

ENERGY AUDIT

THERMAL POWER, COMBINED CYCLE,
AND COGENERATION PLANTS

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Foreword

The Intergovernmental Panel on Climate Change (IPCC) has identified the energy supply and industry sectors as major sources of greenhouse gas emissions, with the power sector accounting for a large share. As it happens, these sectors are also responsible for large-scale pollution at the local level. There is, therefore, a need worldwide for improving the efficiency of fuel use in thermal power plants not only for environmental reasons but also to enhance energy security, given the fact that supply of fossil fuels to meet the growing demand for power worldwide is facing major constraints right from mining to transportation and handling. However, there is generally a lack of practical knowledge on how existing power plants as well as those that are yet to be established can be subjected to detailed analysis of opportunities for improvement of fuel use in each unit.

This book on *Energy Audit: Thermal Power, Combined Cycle, and Cogeneration Plants* is an extremely insightful and useful publication that would provide those involved in the running of these power plants as well as others who are carrying out energy audits to assess opportunities for improvement of energy efficiency and arrive at the development of focused plans to make efficiency gains possible. A thermal power plant consists of several components where efficiency improvements are generally possible. This includes improvements in the heat rate, reduction in auxiliary power consumption as well as other measures which can only be assessed on the basis of a thorough and detailed energy audit. Most plants operating in India, in particular, are characterized by inefficiencies that deviate from design parameters. The pages of this book explore design concepts of thermal power generation, opportunities for cogeneration and a range of various energy conservation measures, and an evaluation of the economic aspects related to each one of them. In essence, energy audits support the finding that “what gets measured gets managed”. It is only on the basis of a proper energy audit that specific measures can be designed for improving the efficiency of thermal power plants. The application of the knowledge contained in this book, therefore, provides enormous potential and opportunities for improving the efficiency of individual

thermal power plants, which in the aggregate can lead to improvements in efficiency of the sector as a whole. This is, therefore, a publication of enormous practical value, but one that is based on sound knowledge and academic merit.



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