Successful Implementation – Energy Conservation Measure

Measure
Increasing the utilisation of Boiler Feed Pump fitted with Hydro-Coupling
Equipment
Boiler Feed Pump
Industry / Sector
Power generation distribution
Year of Implementation
2004
Cost Benefit Analysis
❑ Type of Measure : No investment
❑ Annual energy Savings : 5.6 Lakh units
❑ Actual cost savings : Rs.10.36 Lakhs
❑ Actual investment : Nil
❑ Payback : 0
Implementation Highlights
▪ No cost implication ▪ It can be introduced in old power plants where there is no Hydro coupling for Boiler Feed Pumps.

Summary

Power saving was achieved by increasing the utilisation of Boiler Feed Pump fitted with Hydro-Coupling, from 50% to 90%

Back ground

In Thermal Power Station-I of Neyveli, there are six numbers of 50MW units and three numbers of 100MW units. All the 50MW units are provided with Two numbers Feed pump, in which one will be running and the other pump is reserve for uninterrupted running of unit. Out of these six pumps in 50MW, only two pumps are provided with Hydro coupling.

From the inception, it is the practice to run one pump for 15 days and other for 15 days in a month. i.e utilisation of the each pump is 50%.

As there is a power saving of about 200KW/Hr, in the pump fitted with Hydro coupling, it was suggested to increase the utilisation of the with hydro coupling from 50% to 90%. As the utilisation was only 50%, power saving of 100KW/Hr was achieved. By increasing the utilisation from 50% to 90% the power saving achieved is 180KW/hr. Hence net power saving by this modification is 80KW/Hr.Assuming the PLF as 80% and selling cost power as Rs.1.85, the cost saving is 10.36 Lakhs/Annum. (Refer Working)

Now a days in all the power plants, Feed pumps are provided either with Hydro coupling or VFD. But in old plants feed pumps may not be provided with VSD. In those plants VSD may be introduced for one pump and it can be kept in service for 90% of the time to minimise capital cost.

Working

	With Hydro coupling	**Without Hydro coupling**
Energy consumption for Feed Pumps	1100 KW/hr	1300 KW/hr
	If the utilisation of Hydro coupling pump is 50% (50 : 50)	If the utilisation of Hydro coupling pump is 90% (90 : 10)
	550+650 = 1200 KW/hr	990+130 = 1120 KW/hr
Energy saving per hour	1200 - 1120 = **80 KW/Hr**	

Details of techno-economics:

Particulars	Actual energy savings
❑ Annual energy Savings	**5.6 Lakh units**
❑ Actual cost savings	**Rs.10.36 Lakhs**
❑ Actual investment	**Nil**
❑ Payback	**0**

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