



HEAT RATE OPTIMIZATION OPPORTUNITIES

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ABSTRACT

Heat generation at industrial boiler houses is extremely unstable. This is due to external air temperature parameters, which require a large capacity reserve. Evaluation of deviation in boiler house heat loads from average heat consumption throughout the year, one must conclude that generated heat either considerably exceeds or falls short of average consumption. These deviations from the average are a normal reaction to fluctuations in external air temperature and may be disregarded; however, in the long term, it is possible to work on balancing heat consumption demand between calendar months. Having analyzed this, the question arises about what impact the selection of boiler house capacity has on heat tariffs. A boiler house should be designed considering the peak load reserve, although this reserve is often so high that capacity would be sufficient for heating considerably larger areas. It would be failure to provide insufficient boiler house capacity for cold periods in winter, but how it impacts heat consumer. Consider the example of the traditionally more expensive heat energy source: natural gas. Failure to save on natural gas represents an enormous financial burden on the consumer. We will analyze the situation with a certain operating natural gas boiler house, evaluating expenses related to creating and operating this boiler house. Two more options will be considered – one where the capacity of the boiler house is reduced to the requirement for the current year, and one where the capacity will be selected after excluding the peak loads for a given year. The goal is to evaluate the amount overpaid by an ordinary heat consumer for the “excess” capacity in centralized heating networks based on expense positions which eventually contribute to the heat supply tariff. Based on expense data for the current boiler house, similar data will be sought for a reduced-capacity boiler houses.

Keywords: Heat rate, heat tariff