy and steep rejection of its wastage. Electrical energy is the most widely used form of convectional energy. Processing of milk and milk products require considerable amount of energy in the terms of the heat and electricity. A major amount of electricity is used for running motors, fan, blowers, and lighting the plant building. Typically, in dairy plant, 80 per cent cost is of milk and remaining 20 per cent comprises of the other variable and fixed costs. The energy cost reflects to ~ 4 per cent of the expenditure. Hence, any attempt to efficiently manage the energy costs will influence the processing costs. The use of energy efficient pump set, soft starter for motor control, variable frequency drive, DG set, etc. in dairy industry would save immense electricity. The removal of incandescent lamps and the use of higher power factor tube light would also save electricity. In the advanced countries, fluorescent tubes are manufactured which are five times as efficient as incandescent lamps. Installing high efficiency motors can reduce energy use, as pumps and aeration systems can contribute 50-90 per cent of the total energy and Capacitor can be connected across large motors to maintain healthy P.F.(between 0.9 to 0.98) correction.

KEY WORDS : Energy, Electrical energy, Soft starter, Dairy industry VFD: (Variable frequency drive)

Article Chronicle : Received : 15.10.2012;**Accepted :** 20.03.2013

How to cite this Article : Chaudhary, D.A., Upadhyay, J.B. and Chaudhari, A.G. (2013). Cost effective opportunities in electrical energy management for dairy industry. *Engg. & Tech. in India*, 4(1): 17-21.

MEMBERS OF RESEARCH FORUM

Address for correspondence :

D.A. CHAUDHARY, Department of Dairy Engineering, S.M.C. College of Dairy Science, ANAND (GUJARAT) INDIA

Coopted Authors :

J.B. UPADHYAY AND A.G. CHAUDHARI, Department of Dairy Engineering, S.M.C. College of Dairy Science, ANAND (GUJARAT) INDIA
