

Barriers for energy Efficiency

Title:

Energy inefficiency incorporation in the equipment by design itself

Category:

On the fly adjustment of technologies and equipment

Industry equipment:

Air Washer Units

Summary:

Energy inefficiency in the system design offers very little scope to rectify the same for improving the efficiency due to high cost of replacement and high pay back period

Back ground:

Case # 1: New plant (started production in 1999-00) has many air washer units for production shops. These are conventional air washers with spray nozzles. The ambient air taken through the filters and passed through the water spray to reduce the air-dry bulb temperature and slightly increase the RH. A high-pressure pump, which pumps water at 25-33m pressure, generates the water spray. These spray type air washer are very inefficient (operating humidification efficiency is about 40-60%, which is poor). More over the power consumption by the fans and pump is very high.

Case # 2: It was observed in other new plant (which started production in 1998-99 which is older to the above plant) has the air washer units for the same type of application. In this case the plant has energy efficient fabric cell type air washer unit. In this the humidification efficiency is about 80-92% which almost double. More over the power consumption by the pump is just about 20% when compared to the pump of case # 1.

It can be seen that, in case # 2 the plant is older than the plant in case #1. Even then plant (case # 2) plant has incorporated best equipment during the project stage it self. While in case of case #1 plant has taken the inefficient equipment though there was not much of difference in the first cost of the equipment.

Plant has realized later that they have chosen the inefficient equipment and tried to replace the system. But due to high cost of the replacement, very less number of operating hours the payback was not attractive for the replacement. More over the plant is new and has already invested huge money they do not want to make any capital expenditure.

Message learnt:

Incorporate energy efficiency during the project stage other wise it will be difficult to correct the same in future.