

P95 Heat Rate Maintenance Awareness

2-Day Seminar

Cost: \$475.00 includes all seminar fees and student text. (For on-site, call us for price quotes as course will be designed with your equipment).

As the utility industry transitions from a regulated to a competitive market, many companies are facing a shift in business practices to meet this new challenge.

It has long been recognized that maintaining power plant efficiency is not the responsibility of any one department. It requires the active involvement of Management, Operations, and Maintenance (I&E or Instrumentation, Electrical and Mechanical) Personnel. This seminar is designed to identify the role of Maintenance Technicians in maintaining and improving power plant heat rate.

The Role of Maintenance in Plant Efficiency

Maintaining a modern power plant in optimum condition is a challenging task requiring not only the dedicated efforts of Maintenance Technicians and I&C or I&E technicians, but the support of maintenance supervision and management as well. Plant systems have grown progressively complex over the years and fuel costs have followed an upward trend. As a result, the impact of equipment condition on plant efficiency has become a major concern. Maintenance technicians play a major role in ensuring efficient, safe and reliable plant operation.

As the cost of building new power plants escalates, more and more emphasis is being placed on improving the performance of older units. Plant performance parameters that degrade with age include heat rate and availability. By targeting heat rate and availability, improvement of not only the cost of electricity to consumers be reasonably controlled, but significant environmental benefits can be achieved. Improvements in availability provide additional generation potential which means more revenue for the utility. This in turn may delay the need for construction of additional power plants.

The maintenance department in a typical power plant carries out a program of preventive maintenance. This is an area where significant inputs can be obtained from plant performance data to outline an effective maintenance program. Such inputs can be used in several ways to benefit plant operation. For example, performance data may be used in preventive maintenance planning, predicting equipment maintenance or modification needs, and cost/benefit evaluations of maintenance projects. Typically, performance data may be trended to predict the condition of the turbine prior to an overhaul. This will allow critical parts/services to be ordered in advance to minimize the length of the outage.

Plant performance is normally taken to include both efficiency and availability of a plant. Performance related preventive maintenance may be defined as that maintenance which is expected to be regularly required to maintain efficiency, availability and capacity. Equipment degradation leads to a reduction in efficiency of the unit.

Some examples of efficiency related preventive maintenance include turbine/generator overhauls, inspection and checks of fuel supply system components, control system components, fuel burning equipment, instrumentation, fan blades, fan and pump motors, and steam traps and valves. The frequency and effort to be spent in carrying out any of these tasks is normally determined by experience and its economic impact.

Many of the preventive maintenance functions needed to maintain good unit heat rate have not been seen as being essential to plant operation. However, we will learn during this seminar that these activities are necessary to prevent partial de-ratings of the unit. For instance, a high condenser backpressure will not only result in higher unit heat rate, but may limit the maximum output of the unit as well.

The most critical role in improving plant heat rate and availability is played by maintenance personnel; craftsmen, technicians, and electricians. It is the primary responsibility of maintenance technicians to ensure that equipment is maintained in peak condition, and repairs are carried out expeditiously. Maintenance technicians should strive to restore components to a condition where impact on plant heat rate will be optimized along with reliability and maintenance costs. Constant awareness of the factors that contribute to equipment availability and efficiency will only enhance an effective maintenance program. It is the objective of this training program to identify plant components that impact heat rate.

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