

Name : Nitin Vaman Rade
 Designation : Assistant Engineer (Gen)
 Company : CSTPS, MSEB, Chandrapur.
 Postal Address: D-93/6, Urjanagar,
 CSTPS Colony,
 Chandrapur – 442404
 Phone No : 07172 – 221264 (R)
 Email ID : nvrade@yahoo.com



The energy cost plays very important role in organization's financial matter as it forms the significant amount to total expenditure (5-70% depending on industry). So effort is always on to control it or reduce it. The energy cost nearly accounts for 60 –70 % in case of Thermal Power Stations.

The following table accounts the possible reasons for increased/decreased specific energy consumption & energy cost.

Increased specific consumption or cost list

Sr. Reason of increased energy consumption no kwh/unit output	Reason of increased energy cost Rs/unit output
1 Increase in forced outages	Fuel cost increased
2 Increase in scheduled outages (Major overhauls)	Specific fuel consumption increased
3 Poor monitoring of fuel consuming equipment	Output mix changed to more energy intensive products
4 Increase in steam leakages in plant	Revenue from diverted energy flow decreased
5 Decrease in system/equipment efficiency	
6 Labor unrest	
7 Decrease in output due to lack of fuel	
8 Decrease in output due to lack of resource material	
9 Decrease in output due to high inventory	
10 Decrease in output due to poor quality of fuel	
11 Decrease in output due to less market demand	
12 Decrease in output due to process constraints	
13 Decrease in output due to equipment failure	

following reasons pertains to thermal power stations	following reasons pertains to thermal power stations
1 Increase in steam leakages in plant	Fuel cost increased
2 Decrease in availability due to	Specific fuel consumption increased
a) boiler tube leakages	Output mix changed to more energy intensive products
b) forced outages	Fuel transit loss increased
c) planned outages (Annual/capital overhauls)	Better Calorific value fuel purchased (wash coal)
3 Decrease in generation due to external factors	
a) Low system demand / backing down	
b) poor coal quality	
c) wet coal problem (rainy season)	
d) System problem (Transmission grid)	
4 Decrease in generation due to internal problems	
a) turbine bearing vibration high	
b) No ID margin/ ESP duct leakages	
c) Poor vacuum	
d) boiler tube leakage is prolonged	

- 5 Decrease in boiler efficiency due to
 - a) increased unburnt in Fly Ash & Bottom Ash
 - b) poor coal quality (wrt design / seasonal variation)
 - c) increased dry flue gas loss
 - d) increased moisture
 - e) incomplete combustion

Decreased specific consumption or cost list

Sr. Reason of Decreased energy consumption no kwh/unit output

- 1 Decrease in forced outages
- 2 Decrease in scheduled outages (Major overhauls)
- 3 Poor monitoring of fuel consuming equipment
- 4 Decrease in steam leakages in plant
- 5 Decrease in system/equipment efficiency
- 6 Labor unrest
- 7 Increase in output due to better fuel availability
- 8 Increase in output due to batter resource material
- 9 Increase in output due to improved inventory
- 10 Increase in output due to better quality of fuel
- 11 Increase in output due to increased market demand
- 12 Increase in output due to attending process constraints
- 13 Increase in output due to attending equipment failure

Reason of Decreased energy cost Rs/unit output

- Fuel cost Decreased
- Specific fuel consumption Decreased
- Output mix changed to more energy intensive products
- Revenue from diverted energy flow decreased

following reasons pertains to thermal power stations

- 1 Decrease in steam leakages in plant (attended)
- 2 Increase in availability due to
 - a) boiler tube leakages reduced
 - b) forced outages reduced
- 3 Increase in generation due to external factors
 - a) Low system demand / backing down reduced
 - b) batter coal quality
 - c) System problem (Transmission grid) reduced
- 4 Increase in generation due to internal problems
 - a) turbine bearing vibration high problem attended
 - b) No ID margin/ ESP duct leakages problem attended
 - c) vacuum improved
 - d) boiler tube leakage is attended timely
- 5 Increase in boiler efficiency due to
 - a) Decreased unburnt in Fly Ash & Bottom Ash
 - b) coal quality improved
 - c) Decreased dry flue gas loss
 - d) Decreased moisture
 - e) incomplete combustion reduced

following reasons pertains to thermal power stations

- Fuel cost Decreased
- Specific fuel consumption Decreased
- Fuel transit loss Decreased