

# Energy and Exergy Analysis of a Captive Steam Powerplant

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Analysis for a 43 MW Captive Steam Powerplant | The fossil fuel stocks are limited and create pollution when consumed. We need to use them very rationally. Energy has quality as per second law of thermodynamics. Exergy analysis gives insight into quality of energy (exergy) lost in a given system. Exergy analysis focuses on magnitude and true location of energy loss. More effort need to be applied to place where there is more exergy destruction. This work is an energy and exergy analysis of a 43 MW captive cogeneration steam power plant at a chemical plant. The co-generation plant produces power and steam from turbine can be used for process heating. Energy and exergy analysis is carried out for all individual components of the plant like boiler, turbine, condenser etc. Major exergy destruction is seen in combustor and heat recovery system. Frequent soot blowing and excess air control are recommended to improve performance of this plant. This can improve boiler efficiency by 2.2% and also reduce environmental emissions significantly. It is recommended to operate plant at high maximum continuous rating (MCR) for higher exergy efficiency of turbine. | Format: Paperback | Language/Sprache:...



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